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REGIONAL CANCER CENTRE
TRIVANDRUM - 695 011, KERALA, INDIA

Z07930

REPORT OF ACTIVITIES 1993-94



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INTRODUCTION

The Regional Cancer Centre, Trivandrum had its beginning in the Trivandrum Medical College Hospital with limited facilities, in the year 1981. Due to rapid developmental activities, an acute dearth of space was felt and policy decisions were taken to construct new buildings. Now that 5 years have elapsed since this Centre has moved into the new premises, it will be quite appropriate to take stock of the activities of the Centre during this period. In the completed first phase building, accommodation was given to the Out-patient department, Research, Diagnostic services, Intensive care units and Surgical oncology departments and the Tumour registry. While the above services were being organised the construction of the second phase building was started and the Radiotherapy-cum-payward block was completed at a rapid speed. It is hoped that the entire second phase building will be completed by February, 1995. During the last 5 years, there was a 50 percent increase in the new case registration and during the year under report (1993-94) the number of new cases registered was 7263.

The new building has provided space for high technology investigative services in the Medical College campus itself and this is the fulfilment of a long-felt need. The introduction of RIA investigation, CT scanner, Gamma camera, Fast medical scanner, Mammography and Ultrasound with doppler has not only accorded better evaluation of the cancer cases, but also enhanced the overall quality in the diagnostic system in the Medical College Hospitals and SCTIMST and other hospitals and this in turn enhanced the quality of the medical education programmes in the campus.

There is an impression atleast among a few that all cancer patients have to pay for the services given to them in the Centre. This is far from truth and in fact nearly 60% patients receive free treatment and another 29 percent who come under the middle income group receive treatment at a moderate rate. Another expression of our regard and concern to the children is the provision of free chemotherapy to all irrespective of patient's income. Adults with curable cancers also receive free treatment. During the last 5 years, drugs worth Rs. 68 lakhs have been supplied free of cost to the low income group.

During the last 5 years, the budget of the Centre has almost doubled and there is an increase in the internal revenue as well. The internal revenue now meets one - fourth of the total expenditure of the Centre. However, the expenditure on salary has remained at less than 20% of the total expenditure which amply proves the development oriented management objective of the Centre. During the period under review, the total capital investment on equipment and building was Rs. 1024 lakhs and the following costly equipments were installed such as

- 1) Theratron 780C Cobalt unit (Rs. 100 lakhs)
- 2) Ultrasound with doppler (Rs. 45 lakhs)
- 3) Basic Gamma Camera (Rs. 30 lakhs)
- 4) CT Scanner (Rs. 137 lakhs)
- 5) Treatment Planning System & Water Phantom (Rs. 40 Lakhs)
- 6) Operation theatre equipment (Rs. 65 lakhs)
- 7) Computers (Rs. 20 lakhs)

Three operation theatres with all modern facilities were opened during this period. The Medical Oncology wards began functioning.

One significant achievement during this period was the introduction of Radioiodine therapy for which formerly the patients had to go upto Bombay and incur a lot of expenditure. The opening of new pay ward blocks by the Chief Minister of Kerala has fulfilled the long-felt need for special wards in the Centre. There are different types of rooms in this ward with rentals affordable to middle income groups and high income groups. We were able to provide exemplary nursing services in these special wards also.

A recent analysis of 5 year survivals of the common forms of cancer has shown that these are comparable with those of any centre in developed countries. Even if there are some deficiencies, these are due to late stage presentation of cases and non-availability of certain specialized forms of therapy which are expensive and less applicable at present.

This centre played a very commendable role in the field of community oncology services with cancer control and preventive

activities. The cancer control activities of the centre have been very well appreciated by several agencies especially the World Health Organization. The impact of the services could be seen in the early stage presentation of common cancers in Kerala. In the field of research enviable achievements have been attained and during this period nearly 370 research papers have been generated from this centre and many of them found place in the international journals. The extramural research grants have also registered a phenomenal increase during the last 5 years and we have mustered sizable grants from the Department of Atomic Energy and Department of Electronics and also from some foreign agencies.

This Centre has also focused on human resources development. More than 36 members of the faculty were given training in foreign countries. Facilities were given for participation in 300 national conferences, 14 WHO workshops and conferences. 5 workshops were conducted in this Centre with participation of international faculties. During the period 9 students received DMRT, 8 students MD in Radiotherapy and 5 students Ph.D. in Oncology from this Centre.

Palliative care and pain clinics were given due priority in this Centre and with the support of WHO, Georgetown University etc. several education programmes were organized. We were also successful in getting down and formulating morphine sulphate with the help of College of Pharmaceutical Sciences. Pain clinics were also conducted regularly and a Pain clinic and Palliative care division was also organised. Computerization work on out-patient department, patient data management, accounting, clinical research and pharmacy and stores were also completed.

Consequent upon the winding up of the Cancer Care for Life (CCL) Scheme of Rs. 101/- per policy holder, a new CCL project of Rs. 500/- was launched during the period under report. So far nearly 410 members have been beneficiaries under CCL Scheme and an amount of Rs. 28,50,000 has been spent for them.

Our successful performance has been mainly due to the encouragement given by the Hon. Chief Minister and the Hon. Health Minister and other members of the Governing Body and Executive Committee and the dedicated services rendered by the staff.

DEPARTMENTAL ACTIVITIES

DIVISION OF RADIOTHERAPY

Dr. M. Krishnan Nair	Director & Professor
Dr. N. Balakrishnan Nair	Professor
Dr. F. Joseph	Professor
Dr. B. Rajan	Assoc. Professor
Dr. T. Gangadevi	Assoc. Professor
Dr. Suresh Chandra Dutt	Assoc. Professor (on leave)
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	Asst. 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 has two units which are responsible for primary care of cancer patients attending this Centre. This division also closely interacts with other divisions in the Centre in patient care, academic activities and cancer research and also functions as teaching department to Medical College, Trivandrum for both postgraduate and undergraduate training programmes. Strengthening of the staff position and induction of new treatment facilities have gone a long way in improving the quality of the work.

The outpatient department works 6 days a week. Regular combined tumour clinics are conducted 4 days a week. The speciality clinics are conducted as follows:

Paediatric Oncology	Every Monday
Trophoblastic diseases clinic	Every Wednesday

Gastroenterology Tumour Board	1st Thursday of every month
Surgery Tumour Board	3rd Saturday of every month
Gynaecology Tumour Board	3rd Thursday of every month.

Peripheral follow up clinics are conducted at Ernakulam (E.C.D.C.) On third Saturday of every month and another at Karunagappally on 3rd Thursdays.

Journal Club is conducted every Tuesday morning and symposia are conducted every Friday morning. During this year the clinical activities have improved considerably. 5 guest lectures were conducted for the benefit of Post Graduate students and under graduate students and all these guests were from outside India. This department also has taken up major projects to establish prognostic factors involved in certain cancers like Carcinoma Cervix etc.

A clinical radiobiology research programme has been set and Dr.V. Narayana Bhattathiri, Assoc.Professor is in overall charge of the same. Its main objective is to promote original basic and applied research in Radiobiology. The activities are in progress.

Clinical data

1. Total number of new patients	7263
2. Review cases	56519
3. Total patients visits	63782
4. Number of inpatient admissions	4579
5. " " Patients who had teletherapy	5597
6. " " " brachytherapy	545
7. " " selectron cases	391
8. " " manual after loading for gynaecological malignancies	35
9. ICR for carcinoma oesophagus	27
10. Mould treatment	2
11. Interstitial implant	90

The Radiotherapy Division is functioning as the academic unit attached to the Medical College, Trivandrum. Every year this Centre admits 2 candidates for MD Radiotherapy and another 2.

candidates for DMRT and also this is an approved centre for Dip. NB (Radiotherapy)

List of PG Students

1. Dr. Joseph Edison	for MD Radio therapy
2. Dr. Beela Sarah Mathew	"
3. Dr. Ajith Kumar T.V	"
4. Dr. Sivanandan	"
5. Dr. Aswin Kumar	"
6. Dr. Shereen Satheesh	for DMRT
7. Dr. Indumathy K.V.	"
8. Dr. Sankar Ram. R.	"
9. Dr. Ashok. K	"

This division is involved in the undergraduate and various other post graduate training programmes of the Medical College and Dental College, Trivandrum and also conducts training/ teaching programme for CRA students.

Dr. M. Krishnan Nair received two prestigious awards viz. No Tobacco Award by Anti Narcotic Council and Leadership Award by Trivandrum Management Association, this year. He has also attended many international and national meetings (list attached). Dr. N. Balakrishnan Nair has attended the Indo Japanese Symposium on Radiosensitisers at Bangalore.

Dr. B. Rajan and Dr. T. Gangadevi have attended training programmes in U.K. and in the United States respectively. Dr. Gangadevi participated in three short term research projects and Co-authored two papers. Dr. Ratheesan and Dr. K. Ramadas are undergoing training in Brachytherapy at Washington and San Francisco respectively. Dr. B. Rajan was awarded the UICC fellowship for training in Stereotactic Radiotherapy in the Dept. of Neuro Oncology, Royal Marsden Hospital, London from April 1993 December 1993.

The new pay ward block and installation of a new Theratron 780 C machine and computerized TPS have improved the efficacy of the department of radiotherapy considerably.

*Conferences Attended / See section III.
List of papers published / See section IV.*

DIVISION OF SURGICAL ONCOLOGY

Dr. Thomas Cherian	Associate Professor (on leave)
Dr. Gladys Jeevy	Associate Professor
Dr. Paul Sebastian	Associate Professor
Dr. M Iqbal Ahamed	Assistant Professor (on leave)
Dr. Chitrathara K.	Assistant Professor
Dr. Rachel Cherian Koshy	Assistant Professor
Dr. Santhosh John Abraham	Lecturer (on leave)
Dr. D.K. Vijaykumar	Lecturer (on leave)
Dr. Jem Prabhakar	Lecturer
Dr. Berrylson Edward	Lecturer

The opening of the new surgical theatre and wards has resulted in a significant expansion of the activities of this division. There was a 42% increase in number of radical ablative surgeries done. Major upper GI and colorectal operations were started in this centre and also Gynaecological services and endoscopy services. The peri operative mortality as in earlier years was none. There were only 2 post operative deaths inspite of the increased number of operations done. A major improvement has been a significant reduction in the use of antibiotics post operatively.

Activities

During the reporting year 1238 surgical procedures were done of which 582 were major radical operations.

TABLE - 1

Surgical Procedures

Major operations	582
Minor operations	656
Total	<u>1238</u>

TABLE - 2

Surgical procedures - distribution by region

Region	No.	Percent
Head and Neck cancers	377	64.8
Breast cancer	72	12.4
Abdominal tumours	20	3.4
Genito urinary cancers	72	12.4
Bone and soft tissue tumours	21	3.6
Skin cancers	20	3.4
Total	582	100

Head and neck cancers

Head and neck cancers constituted the major work of this division of which salvage of oral cancers who failed with radiotherapy formed the largest group. The emphasis as in earlier years was in conservation procedures (without compromising cure) aimed at better rehabilitation. A significant number of revision thyroidectomies were also performed

TABLE - 3

Head and neck cancers - distribution by site

Site	No.	Percentage
Tongue	113	39.0
Buccal mucosa	93	32.1
Lower alveolus	43	14.8
Upper alveolus	14	4.8
Floor of mouth	12	4.1
Lip	15	5.2

Breast Cancer

Patey's mastectomy was the standard procedure done for carcinoma breast. Breast conservation procedures were also done in a few selected patients.

TABLE - 5
Carcinoma breast

	No.
Patey's mastectomy	68
Breast Conservation procedures	4
Total	72

Abdomen

TABLE - 6
Abdominal Operations

Procedure	No.
Gastrectomy	2
Hemicolectomy	1
Total Proctocolectomy	1
Abdominoperineal resection	4
Anterior resection	1
Retroperitoneal tumour excision	1
Defunctioning colostomy	5
Exploratory laparotomy	5

Genito Urinary Cancers

Carcinoma Penis	9
Ilio inguinal node dissection	6

Bone and Soft tissue tumours

Soft tissue sarcoma	17
Bone tumours	4

Gynaecological Oncology

Gynaec oncology service was started this year. 57 major operations were done in this service as detailed in Table - 7.

TABLE - 7

Carcinoma Cervix	33
Wertheim's hysterectomy	2
Modified Wertheim's hysterectomy	6
Anterior exenteration with ileal conduit	2
Posterlor exenteration	1
Bilateral salphingo oophorectomy	
+ Vaginal cuff	7
Bilateral salphingo oophorectomy	7
Subtotal hysterectomy	2
Vaginal hysterectomy	1
Conization	5

Carcinoma Ovary

	19
Debulking Procedures	
Optimal	4
Sub optimal	3
BOSH + Infracolic Omentectomy	12

Carcinoma Vulva

TABLE 8	
Reconstructive Procedures	
Flap	No.
Pectoralis major myocutaneous	85
Sternomastoid myocutaneous	6
Latissimus dorsi myocutaneous	1
Platysma myocutaneous	5
Tensor fascia lata myocutaneous	2
TRAM	1
Nasolabial	32
Delto Pectoral	2

Tongue	9
Local	10
Total -	153

Teaching and Training

Post graduate students in Oral and Maxillofacial Surgery from Dental Colleges of Trivandrum and Calicut were trained for a period of one month each. Regular journal clubs and symposia were conducted in this division. This division also took part in all the academic activities of the Institution.

International Workshop on New Approaches in Pain Management

This workshop, sponsored by Georgetown University, Washington, USA and the Regional Cancer Centre, Trivandrum was conducted by the faculty of Georgetown University Hospital under the guidance of Professor David E. Lees from 19th July, 1993 to 23rd July, 1993. About 55 specialist doctors from all over Kerala were trained in new invasive techniques of pain control by means of lectures as well as live demonstrations.

Research Programme

1. STEC funded project "Evaluation of speculum examination and single Pap Smear in a high risk population" (Chief Investigator Dr. K. Chitrathara) is in progress.
2. S.G. Pharmaceuticals funded "Double blind randomized study comprising Tramadol with Pentacozine" (Chief investigator Dr. Paul Sebastian) was completed
3. HPV. Project at Kazhakuttam

Dr. Chitrathara is one of the clinical investigators.

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

*Conferences See Section III
Publications - See Section IV*



His Excellency the Governor of Kerala Sri. B. Rachaiah inaugurated the XXII Annual Conference of the Indian Academy of Cytologists on 29/01/1994 at the R.C.C. Also seen are Dr. M. Krishnan Nair, Shri. Gopal Krishna Pillai, Secretary (Health & FW), Dr. N. Sreedevi Amma and Dr. M. A. Aleykully.



Hon'ble Chief Minister Sri. K. Karunakaran inaugurated the new pay ward block of the Regional Cancer Centre in the presence of Dr. P.K. Iyengar, Sri. R. Ramachandran Nair, Health Minister, Dr. M. Krishnan Nair and Sri. M. Vijayakumar, M.L.A.



Dr. P. K. Iyengar inaugurated the new Radiotherapy Block of the Regional Cancer Centre in the presence of Hon. ble Chief Minister Sri. K. Karunakaran, Health Minister Sri. R. Ramachandran Nair and Sri. A. Charles, MP.



Sri. K. Karunakaran, Chief Minister inaugurated the workshop on New Approaches in Pain Management in July, 1993. Also seen are Dr. M. Krishnan Nair, Dr. David E. Lees, Sri. R. Ramachandran Nair, Health Minister and Dr.

DIVISION OF PAEDIATRIC ONCOLOGY

Dr. P. Kusuma Kumari
Dr. Geetha

Assoc. Professor
Lecturer (on leave)

The Paediatric Oncology as a separate division had been started in this Centre and has amply proved its justification because of the high cure rates attained. There has been a remarkable change over the years in outlook for paediatric malignancies and the object of treatment has shifted from palliation to cure. Even though we are facing problems like any other developing country, strategies were evolved to work with limited facilities and resources and every effort has been made to deliver the optimal treatment to all patients.

As in previous years this division imparted primary care to all children under 15 years.

Clinical activities

No. of new patients	320
No. of out-patient visits	5575
No. of admissions	212

The outpatient services function on a referral basis 6 days a week. The number of new cases registered this year showed a 20% increase. This may be due to better referral pattern. Pattern of malignancies reported this year was as follows.

Type	No.	%
1. Leukaemia	115	35.9
2. Brain tumors	50	15.6
3. Lymphomas	24	7.5
4. Bone tumors	20	6.3
5. Retinoblastoma	17	5.3
6. Soft tissue sarcoma	13	4.1
7. Neuroblastoma	12	3.8
8. Wilm's tumor	11	3.4

9. Germ Cell tumors	8	2.5
10. Hepatic tumors	8	2.5
11. Carcinomas	7	2.2
12. Miscellaneous	35	10.9

As in previous years this year also leukaemia topped all malignancies accounting for 36% Brain tumors formed about 16% which is slightly higher than last year. Majority of the other tumors followed a static pattern.

A detailed examination and diagnostic work up was done for all the patients and appropriate treatment offered. All the childhood malignancies are treated with a curative intent, using multimodality treatment approach. Protocol based treatment schedules are adopted for all childhood cancers. Lymphoreticular malignancies are primarily treated with combination chemotherapy- e.g. for ALL, the NCI protocol is being followed. For Paediatric solid tumours, currently accepted protocols are used, like NWTS IV for Wilms tumour, IRS II for RMS, St. Judes for neuroblastoma. These are the protocols adopted in this division. This year also Paediatric tumor board was conducted weekly in which the Paediatric oncologist, Paediatric surgeon, Paediatric pathologist, Radiation oncologist and radio diagnostician actively participated in the activities of this division.

Academic activities

The division actively participates in the teaching and training programme of undergraduate and post graduate students of Medical College, Trivandrum. One Paediatric M.D. student of Medical College is posted in this division every month.

Research Programme - Dr. Kusumakumary is a co-investigator of I.C.M.R. project - "Childhood cancer - parental occupation and electromagnetic field."

Conferences & List of papers See chapter III, IV

DIVISION OF MEDICAL ONCOLOGY

Dr. V.P. Gangadharan

Assistant Professor

Dr. N. Geetha

Lecturer (on leave)

Medical Oncology division conducts patient clinics on all days except Sundays. Nearly 1200 new cases and 10,000 review cases were attended to by this division. It also handles all cases of adult leukaemias and lymphomas. Solid tumours where aggressive chemotherapy is warranted like osteosarcoma, germ cell tumours etc. are also handled by this division.

In - patient care has been rendered for about 1500 patients. All medical emergencies and neutropenic sepsis are managed in the Intensive Care Unit ward attached to the main medical oncology ward. Medical Oncology team is fully equipped to handle any high profile, aggressive chemotherapy. We have been able to achieve comparable standards in curable malignancies.

Academic activity

This division is actively involved in the teaching programme of medical and para medical students. Medical undergraduates taught the basics of medical oncology and the post graduates in general medicine and radiotherapy are trained in the finer aspects of this speciality. The nursing staff of this division are given in - service training programmes. B.Sc. Nursing students are programmed for the nursing care of the immuno-compromised and the neutropenic patients.

The randomised trial CHOP vs CNOP in diffuse aggressive Non Hodgkin's Lymphoma has been concluded and the results are analysed. The prospective studies - Prognostic factors in Multiple Myeloma and the cytogenetic response of Chronic Myeloid Leukaemia to alpha 2 Interferon are in progress.

We have conducted a pilot study on the efficacy of the new anti fungal agent Fluconazole in the febrile neutropenic patients.

Based on this, Dr. V.P. Gangadharan represented India for the Asian experts panel on Anti fungal agents at Adelaide, Australia on March 15, 1994.

Our division had the opportunity to use GM-CSF as a pilot study to evaluate the efficacy and toxicity of the drug. This study was completed and results analysed.

Publications See section IV

DENTAL WING

Dr. K.R. Nalinakumari

Lecturer

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

Highlights of Activities

(A) During the year under report the Dental Wing was engaged in the following important 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 outpatients as well as inpatients. The outpatients 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	3257
(b) Of which - new cases	695
(c) No. of Biopsies	579
(d) No. of biteblocks and moulds prepared	83
(e) Supplementary registered cases.	8
(f) Early Cancer detection camps	7
(f) Cancer Detection & Preventive Clinic	4
(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.

Total number of Biopsies taken - 579

Name of site	No. of cases	Percentage to total
1. Left Buccal Mucosa	125	21.59
2. Right Buccal Mucosa	85	14.68
3. Right border of tongue	49	8.46
4. Dorsum of tongue	38	6.56
5. Right commissure	32	5.53
6. Hard palate	31	5.35
7. Left Border tongue	31	5.35
8. Left Retromolar Region	24	4.15
9. Floor of mouth	22	3.80
10. Left lower alveolus	19	3.28
11. Right lower alveolus	16	2.76
12. Right retromolar region	16	2.76
13. Lower lip	16	2.76
14. Left Commissure	15	2.59
15. Left upper alveolus	13	2.25
16. Right lower sulcus	13	2.25
17. Left lower sulcus	11	1.90
18. Right upper alveolus	6	1.04
19. Left upper sulcus	5	0.90
20. Right upper sulcus	4	0.69
21. Upper lip	4	0.69
22. Under surface of tongue	2	0.35
23. Soft Palate	2	0.35

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 the following papers by these two departments.

Conference/Training See section III
Publications See Section IV

MEDICAL RECORDS AND CLINICAL SERVICES

R. Raveendran Nair

Medical Records & Clinical
Service Officer

The activities regarding the preparation, maintenance and retrieval of records and patient related services are handled. The primary objective is to 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.

- Medical record assembling
- New case registration and income assessment - This is managed with the support of tumour registry and computer division.
- Patient identity card preparation (Bradma)
- Information
- Telephone Operation
- Follow up
- Inpatient Appointment scheduling
- Admission & Discharge
- Death reporting
- Railway concession
- Issue of reports, certificates etc.
- Patient billing & Payment receiving
- 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.
- Store & Pharmacy
- 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 utilized for patient services, cancer registry operation, academic and research activities and administrative purposes. At present this section is handling more than 7200 individual new patients records annually. Their proper filing is the major problem of this section at present.

From 02.03.1993 onwards this section is handling all works related to pay ward booking and its allotment. Compared with previous year the workload in number is stable and quality of work has increased considerably.

The following data will reflect on the magnitude of activities of the division

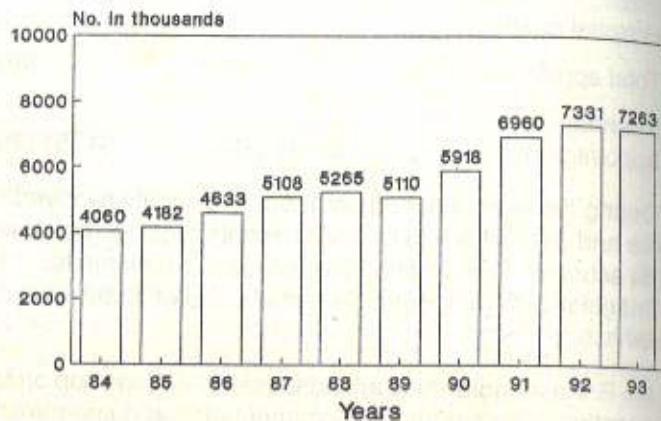
	Current year	Last year
Total new cases registered	7263	7331
Review cases at RCC	53085	53027
Follow-up clinic at E.C.D.C.	1508	1378
Trophoblastic clinic	1926	2142
Total patient visits (old & new)	63782	63878
Daily average patient visits	213	213
Average attendance per patient	9	9

Number of inpatient admissions	4539	3953
Number of inpatient discharge	4558	3430
Average length of stay	16	12
Hospital death	274	235
Total appointment given	55529	40211
Attendance from appointment	45534 (82%)	31751 (79%)

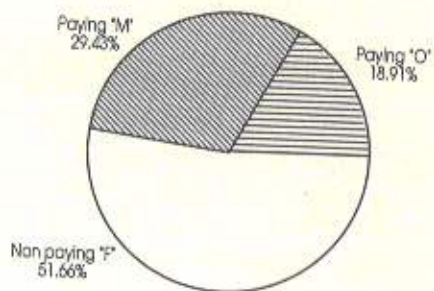
During the year under report 115 new patients received CCL benefits and 311 CR & 923 non CR patients received benefits under ESI scheme. This section also helped the patients for obtaining financial aid from Prime Minister's Relief Fund and other sources.

Mr. R. Raveendran Nair attended National Workshop on Medical Education, Trivandrum for "Documentation and information" in the session on 'Institutional Record Keeping.'

DIAGRAM SHOWING THE NUMBER OF PATIENTS REGISTERED DURING THE LAST 10 YEARS - (1984 - 1993)



PERCENTAGE OF PAYING & NON PAYING CASES FOR THE YEAR 1993



DIVISION OF NURSING SERVICES

Sr. Vijaya
Smt. Flower Augustine

Chief Nursing Officer
Nursing Superintendent

During the year under report, the Nursing division has been provided with the full complement of staff. Services of the nursing staff are utilized in Outpatient Departments including Clinical Laboratory & Blood Bank, Imageology Division, Medical Oncology Division, Operation Theatre, Surgical Oncology, Chemotherapy, Pay ward and Inpatients ward in the old block. With the increase in bed strength of the pay ward, the staff position has improved satisfactorily.

Activities

In the out-patient department, including Clinical laboratory and Blood Bank there are 4 staff nurses, Head nurse, 3 Nursing Assistants, 2 Seva attenders and 2 male helpers to assist the doctors in daily general clinic. Daily an average of 300 patients attend the out-patient clinics. The nurses and nursing assistants are engaged in giving guidance and help to patients and bystanders, beside assisting in procedures like pleural tapping, peritoneal tapping, dressings, suture removal, bone marrow biopsy, bone marrow aspiration and lumbar puncture.

In the Imageology division there are 2 nurses and 2 Nursing Assistants to assist doctors for CT scan, Ultrasonography and Thyroid function tests. They also engage in giving health education to patient and family.

The Chemotherapy Day Care Unit caters to an average of 60-70 patients for chemotherapy daily. Nurses, assisted by Seva attenders, manage this unit. The unit functions from 8 am to 6 pm.

In the inpatient wards of RCC, a three shift duty pattern is being followed. This is spread over the Medical Oncology, Surgical Oncology, Radioiodine units and the cancer wards in the old building. Much stress is given to keep the nursing standard and quality patient care.

The Medical Oncology, consists of ICU (3 beds) and wards (16 beds). Nurses care for patients with acute and chronic leukemia, lymphoma, solid tumours, osteosarcoma, germ cell tumour, ca cervix,

with aggressive chemotherapy and palliative care. Regular inservice education is conducted in this unit on the above topics and the care of patient with such condition.

The Surgical Oncology consists of operation theatre, pre operative area, ICU (3 beds) and wards (16 beds). In the operation theatre, the nurses work in two shifts and in the wards in 3 shifts. During the year under report, the unit has been fully occupied with a variety of major cases – Anterio posterior resection, maxillectomy, thyroidectomy, oesophageo-gastrectomy. A.K./B.K. amputation and so on. In the absence of bystanders the Nurses have major responsibility in taking care of all the aspects of patient care, after surgery of head, neck, breast and abdomen. A variety of nurses records have been under trial within the unit.

The Pay Ward Block was opened very recently. The patients are distributed in 4 floors. The nurses and nursing assistants are working in 3 shifts. With the existing facilities many terminally ill patients are also admitted.

The I.P. wards in old block cater to all types of cancer patients for investigation and treatment. The patients get services rendered jointly by Medical College Hospital and Regional Cancer Centre nursing staff. Our services are also extended to the Selectron unit.

The Paediatric Oncology still occupies a unique place in the old building and is fully managed by RCC nursing staff. Children with leukaemia, lymphoma, neuro blastoma, Wilm tumour, Soft tissue sarcoma, CNS tumours are cared for by the nursing staff. The unit is expected to be shifted to the new block shortly.

Palliative care is mainly rendered in the pain clinic. One nurse is exclusively posted in the pain clinic. There are seven nurses undergoing an informal training on palliative care and all of them gets training in this clinic in turn. They also look after patients who need palliative care admitted all over the hospital by regular visits, health education, and by giving complementary therapy. Once a week one or two of them visit patients admitted in different charity centres in the city.

Radio Iodine therapy unit consists of 6 beds for the radioiodine therapy. Nurses are on call to the unit through a hot line system. Special precautions are taken to safeguard the personnel

who attend these patients and decontaminate the articles and waste products.

Complementary therapies were applied for patients on palliative care such as, psychological counselling, foot massage radiation therapy lymphedema, massage etc.

Teaching and Training

Regular inservice education programmes are arranged in the form of monthly staff meeting. This is a forum for discussion on routine duties, problems as well as for academic inputs on various cancer topics.

Classes and clinical teachings are also arranged in the Units by the respective Doctors and the nursing staff on current patient problems of the unit. A one week orientation programme is arranged for nurses when they join in groups on permanent basis. A two day programme was arranged on the state level for nurses of all categories in palliative care in honour of the visit of Ms. Gilly Burn, Project Co-ordinator and Consultant Cancer Relief India. A total of 40 nurses attended the same. Ms. Lesely Duff, Research & Development Officer, Royal College of Nursing has visited RCC for a follow up study on Standard Setting in Nursing Care from 9-11 Nov. 1993 to evaluate the progress on the Dynamic Quality Improvement Programme of Nursing Care by setting standards of care. A zonal meeting of the Trained Nurses Association of India, Trivandrum Branch was arranged on this occasion and about 100 nurses participated in it.

One day training programme on Palliative Care was conducted by Ms. Gilly Burn & Sr. Vijaya for the nursing staff in RCC, for the B.Sc. Nursing students & staff of College of Nursing, Trivandrum for the B.S.c (Nursing) students of College of Nursing, Kottayam and for the staff at Sevagram, Thalayolaparambu, Kottayam. Training in various aspects of cancer diagnostic measures, treatment modalities, care of patients with various types of cancer and palliative care were imparted to BSc. Nursing, MSc Nursing and General Nursing trainees from different schools and colleges of Kerala and other States.

*Papers Presented/Conferences/ Training attended etc.
See section III & IV*

DIVISION OF PAIN & PALLIATIVE CARE

Dr. Vasudevan Mappat

Associate Professor

Palliative Care is active total care of patients and their families at a time when the disease is no longer responsive to curative treatment. Statistics indicate that the number of cancer patients is rising every year. Early detection and cure is possible only in 30% of cancer patients. Remaining 70% necessarily need palliative care. 30-50% cancer patients have pain from the very beginning. 70-90% with advanced disease invariably have pain. Pain relief therefore assumes a prime place in palliative care programmes. Pain clinic was conducted on Thursdays till the end of March, 1993. From June 1993, Pain Clinic is conducted every day (6 days a week). If necessary, patients were admitted to control severe pain and titrate the dose of morphine

Highlights of the activities

Total number of new patients seen (about 90% increase from last year)	1062
WHO Step I = 94 cases	8.9 %
WHO Step II = 274 cases	25.8 %
WHO Step III = 694 cases	65.4 %

Out patient Palliative clinics are conducted on all days of the week except Sunday.

The staff visit the wards if inpatients need pain management and other symptom control. Smt. P.T. Latha, Social Investigator gives counselling instructions for problem patients whenever necessary. We supply morphine tablets to Calicut Medical College as a part of expansion of activities. We are getting the support of College of Pharmaceutical Sciences, Trivandrum for formulating and packing liquid morphine which is being supplied to needy patients. Dr. Gladys Jeevi, Dr. Thomas Koilparambil, Dr. Francis V. James and Dr. Paul Sebastian and Sr. Vijaya are closely associated with the activities of this division.



Dr. K. Vinayakom, Dr. M. V. Pillai, Dr. Teresa Ulrey and Mrs Karen Colton participating in the workshop on New Approaches in Pain Management, 19-23 July, 1993.



Field work of the Division of Cancer Epidemiology in progress - Human Papilloma Virus and Cervical Cancer Project, Kazhakuttom, Trivandrum.

Teaching and Training Activities

This division imparts teaching and training to nurses posted in palliative care, medical officers and medical students and social workers.

One day workshop on palliative care was conducted by Dr. Robert Twycross from Oxford on 18/1/1994. One day training programme under the leadership of Ms. Gilly Burn of WHO was also conducted for the nursing staff and students.

Mainly due to the sincere support of Hon. Chief Minister of Kerala, Sri K. Karunakaran, we were able to conduct a workshop on "Pain and its management" from 19-23 July, 1993 and the same was inaugurated by the Chief Minister. Faculty of anaesthesiology, George Town University, U.S.A. headed by Prof. Reis and Dr. Vinayakom, Dr.M.V.Pillai were lead persons.

Dr. Vasudevan Mappat had a very useful training course in U.K. on Palliative Care conducted in collaboration with the International School of Cancer Care, Oxford, Macmillan Fund and W.H.O. from 10th Sept. to 20th November, 1993. He also attended the Palliative Care Research Forum at Westminster Medical School in November, 1993.

Conferences/ Training See section III

DIVISION OF BLOOD BANK

Dr. Basanti Nair

Dr. Sudha Raveendran

Dr. Kusumam .K.

Sri Meera Sahib.P.

Blood Bank Officer (relieved
on 4/12/1993)

Blood Bank Officer

Medical Officer

Technical Assistant

The Regional Cancer Centre has one of the modern, fully equipped blood banks in the country. This was inaugurated by Sri R. Ramachandran Nair, Hon. Minister for Health, Kerala in a meeting presided over by Dr. R. Ananthanarayanan, Former Principal, Medical College Kottayam on the 26th June, 1993. The Blood Bank started functioning by the end of July on 27/7/1993. Initially only the requirements for whole blood were met with. Subsequently after acquiring more sophisticated equipment, component preparation was also started on the 3rd of November. The refrigerated centrifuge is used for the separation of the plasma components. A platelet incubator and agitator, the only one of its kind in Kerala, is available which facilitates storage of the separated platelets up to 72 hours. Plasma or as single donor frozen plasma is stored in the deep freezer to be supplied as fresh frozen plasma. Autologous transfusions have been undertaken occasionally for surgical patients in collaboration with the anaesthetists.

Activities

The Blood Bank functions from 9.00 AM to 4.00 PM six days a week. The donors are grouped and screened for HIV-1, Hepatitis B and syphilis. Cross matched blood is routinely issued within 2 hours of request. Blood components are stored after preparation and are made available even at short notice. Emergency requirements outside working hours and on holidays are met with by technicians posted for duty. Blood components are supplied to other centres on payment.

The following blood grouping camps were conducted:
26.9.93 - 1st blood grouping camp at Kochuveli from 10.30 AM to 1 PM. 123 people were grouped.

23.11.93 - grouping camp at St. Vincent's Seminary, Kazhakkootam where 32 people were grouped.

4. 2. 1994 - Camp at St. Mary's Church, Vizhinjam where 106 people were grouped.

Voluntary Blood Donation

Lioness Club of Trivandrum registered 11 donors at the Blood Bank, 4 of them donated blood.

BLOOD BANK STATISTICS

28/7/1993 to 31/3/ 1994

Grouping	10310
Blood Donors	2505
Cross matching	2905
HBI Ag done	2505
HBI Ag +ve reports	44
HIV - 1 (donors) done	2505
HIV -1+ ve (donors)	5
HIV - 1 (patients)	106
HIV -1 positive	7

Components Prepared

Total PRP	714
Total SDP	136
Total FFP	102
Total PRC	714

DIVISION OF CYTOPATHOLOGY

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

This division assists in the overall management of patients by giving the microscopic diagnosis after examining various materials by cytological or histopathological methods. An important feature during the year under report is the introduction of CT and ultrasound guided fine needle aspirations which added to the microscopic confirmation of various deep seated tumours in the mediastinum, retroperitoneum etc. Besides the routine diagnostic services. This division also participated in various community oriented cancer control activities by providing cervical smear and FNAC facilities, in various cancer detection camps. In the academic field this year we got the honour to host and organise the XXIII Annual Conference of Indian Academy of Cytologists in which 211 registered delegates from all over India participated and 65 papers on different aspects of cytology were presented and discussed. His Excellency Sri B. Rachiah, Governor of Kerala inaugurated the conference at a function presided over by Sri Gopal Krishna Pillai, Secretary to Govt., Health & Family Welfare Department. Dr. Gladwyn Leiman of South African School of Research, Johannesburg was the chief guest. There was a pre-conference workshop on "Effusion & Fluid Cytology" which was attended by 55 registered delegates.

Highlights of Activities

Workload at a Glance

(1993-94)

Cytology	No. of cases	Histopathology	No. of cases
Cervical smears	6741		
FNAC	6500		
Body Fluids & urine	881	Surgical specimens	2800
Bone Marrow	1256	Review slides	1170
Sputum	623		
Total	16001		3970
Total of 1992-93 (for comparison)	7993		3886

Routine diagnostic services included gynaec cytology, cytology of body fluids, sputum, FNACs, peripheral smear and Bone marrow examination and histopathology of surgical specimens. In addition to this, review of HP slides of patients referred from other centres constituted a major workload.

Gynaec Cytology

Cervical smears were examined from 6741 women out of which 4086 were from various projects, 450 from community oriented cancer detection camps and 2205 from women who have attended the centre.

Besides diagnosing many inflammatory conditions the following premalignant and malignant lesions were diagnosed.

Premalignant lesions (dysplasias)	579
Carcinoma in situ	23
Invasive carcinoma	47

Non Gynaec and Aspiration cytology

7381 samples of fluids and FNACs were obtained from almost all sites, but the major sites were thyroid, lymphnode, breast, liver and bone. Quite a good number of ultrasound or CT guided FNACs were also obtained from Lung, Liver and Mediastinum.

Bone Marrow Aspirations and Imprint Smears

Bone marrow samples including imprint smears were examined from 1256 cases which was 118 cases more than that of the previous year. On an average at least 4 smears have to be screened from each case and the workload comes to screening more than 5000 smears. 209 cases of acute leukaemias were diagnosed. The majority being ALL (106 causes). Myeloperoxidase, PAS and non-specific esterase stains were done to differentiate acute leukaemias. 51.8% of Marrow samples (117/226) from NHL cases showed Bone Marrow infiltration. Rare lesions diagnosed were: one case of Hairy cell leukaemia, 4 cases of Myelodysplastic syndromes and 3 cases of ITP.

Sputum Cytology

Sputum samples for malignant cells were examined from 623 cases collecting 3 to 5 or more early morning samples from each case. 40 cases of malignancies were reported from these.

Histopathology

Histopathologic examination was done in 3970 samples which included review slides from other centres from where patients were referred to this centre after biopsy/surgery for further management. The number of slides examined from each case varied between 1-15 or more and the total slides examined may be at least 3-4 times more than the total number of cases. Altogether 2862 malignancies were reported which included both primary and metastatic lesions. Surgical specimens were obtained from almost all sites of the body but the predominant sites were Oral cavity and Pharynx (1007) Bone marrow (681) Lymphnode (573) Female genital tract (515) Female breast (300) Thyroid (129) Connective tissue (123) and GIT (108)

Some of the rare lesions reported include six cases of spindle cell carcinoma of oral and nasal cavity, five cases of lymphomas of GIT, 2 cases of lymphoma ovary, 3 cases of lymphoma thyroid, two cases of mediastinal seminomas and one case each of melanoma of the lip, carcinoid of colon, Bronchiolo alveolar carcinoma, Hairy cell leukaemia, Endometrial stromal sarcoma, malignant mesothelioma of testis and Hurthle cell Carcinoma of thyroid.

Teaching & Training

Full time training courses of 6 months and 1 year duration were conducted for cytotechnicians and cytotechnologists respectively. Service candidates sponsored under ICMR fellowship were also given training in the above courses as this is an accredited centre of IAC for diagnosis, training and examination purposes.

Besides this the division is also involved in the teaching and training programme of the Medical College, Trivandrum and gave training to B.Sc MLT and DMLT students and House Surgeons posted to the Division. The staff of this division had also participated in the training of various categories of staff for the district cancer control programme and also in the WHO assisted project of House Surgeons training for Cancer Control.

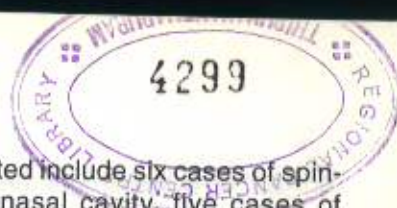
Research Programme

The staff of this centre gave assistance and support to various extramurally funded projects viz HPV project, NBRR Project. House Surgeons training programme for Cancer Control and "Immunobiology of trophoblastic tumours."

K. Raveendran Pillai, Cytotechnologist submitted a thesis to the University of Kerala for the award of PhD based on his research work on cytological and biochemical investigations in oral cancer.

Awards and Honors

Sri. K. Raveendran Pillai received "Dr. Satya Monga Award" 1993 of Indian Academy of Cytologists for the best published paper in the field of immunocytochemistry.



Sri. K. Sujathan got the "Jwaladevi Award" 1993 of Indian Academy of Cytologists, for the best paper presented by Cytotechnologists.

Association with professional bodies

Dr. N. Sreedevi Amma

1. Treasurer of Indian Academy of Cytologists.
2. Member of accreditation and examination committee (Cytology) of IAC.
3. Member subcommittee for human resource development in cytology in India.
4. Organizing Secretary of XXIII Annual Conference of IAC.
5. Member of Indian Academy of Pathologists and Microbiologists.

Dr. B. Chandralekha

1. Member of Executive committee of Indian academy of cytologists.
2. Member of Indian Association of pathologists and Microbiologists.
3. Treasurer of XXIII Annual Conference of IAC.

Dr. Elizabeth K. Abraham

1. Member of Review Committee of Indian Journal of Medical Research.
2. Member of Indian Association of Pathologists and Microbiologists.
3. Member of Indian Academy of Cytologists.
4. In charge of Scientific Committee of the XXIII Annual Conference of IAC.

Dr. Rajasekharan Pillai

1. Member of Indian Association of Pathologists and Microbiologists.

2. Joint Organizing Secretary of the XXIII Annual Conference of IAC.

Dr. Jayasree, K

1. Member of Indian division of International Academy of Pathology.
2. Member of Indian Academy of Cytologists.
3. Member IAPM Kerala Chapter.
4. Member Indian Society of Blood Transfusion and Immuno haematology.
5. Served as a member of the scientific committee of XXIII Annual Conference of IAC.

J. Ambika Kumary

1. Member of Indian Academy of Cytologists.
2. Served as a reception committee member of the XXIII annual Conference of IAC.

K. Raveendran Pillai

1. Member of the Executive committee of Kerala Academy of Sciences (Life Science Chapter, Medical College, Thiruvananthapuram)
2. Served as joint organizing secretary of XXIII Annual Conference of IAC.

K. Sujathan

Served as member of Organizing Committee of XXIII Annual Conference of IAC.

*Conferences / Workshop / Papers Published etc...
See Section III & IV*

DIVISION OF IMAGEOLOGY

Dr. K. Sasidharan	Professor (on leave)
Dr. Alex K. Ittiyavirah	Associate Professor
Dr. K. Ramachandran	Assistant Professor
Dr. A.S. Krishnakumar	Assistant Professor.

The number of patients attend in this division is as follows:

1. Ultrasound	14, 858
2. X-ray investigation	7, 364
3. C.T. Scan	5, 785
4. Mammogram	748
5. Doppler Sonography	446
6. CT/ Ultrasound guided FNAC	336
7. X-ray Tomogram	68
8. Contrast Mammogram	35

There was a threefold increase in the number of CT/ Ultrasound guided aspiration biopsies of Chest of Abdomen as compared to that of previous year. The smallest chest lesion aspirated with positive Cytology was a 5 mm lesion.

Doppler studies on carotid vessels became a routine in the past year in the work up of patients with neurologic deficits. Doppler is also done for abdominal and lower limb vessels - renal hypertension, thromboangiitis obliterance, varicose veins, deep vein thrombosis etc. referred from Medical College and other hospitals.

Round the clock CT scan service at a very reasonable charge of Rs. 1250/- started in early 1994 has been a great blessing to patients attending the Medical College Casualty section.

Academic Activities:

Regular Symposia, Journal Clubs and presentation of interesting cases were done every week.

Daily group discussions on CT scans, doppler sonograms and Mammograms were carried out prior to issuing the final report to the patients.

Teaching and Training

Training for undergraduates, post-graduates, MLT & BSc. Nursing Students continued as in previous years.

Post graduate students in radiodiagnosis from Medical College, Trivandrum, students of Radiographic Technology in Medical Colleges, Kottayam and Alleppey also had short training in the Imageology Division. Post Graduates from Davangiri Medical College and Kasturba Medical College, Manipal also underwent short term practical training in the imageology division.

*Conferences Attended See section III
Papers presented IV*

DIVISION OF NUCLEAR MEDICINE

Dr. V.M. Pradeep	Associate Prof. & Head of Dvn.
Dr. V. Padmanabhan	Associate Professor
Sri Reghu Ram K.Nair	Assistant Professor
Dr. Kuruvila Varkey	Lecturer
Dr. Poullose K.P.	Professor of Medicine (Retd) Honorary Consultant.

Two new equipments were added to the department. A computerized Fast Medical Scanner manufactured by ECIL was procured in view of the increasingly frequent malfunctioning of the old Philips color Scanner. A new Gamma camera (BASICAM) with a Microdelta computer was procured. Both the machines were commissioned by the Hon. Health Minister Sri R. Ramachandran Nair on January 25, 1994.

As in the previous years the maximum work done was in the field of thyriodology. Facilities for diagnosis as well as treatment of these cases have been improved with the addition of new radioimmunoassays and scanning equipment. Two more beds were added to the radioiodine therapy ward.

The total number of individual tests and therapy carried out in the department for various investigations and management was 49,442.

The break-up of cases to categories is given below.

A. Thyroid

Radioisotope Scan	1782
Ultrasound Scan	4613
Uptake	1090
Thyroid cases in the clinics	7485
Total	14970

B. Gamma Camera Scanning

Bone	151
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Renal	28
Liver	13
Brain	2
Cardiac	1
Total	195

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	128
3. 32- Phosphorus	3
Total	251
Grand Total	49442

Academic Activity

This division took an active part in the teaching, training and research programmes of not only this Centre but also of the Medical College, Trivandrum. Short courses of training and demonstrations were given to various categories of staff and students. The staff attended various national and international conferences, workshops and seminars and also published/presented scientific papers.

List of Conferences See section III

Publications See section IV

RADIATION PHYSICS DIVISION

Dr. T.P. Ramachandran	Professor
Dr. P.G. Gopalakrishna Kurup	Associate Professor (on leave)
Dr. C.A. Davis	Associate Professor
Dr. Thayal Singh Ellas	Assistant Professor
Dr. P. Sushama	Lecturer (Temporary)

The main activities of this division are in safety the fields of clinical physics (calibration of radiotherapy equipment and their quality assurance, treatment planning, dose computation etc.) radiation safety, teaching and training and research.

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	5597
Brachytherapy treatment for carcinoma cervix using selectron remote afterloading system	391
Intracavitary treatment for carcinoma cervix uteri using manual afterloading system	35
Intracavitary treatment for carcinoma oesophagus -do- with Selectron	27
	2
Interstitial implants for carcinoma tongue, carcinoma buccal mucosa, carcinoma lip etc.	90
Mould treatment	2

Plaster of paris shells were made and used for patient immobilisation and proper beam direction in radical external beam treatment for head and neck cancers. Bite blocks and moulds are prepared by this division for treatment of oral cancer patients in connection with their treatment with radiation and radium implantation. The total number of wax bolus and bite block made was 98. Shielding blocks were made using low melting alloy and styrofoam cutting machine for mantle field treatment.

Patient dose delivery was monitored in random cases using thermoluminescent dosimeters and semiconductor dosimeters in external beam therapy.

This division is participating in the TLD postal dose intercomparison programme, for teletherapy machines, conducted by the Radiation standardisation Laboratory, BARC, Bombay.

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 the radiation measurements in the study area. Dr. T.P. Ramachandran is one of the investigators in this project.

Sri Thayal Singh Ellas is the Principal Investigator in a research project sanctioned by the State Department of Science, Technology and Environment for "Development of Indigenous Contour Plotter System."

Sri C.A. Davis is a co-investigator of SRF project, "Development of Multifactorial Index on Radiocurability in Oral Cancer" sponsored by State Department of Science, Technology and Environment.

New Equipment Procured

The following equipments procured during the year and have started functioning:

1. Theratron - 780 C Cobalt - 60 teletherapy unit from Theratronics, Canada.
2. Water Phantom Dose Plotter with computer from Nucletron, Holland for beam data acquisition in the case of teletherapy machine.
3. Computerized Treatment planning system for treatment planning in external beam therapy and brachytherapy, from Nucletron, Holland.

Quality Assurance of the following radiotherapy equipment were carried out:

Linear Accelerator (4 MV)	:	1
Cobalt - 60 teletherapy machines	:	3
Radiotherapy simulator	:	1
Radium sources	:	181 mg
Cobalt-60 tubes	:	85.65 mCi
Caesium-137 sources (manual after loading)	:	620 mCi
Water Phantom Dose Plotter	:	1
Computerized Treatment Planning system	:	1

A 10 mCi Cs-137 source was procured for calibration of protection level instrument, TL dosimeters etc.

Above mentioned quality assurance tests, calibration, checking etc. of all radiotherapy machines were carried out routinely for proper dose delivery in radiation treatments. The down time of the machines could be considerably reduced by the routine checks and maintenance of the machines and this helped in providing proper and almost uninterrupted treatment for patients.

This division maintains all the necessary instruments for therapy beam calibration, patient dose monitoring, radiation safety surveys etc.

Radiation safety Activities

Personnel dose monitoring using film badge is carried out for 90 radiation workers in this Centre. Periodical radiation protection surveys of teletherapy installation and brachytherapy section ensured safety of radiation workers and public.

Academic Programmes

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

MD Radiotherapy

MD Radiodiagnosis

MDS Oral Medicine and Radiology

DMRD, DMRT, CRA, Third Year MBBS

Practical field training for one month was given to one student of the Diploma in Radiological Physics course of BARC, Bombay.

Project work entitled "Studies of the Attenuation of X-rays and Gamma rays" was carried out in this division by two M.Sc Physics students of the Kerala University Department of Physics under the supervision of Dr. T.P. Ramachandran. Dr. T.P. Ramachandran was elected as the Vice-President of the Association of Medical Physicists of India.

Conferences, Workshops etc. See section III

DIVISION OF CANCER EPIDEMIOLOGY, CLINICAL RESEARCH AND HOSPITAL CANCER REGISTRY

Since these divisions work in close collaboration a combined report is presented.

Dr. R. Sankaranarayan

Associate Professor
(on leave)

Dr. Cherian Varghese

Assistant professor

Ms. Aleyamma Mathew

Lecturer in Computational
Statistics & EDP.

Hospital Cancer Registry (NCRP) ICMR

Sri P. Gangadharan

Associate Professor (till 30th June,
1993)

Emeritus Medical Scientist, (Dec.
1993), I.C.M.R.

Dr. Cherian Varghese

Assistant Professor

Smt. G. Padmakumari Amma

Medical Statistician

Sri R. Raveendran Nair

Medical Records & Clinical Service
Officer.

Hospital Cancer Registry (NCRP)

The Hospital Cancer Registry (HCR) is part of the National Cancer Registry Programme of India and is in the 12th year of operation. During the reporting year, the registry has abstracted, analyzed and generated the annual report for the year 1991. The staff of the registry complement Epidemiological and research projects.

Cancer pattern

Five thousand seven hundred and ninety-three cases were reported during the year 1991. The distribution of cancer cases, with respect to site, age and sex are given along with the total and percentages 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 Figs. 1 and 2. Eighty percent of cases had microscopic verification of their diagnoses. In the 4783 analytic (previously untreated) cases 17.16% were in the localised stages. Radical treatment was offered to 56.9% of cases. Radiotherapy was the predominant form of treatment (71.56%) followed by chemotherapy (30.03%) and surgery (25.54%).

Leading cancers

Among males lung was the commonest site of cancer and among females it was breast cancer. The persistent increase in the proportion of lung and breast cancers may be a reflection of the changing cancer pattern in the community. The ten leading sites of cancer are shown in Table 3.

Childhood cancers (0-14 years)

The childhood cancers formed three percent of the total cancer load and in 1991, 174 childhood cancers were registered. Brain (25.3%), Acute Lymphatic Leukaemia (23%) and Bone tumours (7.5%) were the common sites of cancer seen in the paediatric age group.

Cancer Epidemiology and clinical research

The Cancer Epidemiology and Clinical Research division incorporates the Hospital Cancer Registry (NCRP, ICMR) and has independent and collaborative programmes. In addition, this division provides project consultancy and acts as the nodal point for organizing the clinical research activities of the centre.

Ongoing Studies:

Natural Background Radiation Cancer Registry, Karunagappally, Quilon

Objective:-

To study incidence and pattern of cancers seen in the Karunagappally taluk and to critically analyse them vis-a-vis the natural background radiation.

Till the end of December 1993, a total of 1,42,669 individuals were enumerated covering 33,228 houses and 5 panchayats. Radiation level measurements were conducted including Geiger-Muller readings inside and outside houses, TLD measurements inside the houses and soil sample analysis. Cancer incidence survey has been ongoing simultaneously and field-clinics were held regularly. The study is continuing.

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 infection in a stable population in Kazhakkuttam Panchayat near Trivandrum.

The entire house-holds in the Panchayat are enumerated and 7306 eligible females were identified. In the first round of screening 3222 smears and blood samples are collected. The HPV analysis is being done at the Institute of Cancer Research in UK.

3) Evaluation of low-intensity pap smear screening for cervical neoplasia.

Collaborators: Women & Children Hospital, Thycaud and State Committee on Science, Technology & Environment.

Objective

To evaluate the efficacy of per speculum examination and a single pap smear screening in a population at high risk for cervical cancer.

This project is being undertaken at the Government Women and Children Hospital, Thycaud and is in the second year. One thousand and seventy-six subjects have been interviewed and screened in the reporting year.

4. National Cancer Data Base (NCDB)

This project is supported by Dept of Electronics, Govt. of India

The NCDB continues to collect information from different parts of the country to produce a data base of variations in treatment or survival between different regions of the country. The project has considerably enhanced the computing capability of the centre. It has assisted the data management of the HCR, Trivandrum. A monograph on 'Cervical Cancer in India' is being initiated under the auspicious of the project.

New Projects

- 1) Case - control study occupational exposure and cancer.

Collaborators: Unit of Analytical Epidemiology, IARC, Lyon.
Objectives:

- a) To identify occupational groups at high risk of developing lung cancers, lymphomas and leukaemias.
- b) To generate hypotheses about possible occupational exposures that may be responsible for development of cancer in these sites.
- c) To evaluate the existence and extent of interaction between occupational exposures and other risk factors in the etiology of lung cancers, leukaemias and lymphomas.

Methodology: Using structured questionnaire, occupational exposure to various agents are collected by the social investigator. Eight hundred and fifty cases have been interviewed and information on socio-demographic factors, tobacco, alcohol habits and occupational exposures are collected.

- 2) 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.

Objective:

To develop a population based cancer registration in the three development blocks and in the Trivandrum Corporation area, to provide reliable incidence data, and information related to stage distribution, treatment, survival and mortality from major cancers of interest in the region.

A population based cancer registry has been organized for Trivandrum Corporation area and the three community development blocks. The survey region is 236.06 sq. km and has a population of 10,66,332. Thirty 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 scrutinized to collect mortality information. This programme aims to generate reliable indices on cancer morbidity and mortality.

A Seminar was conducted in RCC on the method of registration of the registry and representatives of the hospitals and government agencies have actively participated and provided valuable suggestions.

Junior Clinical Research Fellowship Programme

This programme envisages in providing exposure to medical students and junior staff members in research methodology through conducting short projects. Indian Council of Medical Research, Summer Research Student-ship have been the major source of funding for the undergraduates trained under this programme. In the reporting year, Mr. Shiv Kumar, final year Medical student at the Medical College, Trivandrum has been awarded the ICMR student-ship to conduct a study on the Clinical Epidemiology of adult leukaemia in Kerala. In the last four years, fifteen projects have been successfully completed, and so far four publications in indexed journals have appeared out of this initiative.

Cancer Control Programmes

This division continued to provide technical assistance in conducting the District Cancer Control Programme (DCCP) at Emakulam. The staff of this division generated training materials and participated as faculty in the training programme. A cancer

registry is being organized for the Ernakulam District with the technical assistance from this division. This registry will provide the parameters to evaluate the DCCP. Technical support has also been imparted to the preparation of the various documents and materials for the WHO programmes.

Cancer data base of HCR, Trivandrum.

HCR Trivandrum has collected information on more than 60,000 cancer cases during the years 1982-'92. Efforts are being undertaken to make this into a large data base for research and planning of facilities. This data base will also provide time trends for cancer in RCC in the last decade.

Cancer Pattern in Kerala

The four Medical College hospitals in Kerala register a large number of cancer cases. Currently there is only minimal data available on the frequency of cancers and their distribution from these hospitals. A programme has been launched to set up Hospital Cancer Registries in these hospitals. Medical College Hospital, Trichur and Medical College Hospital, Alappuzha have started data collection on the line of the ICMR registries. This exercise will reveal the cancer pattern in Kerala and will greatly benefit the activities of the State and National Cancer Control Programmes.

Rehabilitation and counselling

Smt. P.T. Latha, Social Investigator of HCR is actively engaged in providing counselling to patients who have undergone mastectomy to overcome the psychological problems. She has arranged to supply 'breast prosthesis' to such patients and imparts training in physiotherapeutic methods for the control of lymphoedema and other symptoms.

Project Consultancy

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.



Dr. R. Chidambaram, Chairman, Atomic Energy Commission & Secretary, Govt. of India inaugurated 3rd National Symposium on Environment at, R.C.C. 1st March, 1994.



Our Medical Officer in charge of Pain and Palliative Care Dr. Vasudevan Mappat along with Dr. Robert Twycross, International Expert on Cancer Pain on 28th Nov. 1992 at Oxford.

Third National Symposium on Environment (with special emphasis on high background radiation areas):

The Regional Cancer Centre hosted the Third National Symposium on Environment from March 1st to 4th of 1994. The same was inaugurated by Dr. R.Chidambaram, Chairman, Atomic Energy Commission & Secretary, Dept. of Atomic Energy. About 200 delegates from the different parts of the country participated in this prestigious meeting organised by the Board of Research in Nuclear Services, Bhabha Atomic Research Centre, Department of Atomic Energy, Government of India. The project staff played a major role in the successful conduct of the symposium.

Awards, Fellowships and Doctoral Programmes

1. Mr. P. Gangadharan has been awarded with the prestigious Emeritus Medical Scientist position by ICMR, New Delhi for a period of two years. He is continuing to render his expertise and services to the various ongoing activities of the division.
2. Dr. R. Sankaranarayanan, Associate Prof. of Cancer Epidemiology and Clinical Research is presently working as a scientist in the Descriptive Epidemiology Division of IARC, Lyon, France. He is closely associated with the various activities pursued at the centre in collaboration with the agency.
3. Dr. Cherian Varghese has successfully completed the M.Phil Epidemiology Programme from the University of Cambridge, UK, 1992-93 under the guidance of Dr. N.E. Day on a case - control study on diet and lung cancer. He had special training in Epidemiological methods and Biostatistics, Cancer Epidemiology, Clinical Trials (MRC Cancer Trials Unit, Cambridge, UK) and Dietary Epidemiological Studies (Erasmus University, Rotterdam).

He has also attended Third postgraduate teaching course: Molecular biology for Clinical Oncologist, Imperial College for Science and Technology, London, 1993 with Dr. J. Yarnold.

- 4) Ms. Aleyamma Mathew was awarded the ICMR - University of Tampere Fellowship to pursue a Ph.D. programme in Epidemiology, at the University of Tampere, Finland, 1993-94.

Ph.D. Thesis: Cancer Survival rates corrected for non-random drop-outs.

To develop suitable methodologies for estimating true survival rates, corrected for non-random drop-outs. Ovarian cancer cases registered in the R.C.C. during the years 1990, 1991 and 1992 will be studied and their follow-up will be updated by reply paid post cards.

Ms. Mathew has visited International Agency for Research on Cancer from 13-5-1994 to 18-5-1994 on an invitation from the agency to learn the software CANREG and also to acquaint with various collaborative studies being carried out at regional Cancer Centre, Trivandrum with the support of the agency.

5) Ms. P.T. Latha (Registered for Ph.D in the University of Kerala. Ph.D. Thesis: Psycho-social adjustments of female cancer patients in southern districts of Kerala.

Aim is to assess the patient's awareness of the nature of disease, its treatment and its influence of the adjustment, problem and also to assess the coping mechanism of patient, family and peer group.)

6) Ms. Jayalekshmy, NBRR Project (Registered for Ph.D in the University of Kerala) PhD Thesis: Disability characteristics of Cancer.

7) Mr. T.S. Boban, NBRR Project (Registered for Ph.D. in Physics)

Ph.D thesis: Radiation Dosimetric studies in the high Natural Background Radiation Areas in Kerala.

8) Mr. Jayadevan, NBRR Project (Registered for Ph.D in Statistics, University of Kerala)

Ph.D Thesis: Statistical study on urinary stone formation in Kerala.

Acknowledgement

The division wishes to acknowledge

1. World Health Organization, Geneva
2. I.A.R.C. (Lyon) France
3. I.C.M.R, New Delhi
4. Prof. Matti Hakama, Department of Public Health, University of Tampere, Finland.
5. Prof. N.E. Day, Director, Institute of Public Health, University of Cambridge, U.K.
6. Prof. Julian Peto, Epidemiology Unit, Institute of Cancer Research, U.K
7. Department of Atomic Energy, Govt. of India
8. Department of Electronics, Govt. of India

Collaborators

1. Dr. Max Parkin, Dr. Paolo Boffetto, Dr. R. Sankaranarayanan, IARC, Lyon, France.
2. Dr. P. P. Nair, Human Nutrition Research Centre, John Hopkins University, USA.
3. MRC Biostatistics Unit, U.K.
4. National Cancer Institute, U.S.A.
5. Institute of Cancer Research, U.K.
6. Department of Biochemistry, University of Kerala.

Conferences attended See Sec. III

Papers published See. Sec. IV

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	2	-	1	-	5	5	2	1	17	0.54
141 Tongue	-	-	-	-	-	1	2	9	12	36	31	33	28	25	8	21	206	6.59
142 Salivary Gl.	-	-	-	1	2	-	1	-	1	-	2	2	1	4	1	2	17	0.54
143 Gum	-	-	-	-	-	1	-	3	3	5	9	12	9	12	5	13	72	2.30
144 Floor of Mouth	-	-	-	-	-	-	1	-	2	8	4	4	-	-	5	25	0.80	
145 Other Mouth	-	-	-	-	2	-	3	9	18	21	32	46	45	45	27	28	276	8.83
146 Oropharynx	-	-	-	-	-	-	-	7	2	8	10	16	25	11	12	7	98	3.13
147 Nasopharynx	1	-	-	3	1	4	-	2	1	1	-	4	5	3	1	1	27	0.86
148 Hypopharynx	-	-	-	-	2	2	1	1	3	6	17	11	10	11	5	6	75	2.40
149 Pharynx etc.	-	-	-	-	-	-	-	-	-	1	-	3	1	-	2	-	7	0.22
150 Oesophagus	-	1	-	-	-	-	2	3	8	22	22	24	46	30	19	15	192	6.14
151 Stomach	-	-	-	-	-	-	1	6	8	14	13	33	22	24	15	13	149	4.77
152 Small Intes.	-	-	-	-	-	-	1	-	1	-	3	-	-	-	1	-	6	0.19
153 Colon	-	-	-	1	1	4	-	6	3	3	11	9	6	8	4	2	58	1.86
154 Rectum	-	-	-	-	-	1	6	1	3	4	7	8	3	15	5	3	56	1.79
155 Liver	3	-	-	-	3	4	12	7	12	7	10	9	5	9	1	1	83	2.66
156 Gall Bladd.	-	-	-	-	2	-	-	-	-	1	2	-	1	-	-	1	7	0.22
157 Pancreas	-	-	-	-	1	-	-	1	4	4	7	5	7	4	4	2	39	1.25
158 Retroperit.	1	-	-	1	-	2	-	1	1	-	1	2	-	1	1	-	11	0.35
159 Other Dig Sys	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
160 Nasal Cav.	1	-	1	-	-	1	1	1	1	2	4	5	6	6	2	1	32	1.02
161 Larynx	-	-	-	-	-	-	2	3	9	13	23	32	36	35	9	13	175	5.60
162 Lung	-	-	-	-	-	1	6	5	16	37	47	86	64	62	30	13	367	11.74
163 Pleura	-	-	-	-	-	-	-	-	-	1	1	-	1	-	-	-	3	0.10
164 Thymus	-	-	-	-	1	-	1	-	2	-	-	-	-	-	-	-	4	0.13
170 Bone	2	2	6	18	10	2	2	2	2	2	4	2	-	1	-	-	55	1.76
171 Conn. Tiss.	-	-	-	2	8	1	3	6	5	3	8	4	5	3	-	1	49	1.57
172 Skin. Mela	-	-	1	-	-	-	-	1	-	-	5	2	2	5	2	-	18	0.58
173 Skin. Other	-	-	1	1	1	-	1	3	1	3	3	6	7	7	7	2	43	1.38
175 Breast Male	-	-	-	-	-	-	-	2	-	-	1	-	1	1	-	-	5	0.16
185 Prostate	-	-	-	-	-	-	-	-	-	-	4	6	16	14	9	21	70	2.24
186 Testis	2	-	-	2	1	6	1	2	5	1	-	-	1	1	-	-	22	6.70
187 Penis etc.	-	-	-	-	1	-	5	4	3	4	2	4	3	3	5	3	37	1.18
188 Uri. Blad.	-	-	-	-	-	-	-	2	3	5	7	9	8	11	12	3	60	1.92
189 Kidney	1	-	-	-	-	2	2	1	2	3	5	6	2	1	2	1	28	0.90
190 Eye	6	-	-	-	-	-	-	1	-	-	-	-	-	2	-	-	9	0.29
191 Brain	6	11	8	3	4	13	13	11	8	5	6	6	3	7	2	1	107	3.42
192 Nervous Sy.	-	1	-	1	1	-	-	-	-	1	-	1	-	-	-	-	5	0.16
193 Thyroid Gl.	-	-	-	2	3	3	3	7	5	5	10	3	7	3	1	5	57	1.82
194 Oth. Endd. Gl.	4	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	6	0.19
195 Ill Def. Sit.	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	-	3	0.10
196 Sec. Lymph. N	-	-	-	1	-	1	-	6	5	5	8	9	12	13	6	3	69	2.21
197 Sec. Res. etc	-	1	-	-	-	-	1	-	3	7	4	9	8	9	3	1	46	1.47
198 Sec. Other	-	-	-	-	1	-	1	2	4	4	13	10	11	9	5	6	66	2.11
199 Prim. Unk.	-	-	-	-	-	-	-	-	1	2	2	2	1	4	-	-	12	0.38
200 Lyphosarc.	2	3	1	3	2	2	1	6	3	3	1	4	7	5	6	2	51	1.63
201 Hodgkins. D	-	3	-	2	1	4	4	2	4	1	2	1	2	1	-	-	27	0.86
202 Oth. Lymph.	-	1	2	4	5	1	2	2	10	6	8	10	11	9	4	6	81	2.59
203 Mult. Myel.	-	-	-	-	-	1	1	1	5	3	8	8	4	9	4	4	48	1.54
204 Leuk. Lympha.	9	6	8	13	17	3	4	1	2	4	2	1	2	3	1	1	77	2.46
205 Leuk. Myelo.	3	-	4	7	8	6	8	8	3	5	6	2	3	1	2	1	67	2.14
206 Leuk. Monoc.	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	0.03
207 Leuk. Misc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
208 Leuk. Uns.	1	-	-	-	2	-	2	-	-	-	-	-	-	-	-	-	5	0.16
	42	29	32	65	80	67	94	137	187	261	370	450	446	432	225	209	3126	100.00

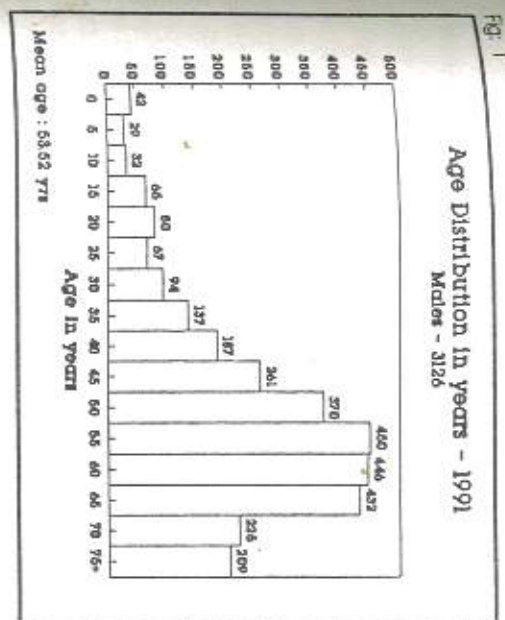
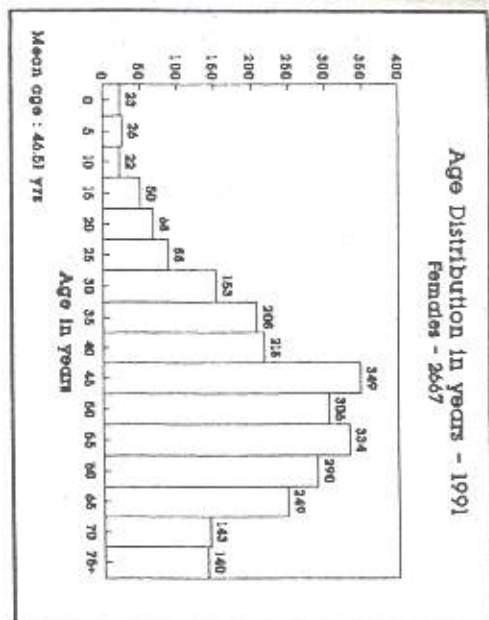
TABLE 2
Hospital Cancer Registry - Trivandrum : Incident Cancer Cases of 1991 : Age, Site (ICD - 9) and Percentage - Females.

ICD-9 Site	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-38	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Total	%
140 Lip	-	-	-	-	-	-	-	-	2	-	1	2	2	2	4	2	15	0.56
141 Tongue	-	-	-	-	1	2	3	2	2	9	13	17	19	15	9	5	97	3.64
142 Salivary Gl	-	-	-	-	1	1	3	-	1	-	-	-	1	1	-	1	10	0.37
143 Gum	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
144 Floor of Mouth	-	-	-	-	-	-	-	-	1	6	7	9	11	10	8	5	57	2.14
145 Other Mouth	-	-	-	-	-	-	-	-	-	-	2	-	-	1	2	2	7	0.26
146 Oropharynx	-	-	-	-	-	-	-	4	2	17	17	25	32	21	21	21	160	6.00
147 Nasopharynx	-	-	-	1	-	2	1	1	1	-	2	1	1	1	-	-	5	0.19
148 Hypopharynx	-	-	-	-	-	1	1	1	4	3	-	1	-	-	-	-	10	0.37
149 Pharynx etc.	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3	-	15	0.56
150 Oesophagus	-	-	-	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-
151 Stomach	-	-	-	-	-	-	3	3	1	7	3	3	7	7	-	5	39	1.46
152 Small Intes.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	0.04
153 Colon	-	-	-	-	-	1	1	5	3	1	1	3	3	2	1	5	26	0.97
154 Rectum	1	-	-	1	1	1	3	-	-	2	3	12	7	4	4	4	43	1.61
155 Liver	1	-	-	-	1	-	4	3	1	1	5	5	2	2	-	1	26	0.97
156 Gall Bladd.	-	-	-	-	-	-	-	-	2	-	2	2	1	2	1	-	10	0.37
157 Pancreas	-	-	-	-	1	-	1	1	-	4	1	2	1	2	3	1	17	0.64
158 Retroperit.	-	-	-	2	-	-	1	1	2	-	2	2	1	2	-	-	11	0.41
159 Other Dig Sys	-	-	-	-	1	-	-	-	-	-	2	2	1	-	-	-	11	0.41
160 Nasal Cav.	-	-	-	1	-	2	-	1	1	1	3	2	2	1	1	1	16	0.60
161 Larynx	-	-	-	-	-	-	-	-	1	1	3	2	2	1	1	1	16	0.60
162 Lung	-	-	-	-	-	2	2	3	2	5	3	2	6	4	2	2	33	1.24
163 Pleura	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	0.04
164 Thymus	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	2	0.07
170 Bone	-	-	3	4	2	2	2	-	2	1	1	-	-	-	-	-	17	0.64
171 Conn. Tiss.	1	2	-	6	3	1	2	1	3	2	2	1	1	-	-	2	27	1.01
172 Skin. Mela	-	-	-	-	-	-	-	1	-	-	-	-	-	1	1	4	7	0.26
173 Skin. Other	-	-	-	-	1	-	-	1	4	1	2	5	2	3	2	6	27	1.01
174 Breast	-	-	-	-	4	13	48	84	89	117	79	64	49	28	14	13	602	22.57
179 Uterus Nos.	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	0.04
180 Cervix	-	1	-	-	1	4	14	34	54	88	72	87	54	60	24	30	523	19.61
181 Placenta	-	-	-	-	1	-	1	-	-	1	-	-	-	-	-	-	3	0.11
182 Body Uterus	-	-	-	-	1	1	1	3	-	4	4	11	6	4	4	-	39	1.46
183 Ovari	-	-	3	5	10	6	4	9	18	26	13	19	12	14	3	2	144	5.40
184 Vasina	-	-	-	-	-	-	3	-	1	3	2	5	6	8	4	7	39	1.46
188 Uri. Blad	1	-	-	-	-	-	-	-	-	1	-	-	4	2	-	1	9	0.34
189 Kidney	2	-	-	-	-	1	-	1	-	1	2	3	1	1	2	-	14	0.52
190 Eye	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	0.11
191 Brain	1	10	8	4	5	3	9	9	1	4	4	4	4	5	1	-	72	2.70
192 Nervous Sy.	1	2	-	2	2	-	-	-	-	-	1	-	-	-	-	-	8	0.30
193 Thyroid Gl.	-	-	2	7	20	26	31	21	6	19	10	10	10	2	3	4	171	6.41
194 Oth. Endo. Gl.	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	0.04
195 Ill Def. Sit.	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	0.04
196 Sec. Lymph. H	-	1	-	2	1	-	2	2	2	2	1	3	3	7	2	1	29	1.09
197 Sec. Res. etc	-	-	-	-	1	2	1	2	1	4	7	6	2	8	2	3	39	1.46
198 Sec. Other	1	-	1	-	1	-	2	3	2	2	5	3	10	3	4	2	39	1.46
199 Prim. Unik.	1	-	-	-	-	-	-	2	1	1	2	1	-	1	-	-	8	0.30
200 Lymphosarc.	-	1	-	1	-	-	1	1	1	1	2	1	3	3	2	-	17	0.64
201 Hodgkins. D	-	-	-	1	1	-	-	-	-	1	1	1	-	-	-	-	5	0.19
202 Oth. Lymph.	1	-	-	2	2	3	2	2	1	4	4	4	6	5	6	-	40	1.50
203 Mult. Myel.	-	-	-	-	-	-	-	-	2	4	3	2	3	3	3	1	21	0.79
204 Leuk. Lympha.	8	6	3	4	2	6	2	2	-	-	4	1	1	1	-	-	40	1.50
205 Leuk. Myelo.	1	3	1	4	2	6	2	4	3	2	5	2	6	2	-	1	44	1.65
206 Leuk. Monoc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
207 Leuk. Misc.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
208 Leuk. Uns.	-	-	-	1	-	2	2	-	-	-	1	-	-	-	-	-	6	0.22
	23	26	22	50	68	88	153	208	218	349	306	334	290	249	143	140	2667	100.00

TABLE 3

10 Leading Sites of Cancer in Males & Females - 1991

	Male				Female			
	ICD	Site	No.	%	ICD	Site	No.	%
1	162	Lung	367	11.74	174	Breast	602	22.57
2	145	Other mouth	267	8.83	180	Cervix	523	19.61
3	141	Tongue	206	6.59	193	Thyroid	171	6.41
4	150	Oesophagus	192	6.14	145	Other mouth	160	6.00
5	161	Larynx	175	5.60	183	Ovary	144	5.40
6	200-202	Lymphoma, HD	159	5.08	141	Tongue	97	3.64
7	204-208	Leukemi	150	4.79	204-208	Leukemia	90	3.37
8	151	Stomach	149	4.77	191	Brain	72	2.70
9	191	Brain	107	3.42	200-202	Lymphoma, HD	62	2.33
10	146	Oropharynx	98	3.13	150	Oesophagus	58	2.17



DIVISION OF CANCER RESEARCH

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

The research programme of the Regional Cancer Centre, during the period covered by this report is characterized by a remarkable degree of stability, development of programs aimed at the translation of basic research findings into clinical patient care, as well as continued growth and improvement in research facility. The research program's success and maturity is evident by an excellent publication record in international journals of repute as well as noteworthy recognition of research results and management at both national and international level. The Division of Cancer Research has also had this year, spectacular success in getting approval and funding for several research projects. Such success has largely contributed to the prevalent optimism in elucidating secrets of cancer cells and its application to cancer therapy and prevention.

The Immunobiology of Gestational Trophoblastic Disease and correlation to Tumor Regression

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

Investigator	: Dr. Prabha Balaram
Collaborating Investigators	: Dr. T.N. Rajalekshmy, Dr. Joy Augustine, Ms. Molykutty John

This is a large study focusing on both epidemiological and experimental analysis of patients with gestational trophoblastic disease (GTD). The project is planned in two parts. The first part of

the study involves analysis of epidemiological data for all cases of GTD registering at the Regional Cancer Centre and the SAT Hospital. This data collection includes aspects such as areas of birth and domicile, social aspects, environmental influence, obstetric history, consanguinous marriage, blood groups, viral infections etc. The second part of the study, the experimental phase is being done on patients whose blood and tissue are available. The parameters studied include immuno evaluation using T-cell function tests, mixed lymphocyte reaction to the husband's leucocyte antigens before and after evacuation, phenotype of lymphocytes in the peripheral blood, uterine blood and tissue sections. In addition, the study also evaluates the role of growth factors, its receptors and cytokines in the molar tissue and its correlation with tissue pathology.

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.

Investigator	: Dr. Prabha Balaram
Collaborating Investigators	: Ms. Molykutty John, Mr. Thomas Abraham, Dr. T. N. Rajalekshmy, SAT Hospital

This project aims at the production of a polyclonal antibody against molar trophoblastic tissue and test its reactivity on placental and molar tissue. Studies are in progress in evaluating the potential use of this antibody in detecting circulating antigens and to use it as a prognostic indicator.

An Evaluation of Immunoregulatory Proteins as a Prognostic Indicator in Oral Cancer

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

Investigator	: Dr. Prabha Balaram,
Collaborating Investigators	: Dr. Nalinakumari, K.R Ms. Girija Meenattoor

The study proposes to break-up individual serum samples into various fractions chromatographically, electrophoretically and biochemically and assess the effect of each fraction in cell-mediated immune functions.

The Cervical Carcinogenesis Programme

Inclusive of 4 projects funded by the Department of Science and Technology, Govt. of India, the Indian Council of Medical Research, the Council for Scientific and Industrial Research, the Department of Atomic Energy, Govt. of India.

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

Collaborating Investigators : Dr. Kaveri Gopalakrishnan, Dr. Rajalekshmy, Dr. V.R. Nandini, SAT Hospital and Dr. Balaraman Nair, Retd. Professor of Pathology.

The cervical carcinogenesis program aims at addressing two critical questions in the diagnosis and management of cervical precancer and cancer. The first aspect involves identification and characterization of the factors involved in the progression of cervical precancerous lesions. The second question relates to the biological behaviour of invasive cervical cancer.

Using DNA hybridization the differential distribution of human papillomavirus (HPV) subtypes and their infective pattern in various grades of cervical lesions are being characterized. Since HPV can replicate extrachromosomally or integrated into the host genome, the expression of HPV associated oncoproteins, an indication of active infection is also being done. In addition the interaction of these oncoproteins with tumour suppressor genes, and the role of oncogene expression in relation to the presence or absence of HPV infection also forms part of the above protocol.

Two other significant parameters associated with tumor progression are also being investigated in the cervical carcinogenesis program. A number of intrinsic factors are known to modulate various stages in tumor progression and one such issue is the role of

growth factors. Thus the expression and quantitation of epidermal growth factor and transforming growth factors are being done in close relation to the tumor growth fraction. The latter is being analyzed by studying the incorporation of Bromodeoxy Uridine (BrdU), a pyrimidine analogue into DNA synthesis as well as by the expression of proliferation associated antigens. Also being analyzed is the role of various cytostructural alterations and the interaction of tumor cells with tissue extracellular matrix. These studies, it is hoped, will provide mechanisms to explain tumor cell invasion and extracellular matrix destruction, both key events in the most fearsome aspect of cancer, namely metastasis.

Detection and assessment of molecular markers associated with multi-drug resistance

Funded by Indian Council of Medical Research

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

Chemotherapy failure remains a significant problem in the treatment of haematological malignancies and often initial sensitivity to a particular drug is gradually reversed. The identification of the phenomenon of multi-drug resistance (MDR) has been a major advance in the elucidation of chemotherapy failure. This ongoing study seeks to evaluate the role of MDR in the outcome of chemotherapy for high-grade non-Hodgkin's lymphoma and in paediatric leukemias. The expression of the MDR gene is being studied in lymph node aspirations, peripheral blood tumor cells and in bone marrow, using NDA hybridization while immunocyto chemistry is being used to localize the MDR gene product, P-glycoprotein.

The Biology of Pancreatic Cancer

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

Investigator : Dr. Radhakrishna Pillai

Collaborating Investigators : Dr. KT Shenoy, Dr. Mathew Koshy, Dr. Praseetha I, Medical College Hospital.

Pancreatic cancer has the lowest five year survival among gastrointestinal malignancies. Also of importance is its association with pancreatitis, a condition seen in increasing numbers in Kerala. There is very little information on the biology of pancreatic cancer in patients from Kerala, where the life style and diet are distinct. This study evaluates biological characteristics of pancreatic cancer and pancreatitis including the expression of certain oncogenes, production of growth factors and the tumor growth fraction.

Development of cell kinetic model to predict response to radiotherapy in cervical carcinoma

Funded by the International Atomic Energy Agency

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

This project seeks to study the role of cell kinetics in relation to radiotherapy. It involves measurements of pre-treatment kinetic parameters and their transition during radiotherapy to see if such indices could provide a rationale for kinetically based improvements in therapy. The project also seeks the characterization of an established method to evaluate tumor cell proliferation based on multivariate analysis of seven biomarkers.

Search for Oncogenic viruses associated with human premalignant and malignant lesions of uterine cervix

Investigators : Dr. Ravindran Ankathil, Dr. Elizabeth Abraham

Collaborating Investigator : Dr. T. Vijayakumar

Funding Agency : ICMR

Studies were made during the period under report, to detect HPV antigens in human uterine cervix carcinoma tissues using peroxidase - antiperoxidase staining kit (DAKOS). The presence of HPV antigens, as rose-red staining of nuclei, was observed in the sample from 32 out of 58 uterine cervix cancer patients. The antigens were detected in none of the 15 normal cervix tissue sam-

ples studied. Positive staining was generally confined to the superficial layers of the cervix epithelium. The antigen distribution was focal and uniform or in diffuse patches. These findings point to an association between uterine cervix cancer and HPV.

Prognostic evaluation of Nucleolar Organizer Region associated proteins in premalignant and malignant oral lesions

Investigators : Dr. Ravindran Ankathil, Dr. Jayaprakash Madhavan

Collaborating Investigator : Dr. V.T. Beena, Dental College, Trivandrum.

Funding Agency : State Committee on Science, Technology and Environment, Govt. of Kerala.

This year, AgNOR staining technique was applied to oral premalignant lesions like oral submucous fibrosis and oral leukoplakia with a view to identify the particular premalignant lesions that will undergo malignant transformation. The mean AgNOR count in normal epithelium was 2.84 (\pm SD). Twenty patients with oral submucous fibrosis and 15 patients with oral leukoplakia showed significantly higher rates (6.64 and 5.84 respectively) of AgNOR Counts compared to normal oral epithelium. More number of patients will have to be studied and followed up for utilising this technique in differentiating certain borderline malignant conditions.

Cytogenetic studies on Maniac Depressive Psychosis

Investigator : Dr. Ravindran Ankathil

Collaborating Investigator : Dr. Neeta V Kulkarni, Medical College, Trivandrum.

Funding Agency : State Committee on Science, Technology and Environment, Kerala State.

Chromosome studies were carried out in 20 Maniac Depressive Psychosis patients. Out of these, 4 patients showed abnormalities such as chromatid breaks and gaps (probably fragile sites). The study is being continued with more number of patients.

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

Investigators : Dr. VP. Gangadharan, Dr. Ravindran Ankathil
Funding Agency : Fullford Foundation, India.

Forty-five Chronic Myelogenous Leukaemia patients were analyzed cytogenetically for the presence of Ph' chromosome of which 40 patients (90%) showed Ph chromosome positivity. These patients were given interferon treatment and are in various stages of clinical follow up. Nine patients had completed 1 year treatment. Out of these 9, 2 patients showed 20% Ph negativity, 1 patient showed 35% negativity 3 patients 40% negativity, 2 patients 50% negativity and 1 patient showed 60% negativity for the Ph' chromosome. Other patients are being cytogenetically followed up.

Clinical significance of chromosome studies in Multiple myeloma patients

Investigators : Dr. Ravindran Ankathil, Dr. Jayaprakash Madhavan
Funding Agency : Committee on Science, Technology and Environment, Govt. of Kerala.

This study aims at the detection of abnormalities of chromosome constitution in the bone marrow cells of Multiple myeloma patients and to explore whether these chromosomal findings could provide any prognostic information for the management of the disease.

Search for Biological markers in malignant and premalignant lesions of oral cavity

Investigators : Dr. Ravindran Ankathil, Dr. P. Remani
Collaborating Investigator : Dr. T. Vijayakumar, STEC
Funded by : Indian Council of Medical Research

This project examines biochemical, immunological and lectin binding studies in premalignant and malignant lesions of the oral cavity which may be of help in the diagnosis and/or prognosis of oral cancer.

Effects of Vitamin A and C on Carcinogenesis by Betel Quid Ingredients

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

Investigator : Dr. P. Remani
Collaborating Investigator : Dr. T. Vijayakumar, STEC

This study seeks to establish the relationship between betel quid ingredients including tobacco with oral precancer and cancer. It further seeks to estimate the status of vitamin A and C in these patients. The projects also involves study of the carcinogenic effect of betel quid ingredients in an animal model.

Multimodel assaying for prediction of intrinsic radiosensitivity of oral cancers

Investigators : Dr. V.N. Bhattathiri, Dr. P. Remani, Dr. Ravindran Ankathil, Dr. T. Vijayakumar
Funded by : International Atomic Energy Agency

This project aims to do (a) tumour tissue glutathione (GSH) (b) Plasma GSH (c) blood GSH before radiotherapy and pretreatment alterations in plasma and blood GSH as predictor of response to XRT in oral cancers.

Development of Multifactorial Index of Radiocurability in Oral Cancers

Investigators : Dr. V.N. Bhattathiri, Dr. P. Remani, Dr. Ravindran Ankathil, Dr. Chandralekha, Dr. C.A. Davis, Ms. Aleyamma Mathew

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

The objective of this research project is to assess the three predictive assays, namely demonstration of micronuclei (MN) induction in tumour cells following delivery of first four fractions of radiotherapy and studying radiation induced lectin binding alteration of tumour 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.

Tumor Cell Kinetics in Gestational Trophoblastic Disease as a Predictive Index of Tumor Aggressiveness

Funded by Indian Council of Medical Research

Investigators : Ms. Molykutty John, Dr. Prabha Balaram

Collaborating Investigator : Dr. T.N. Rajalekshmy, SAT Hospital

This study aims in differentiating prognostically significant groups among patients with GTD in order to avoid unnecessary chemotherapeutic intervention. The present management of GTD is based on levels of serum β -HCG, but this has posed major limitations in identifying high risk groups. The study involves the immunohistochemical localization of cell proliferative markers such as the proliferating cell nuclear antigen (PCNA), Epidermal Growth Factor Receptor (EGF-R) and Nucleolar Organizer Region - associated proteins (AgNORs). These findings will be correlated to the clinical profile, regression pattern, levels of β -HCG, and the histologic nature of the tissue.

Cytoskeletal proteins as potential biological markers for the Staging of tumour progression in oral mucosa - A multi variate analysis

Investigators : CSIR Research Fellowship to Dr. S. Kannan
Dr. S. Kannan, Dr. Prabha Balaram,
Dr. G. Jagadeeshchandran and
Dr. M. Krishnan Nair

This analysed the expression pattern of various types of cytokeratins and involucrin in normal, hyperplastic, dysplastic and neoplastic epithelium of oral mucosa by immunohistochemical methods. Six monoclonal antibodies against various cytokeratin types such as 10/11, 19, 14, 18, 13, 16 and 8 and a polyclonal antibody against involucrin were employed. The expression pattern of these proteins were analyzed statistically to look for an association between expression pattern and stage of tumour progression by univariate and multivariate methods. The results showed that cytokeratin 10/11, 14 and 19 and involucrin correlated well with stage of tumour progression. Multiple regression analysis further calculated a regression equation with these cytoskeletal proteins which can be used for the biological staging of tumour progression in oral mucosa.

Expression of tumour associated genes in Oral Carcinogenesis - Evaluation of its potential in biological staging

Investigators : Dr. S. Kannan, Dr. G. Jagadeesh Chandran,
Dr. Babu Mathew, Dr. K.R. Nalinakumari and
Dr. M. Krishnan Nair

Funded by : Department of Science and Technology
Government of India.

It is considered unlikely that oral squamous cell carcinoma arises directly from normal surface epithelium. Various precursor stages which produce clinically detectable lesions are known. The most common premalignant lesion of the oral mucosa is leukoplakia and histologically it can be categorized into various stages of tumour progression. If we are able to understand the basic molecular alterations occurring in the lesions at different stages of tumour progression, it will be possible to identify suitable biological markers for malignant transformation in oral leukoplakia. This is the aim

of the present study. The study analyzes products of certain tumour associated genes in normal, premalignant (hyperplastic and dysplastic) and malignant oral epithelium immunohistochemically. These include genes such as Epidermal growth factor, Transforming growth factor, Epidermal growth factor receptor, Insulin like growth factor-1 receptor, ras p21, raf p 74, myc p67, fos p62 nd jun p39. The study also evaluates the potential of proliferation markers such Ki67 and PCNA, tumour suppressor gene products p53 and rb p105, and HPV E6 protein in the biological staging of tumour progression in oral mucosa.

Cytoskeletal Proteins as Markers of Malignant Transformation in Oral Leukoplakia : A potent Precancer seen in High Frequency in Kerala.

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

Investigators : Mr. Thomas Abraham, Dr. S. Kannan

Collaborating : Dr. K. Ambika, Dental College, Trivndrum.
Investigator

This study was designed to investigate cytoskeletal and basement membrane protein alterations during the malignant transformation of oral leukoplakia and study its prognostic significance. The project thus included analysis of keratin subtypes, involucrin actin and basement membrane proteins. Involucrin and cytokeratin 10/11 showed high expression in non-dysplastic hyper-plastic epithelium as compared to normal, dysplastic and neoplastic epithelium, suggesting disturbances in the terminal differentiation pathways of keratinocytes.

The basement membrane proteins, collagen IV and laminin showed an inverse correlation between staining intensity, thickness and basement membrane continuity in the various grades of lesions. While continuous and intense expression of collagen IV and laminin was evident in normal and nondysplastic leukoplakia, dysplastic and malignant lesions, showed discontinuous and weak expression. Fibronectin was almost absent in normal mucosa while severely dysplastic and malignant cells showed intense expression. The study therefore emphasizes the value of basement mem-

brane proteins as biological markers in the assessment of leukoplakia.

Chemical Characterization of Bio-active Polysaccharides and their practical applications in clinical oncology

Investigators : CSIR Research Fellowship to Ms. T. T. Sreelekha. Supervising Teacher: Dr. M. Krishnan Nair.

Collaborating : Dr. K. K. Vijayan
Investigator University of Calicut

This study aims to isolate and characterize bioactive polysaccharides, having anti-mutagenic, antitumor and immunostimulatory activity present in indigenous plants of Kerala.

THE CLINICAL LABORATORY FACILITY

The clinical and biochemical laboratory is a central investigative facility for all patients attending this hospital. In addition, it forms a referral lab for patients from Medical College Hospital, SAT Hospital and various other hospitals. The laboratory has a complete investigation profile for biochemistry and haematology. Investigations are carried out with automated analysers including blood cell counter (AMES, USA) for haematology, semiautomated analyzers (Micro lab - 100, E Merck, Germany) for biochemical investigations, flame photometer for electrolytes, etc. Imported reagent kits are used for the investigations to ensure maximal accuracy and reproducibility. Strict internal and external quality control programs are always maintained. The external quality control procedures are monitored by the Christian Medical College, Vellore.

The laboratory service recorded an increase in the number of investigations, 48.3% for biochemistry and 28.4% for haematology as compared to previous year. The laboratory has an efficient reporting system. The results of every patient tested is provided on the same day at various intervals, based on their priority. All emergency samples are processed separately and the results immediately reported. In addition, any finding of concern is immediately reported to the concerned physician for immediate action.

The central laboratory also carries out haematological and biochemical investigations required for the various research programs of the institute.

Academic Programs

(a) Ongoing Ph. D Programms

1. Thomas Abraham : Biological markers in squamous cell carcinoma (Supervisor: Dr. Prabha Balam)
2. Molykutty John : Immunobiology of Gestational Trophoblastic Diseases - A comparative study in High and Low Risk Group of Patients (Supervisor : Dr. Prabha Balam)
3. T.T. Sreelekha : Studies on bioactive polysaccharides. (Supervisor : Dr. K. K. Vijayan, University of Calicut.
4. S. Lakshmi : Biological factors in cervical oncogenesis (Supervisor Dr. Radhakrishna Pillai)
(Supported by UGC)
5. S. Asha Nair : Morphological tumor markers for cervical carcinogenesis (Supervisor: Dr. Radhakrishna Pillai)
(supported by CSIR)
6. Chandini. R : Etiopathological studies in Hodgkin's Lymphoma (Supervisor: Dr. Ravindran Ankathil)
7. Jyothish. B : Cytogenetic studies in cancer families (Supervisor: Dr. Ravindran Ankathil)

(b) The division also serves as a resource support centre for various departments in the Medical College and the University of Kerala. Facilities available in the division are being used by staff and students of these departments.

Clinical Support

1. Evaluation of serum immunoglobulins (200 patients evaluated during the year)

2. Chromosome karyotyping and analysis (77 patients evaluated during the year)
3. Special investigations on request (Immunological evaluations, Immunohistochemistry etc.)

Dr. Ravindran Ankathil received the Indira Vasudevan Award of the Indian Association of Biomedical Scientists for cancer research, 1993.

Mr. N. K. Hareendran, Research Assistant, received the Sir Hennary Dale Award of Indian College of Allergy and Applied Immunology, 1993 for the best research technician.

*Conference/workshops/papers published etc.
See Sections III & IV*

BIOCHEMICAL INVESTIGATIONS

Sugar	16024	Calcium	1216
R.F.T. Urea	21173	Phosphorous	488
Creatinine	21055	Acid Phosphatase	825
Creatinine Clearance	527	Prostatic Specific Acid Phosphatase	765
Uric Acid	1420	Electrolytes Na+	367
L.F.T. Bilirubin	13485	K+	367
SGOT	14287	LDH	162
SGPT	14498	Amylase	32
SAP	14750	Iron	206
HBSAg	1070	Iron binding capacity	206

Total Protein	1783
Albumin	1783

Bile salt	1466
Urobilinogen	1472
Bence Jones Protein	21
Microscopy	5101
Total	14304

HAEMATOLOGICAL INVESTIGATIONS

CSF Sugar	179	Hb	41724
Protein	179	Total WBC	40527
Chloride	31	Total RBC	1812
Lipid Profile	38	Platelet	40265
		Differential count	40014
Total	407	ESR	7314
Cholesterol		PCV	20012
Electrophoresis	1510	Prothrombin Time	87
		Blood Picture	10100
Other Fluids	22	Reticulocyte	62
Urine Analysis		Special staining	1562
Sugar	6332	Bleeding time	2114
Albumin	6001	Clotting time	2114
Acetone	2002	Bone marrow	1510
Bile pigment	1511	Total:	2090217

DIVISION OF ETHNOPHARMACOLOGY AND CELLULAR CHEMOTHERAPY

Dr. J. Stephen

Associate Professor

This division started functioning from 17th June 1993 with two main objectives (i) the development of new anti-cancer drugs from medicinal plants (2) the prediction of drug response of cancer patients before starting chemotherapy. The first objective was developed as the currently used anticancer drugs are mostly imported and expensive. Adverse side effects and development of drug resistance in patients are the other major problems. Hence the screening of medicinal plants used in Ayurvedic and Tribal medicines for anti cancer potency appeared desirable. The second objective is for the selection of most effective drugs in the treatment of individual neoplasms.

Highlights of activities of the period under report

Preliminary screening of the extracts of medicinal plants collected from Trivandrum, Ponmudi and Nilgiris for antimetabolic activity was undertaken using mouse bone marrow in vivo. After 24 hours, extract treated bone marrow from the animals was collected individually, fixed and chromosome preparations were made. Mitotic index and percentage of various cytological abnormalities were determined from these preparations. 61 plant species have been screened and the results analysed. More and more plants are being tested. These extracts differed in their mode of action. Some were more effective in lowering mitotic index but less effective in causing arrest at M-phase whereas some others were less effective in lowering the mitotic index but more effective in arresting M-phase. In these experiments equivalent concentration of the extract from *Vinca rosea* was used as a standard. From the point of mitotic arrest at M-phase extracts from 22 species showed higher activity than the extracts of *Vinca rosea*. Extracts of five species of plants were extremely powerful in bringing down the mitotic index. All these extracts will soon be tested on standard human cancer cell lines and those with cell killing activity will be isolated and purified. None of these plants has been exploited so far in the develop-

ment of anticancer drugs. As some of these drugs are intended to be patented, names of the plants are not revealed at present.

The work on cellular chemotherapy will be undertaken soon. The tissue culture laboratory has already been set up.

Technical & other academic programmes:

Dr. J. Stephen gave three lectures on the cell and molecular biology of cancer at the Academic Staff College, University of Kerala during the refresher course under the Faculty Improvement Programme of UGC for college teachers. Walter Alexander was awarded Ph.D. by Kerala University for his work "Radiosensitizing effect of Largactil on fibrosarcoma in Swiss albino mice" under the guidance of Dr. J. Stephen. Sri. R. Radhakrishnan joined as a research fellow in this Division.

*Papers published/Conferences attended etc.
See sections III & IV*

DIVISION OF INFORMATION SYSTEMS

Sri. Kurien K. Epen

Systems Manager

This year also this division showed its active presence in the different activities of the centre. Following softwares were procured this year.

Microsoft Windows 3.1

Word Perfect for windows version 5.2

Paradox for windows

dBASE IV for DOS version 2.0

Qartrapro for windows

Activities

1. On line data entry of Cytopathology and Histopathology requests and reports started from 01/01/1994. This is done through two terminals of the main computer provided in the cytology division. Reports are printed in the Cytology division itself. The data is entered by the staff of the division. This module which forms a part of the Patient Management System of the Regional Cancer Centre is well accepted and is now in full operation. Many kinds of query answering and report generation facilities are the main attractions of the system.
2. Software development of Pharmacy, Purchase, Stock and Investigation billing is in the final stage.
3. Other than the routine data management and system administration the following activities are also carried out by the division.
 - a. Data management of the Hospital Cancer Registry
 - b. Word processing for project reports and slide presentation.
 - c. Provide assistance for system management of Natural Background Radiation Registry, Karunagappally.

- d. Extending help in carrying data management of HPV study, Kazhakootam.

3. Management of Cancer Care for Life Scheme II

Teaching and Training

Three final semester students of Master of Computer Applications (MCA) of College of Engineering, Trivandrum have done their projects in our computer centre. They carried out the work in constant consultation and guidance from our end. The work was thoroughly monitored from the system study phase to the implementation phase so that the quality of work did not suffer. On completion, their work received high credits from their parent institution. This division contributed substantially for the research publications and paper presentations of the staff of the Centre.

Mr. Kurien E. Eapen attended a workshop on 'Network Interconnectivity' held by M/s Tata Consultancy Services, Bangalore from 18th November, 1993 - 19th November 1993 in Bangalore and a course on 'Client/Server Computing' by M/s Tata Consultancy Service, Hyderabad on 6th and 7th December, 1993 held at Hotel Green Park, Beagumpet, Hyderabad.

DIVISION OF COMMUNITY ONCOLOGY

Dr. Babu Mathew

Professor

Dr. Ramani S Wesley

Asst. Professor

The major objectives and thrust areas of the Community Oncology Division were the following:

1. Professional Training and Health Education for general public.
2. Generation and distribution of Health Education materials.
4. Training and utilisation of voluntary organisations for comprehensive cancer control programmes in the villages.
5. Tobacco awareness programme with the Regional Cancer Association and other voluntary organisations.
6. Community based cancer research - Chemoprevention trials, innovative methods of early cancer detection, tobacco surveys etc.
7. Maintenance of a pre-cancer registry and management of early cancer detection clinic in the Regional Cancer Centre.

1. Professional Training

A programme of training house surgeons in cancer prevention and control, started last year continued. Four batches of house surgeons (176 nos.) were trained during the period under report.

2. Training of General Medical Practitioners

A week long training programme in the principles of cancer prevention, early detection, referrals and palliative care was started in this year. This training includes lectures, practical demonstrations, hands on experience for taking pap smear, FNAC and Oral biopsies and participation in community programmes. Thirtyone doctors were trained during the period under report.

3. Training on New approaches on Pain Management

A week long training on the above subject was organised in which faculty from George Town University Medical Centre, Wash-

ington DC took lectures and carried out demonstrations. Eighty-two specialists participated in the training.

4. Workshop for Medical Teachers

A day long workshop was held for teachers of Medical, Dental, Nursing, Ayurveda and Homeo colleges on the "Role of Medical Profession" in controlling tobacco use. Fifty-one participated. The recommendations formulated by the workshop was forwarded to the concerned for action.

5. Inservice training to doctors and health workers

Regular training for two days are given to doctors and health workers who attend in service training programme in the Family Planning Centre, Trivandrum. Forty doctors and thirty-nine health workers were trained in 1993-94.

6. Awareness programme to doctors of other systems of Medicine

A day long cancer awareness programme was held at Quilon for Members of the Kerala Homeopathic Association, 48 attended. Another training was held for doctors of Govt. Ayurveda College, Trivandrum, 57 attended.

Health Education for General Public

Twenty - seven awareness programmes/training programmes were held for general public during the period under report. The details of which are shown in Table - I.

Cancer Awareness through Mass Media

Two, 20 minute programmes were telecast from Trivandrum Doordarshan Kendra, one on Tobacco related diseases on 2.6.1993 and the other on Regional Cancer Centre on 7.12.1993. Three of the programmes produced during the previous year were retecast.

Six programmes were broadcast through the Trivandrum Station of All India Radio. The topics were cancer control, early detection of cervical cancer, tobacco related cancers, prevention of oral

cancer, quitting tobacco habit and Ernakulam District cancer control programme.

Five articles were published in newspapers and two in magazines.

In addition to the above the mass media gave wide coverage to all community programmes, gave anti tobacco messages as fillers and broadcast health messages.

Generation of Health Education Materials

Five brochures were designed and 10,000 copies of each were printed during the period. They are:

<u>Title</u>	<u>Sponsor</u>
1. Oral Cancer	State Bank of Travancore
2. Cervical Cancer	-do-
3. Breast Cancer	Sri. Murugan, PRS Builders
4. Lifestyle and Cancer	-do-
5. Tobacco - a short cut to death	Hindustan Latex

These brochures are used for the training of the members of the voluntary organisations. A book on cancer control for health workers working in the District Level Cancer Control Programmes was published.

Several bit notices were drafted and got printed through local sponsors for comprehensive cancer control programmes.

Six new display boards were made for mass producing in the District Level Cancer Control programme.

Early Cancer Detection Programme

Eighteen comprehensive cancer awareness and detection programmes were held in different parts of the state the details of which are shown in Table No. II. From these camps 53 new cancers and 18 old cancers showing recurrence were diagnosed.

Tobacco awareness programmes

The World No -Tobacco Day was observed with a workshop at R.C.C. and a public meeting at the V.J.T. Hall. A cycle rally was held and brochures were distributed by Scouts and Rovers in Trivandrum on that day.

A training of school teachers in charge of Science Clubs in High Schools of Trivandrum educational district was held in which 62 persons participated. These trained teachers conducted tobacco awareness programmes in their schools. Some of the schools held exhibitions and others gave hazards of tobacco usage for competition in youth festivals. An open painting competition was held for school children and 187 students participated.

Community based Cancer Research

1. The randomised clinical trial to evaluate chemoprevention potential of Spirulina algae had been completed. The results are being analysed.
2. Collaborative study with the Human Nutrition Research Centre, Johns Hopkins University, Baltimore, U.S.A. was also completed. The results are being analysed.
3. The Preventive Oncology Centre sanctioned by ICMR has started functioning. Data collected by Community volunteers from areas where comprehensive cancer control programmes are going on are being analysed by this unit.
4. The Project sanctioned by Ind-Can 006 utilising trained house surgeons for cancer survey and surveillance in the Pangapara Primary Health Centre is going on. During this year 880 pap smears were taken, 4 new cancers, and 252 precancers were identified.
5. A study on the effects of deworming and supplementation of Beta Carotene and Iron on the growth and development of pre school children was initiated in Aug. 1993. This study is in collaboration with Johns Hopkins University Baltimore, U.S.A.

6. Preliminary discussions were made on a large scale chemoprevention study in fishermen using cancer as end point with IARC Lyon-France and John Hopkins University Collaboration.

Maintenance of Pre-cancer Registry and E.C.D. Clinic

The Community Oncology Division is maintaining a registry of pre-cancerous lesions detected through community programmes and referred to RCC outpatient clinics. In addition it helps to run an early cancer detection clinic by appointment.

Conference / Papers published See Sections III & IV

TABLE I
Details of Cancer / Tobacco Awareness Programmes

Sl. No.	Date	Place	Organised by	No	Category of Persons
1	09.04.1993	R.C.C.	R.C.C. & W.H.O.	46	House Surgeons
2	31.05.1993	R.C.C.	RCC, RCA, IUHE	51	Medical Teachers
3	09.07.1993	R.C.C.	RCC & WHO	53	House Surgeons
4	14.07.1993				
5	to 23.07.1993	R.C.C.	R.C.C.	82	Specialist Doctors
6	09.08.1993	Trichur	Federal Bank	66	Bank Managers
7	20.08.1993	Chengannur	Health Service	500	Health Workers
8	21.08.1993	R.C.C.	R.C.A.	62	School Teachers
9	22.08.1993	Wynad	Malabar Cancer Care Soc.	600	Community Volunteers
10	28.08.1993	R.C.C.	R.C.A.	50	Teachers
11	02.09.1993	Kudamaloor	M.M. Church	119	Community Volunteers
12	05.09.1993	Kattakada	I.U.H.E.	113	Community Volunteers
13	09.09.1993	Kottiyam	Holy Cross Hospital	48	Nursing Students
14	11.09.1993	Adoor	Y's Mens Club	48	Y's Mens Club
15	16.09.1993	TVM	Principal, F.P.C.	40	Doctors
16	28.09.1993	R.C.C.	R.C.C.	38	BSc Nursing
17	07.10.1993	Sreekariyam	Loyola College	53	Students
18	11.10.1993	R.C.C.	RCC + WHO	35	House Surgeons
19	19.10.1993	TVM, SMV School	RCA	1500	Students
20	20.10.1993	TVM, Cotton Hill School	RCA	500	Students
21	15.11.1993	TVM	Private RPC	39	Health Workers
22	07.01.1993	RCC	RCC WHO	42	House Surgeons
23	15.01.1994	TVM	IUHE	85	Anganwadi Worker
24	16.01.1994	Angadikadav	Malabar	270	Community Volunteers
25	17.01.1994	Sreekantapuram	Do	1008	Do
26	18.01.1994	Anjarakandy	Do	372	Do
27	22.01.1994	Vizhinjam	FIEDS	241	Do

TABLE II
Details of Cancer Detection Camps - 1993-1994

Sl. No.	Date	Place	Organised by	Total patients screened	New cases	Old cases	Oral precancers	Other precancers	Cervical Smears
1	15.05.'93	Koonachund	Littleway Association	850	4	1	29	7	154
2	16.05.'93	Nadavayal	Littleway Association	258	3	1	21	13	55
3	23.05.'93	Palode	Palode Panchayath	98	1	0	9	4	19
4	30.05.'93	Valiyathurai	Catholic Youth Movement	204	0	0	29	0	52
5	04.09.'93	Parassala	Rotary Club, Parassala	250	2	0	15	4	0
6	05.09.'93	&							
7	06.06.'93	Chemperi	North Malabar Gramin Bank	865	7	5	62	10	164
8	10.07.'93	&							
9	20.08.'93	Kizhariyoor	Kizhariyoor Panchayath & Arbudha Nivarana Samithi	850	3	1	142	29	154
10	19.09.'93	Vazhuthacaud	AIR	62	0	0	6	0	12
11	20.09.'93	Manandavadi							
12	20.09.'93	Edavaka	North Malabar Gramin Bank	854	10	2	68	70	85
13	20.10.'93	Kunnukuzhi	NSS Loyola College, Sreekariyam	64	0	0	4	0	22
14	24.10.'93	Vazhacode	White Cross Society	203	3	2	9	5	23
15	30.10.'93	Kudamaloor	Darsana Sangam	805	4	2	15	20	129
16	29.12.'93	Sasthamkotta	NSS Sasthamkotta College	102	1	0	21	0	0
17	08.02.'94	Peringamala	NSS Iqbal College	70	0	0	1	0	15
18	19.02.'94	Angadikkadav	Malabar Cancer Society	450	8	2	84	20	165
19	20.02.'94	Ancharakkandi	Malabar Cancer Society	381	6	1	24	56	126
20	05.03.'94	Pattazhi	Federal Bank	91	1	0	3	10	23
21	18.03.'94	Vinoba Nagar	Sri Ramakrishna Hospital	108	0	1	7	5	5
			Total	6565	53	18	499	253	1203

Sl. No.	Date	Place	Organised by	Total patients screened	New cases	Old cases	Oral precancers	Other precancers	Cervical Smears
27	08.02.1994	Peringamala	Iqbal College	325	Students				
28	12.02.1994	Ponkunnam	CYMA	34	Community Volunteers				
29	01.03.1994	Palai	Federal Bank	54	Bank Officers				
30	05.03.1994	Pattazhi	Federal Bank	91	Community Volunteers				
31	09.03.1994	Aryanad	Sri Ramakrishna Mission	35	Adivasis				
32	25.03.1994	Poojapura	RCA	200	Bank Employees				

EARLY CANCER DETECTION CENTRE, ERNAKULAM

Dr. B. Syamalakumary

Cytopathologist

During the reporting year this Centre made outstanding progress in all the fields of activities. Apart from the increased patient attendance in the Centre as such, many more cancer detection camps were conducted in the rural areas of the district than in the previous year. 8063 patients were examined and 448 malignancies were detected. 22 camps and 7 awareness camps were conducted.

The Early Cancer Detection Centre was the focal point of the District Cancer Control Programme (DCCP) which is a programme initiated in accordance with the National Cancer Control Plan. This programme is a joint responsibility of the District Health Services, represented by the District Medical Officer, and the Regional Cancer Centre.

The Government health services in the district is involved in cancer detection and treatment and the Regional Cancer Centre provides the technical guidance and advice for the programme.

The thrust areas of the DCCP are antitobacco campaign, public education, early detection and prevention of oral, cervix and breast cancers prompt treatment and pain control and palliative care. For proper functioning, the district is divided into 4 areas, with a nodal taluk hospital at Palluruthy, Perumbavoor, Moovattupuzha and North Parur. Weekly four camps are being conducted, with the collaboration of the project staff, E.C.D.C. staff and the staff of the Nodal hospitals. Examination of the smears is done at E.C.D.C. and positive cases are referred to General Hospital or to Regional Cancer Centre. The report of activities is tabulated in Table I.

TABLE I

Activities of D.C.C.P. from 12/7/93 to 31/3/94.

No. of D.C.C.P. Clinics	:	89
Total Persons screened	:	5996
Male	:	1446
Female	:	4550
No. of Cytology specimens	:	4023
No. of Gynaec smears	:	3505
No. of non Gynaec smears	:	518
No. of precancerous lesions	:	
Gynaec	:	76
Non Gynaec	:	94
No. of cancerous lesions	:	
Gynaec	:	16
Non Gynaec	:	22

TABLE II
Resume of work done - 1984-1994 in ECDC.

Sl. No.		84-85	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93	93-94	Total
1.	Persons Screened	583	3034	4680	8335	6679	8292	6467	9099	7526	8063	63558
2.	Cervical Smears	379	1915	2867	4341	4114	4422	4098	4911	4281	3997	62225
3.	Oral Smears	61	159	106	210	173	177	164	187	212	252	1701
4.	Breast Aspirations	7	70	27	55	63	192	294	622	570	707	2585
5.	Aspirations	11	70	65	197	129	192	572	1251	1314	2059	5380
MALIGNANCY												
1.	Cervix	5	15	17	26	30	45	39	42	57	51	327
2.	Oral	2	13	10	36	24	48	28	62	91	127	441
3.	Breast	-	3	5	5	4	27	49	70	74	107	344
4.	Carcinoma in Situ	-	7	6	6	12	9	3	3	9	4	59
	No. of Cancer Detection Camps	1	14	24	24	14	12	12	14	14	22	146
	Histopathology	-	-	-	-	-	-	-	44	96	125	265
	Colposcopy	-	-	-	-	-	-	-	24	141	76	241
	Male	166	1846	1729	3791	2354	3384	1979	3363	2070	2425	23107
	Female	417	1988	2951	4544	4325	4908	4488	5736	5456	5638	40451

TABLE III
Resume of work done 1993-1994

Sl. No.	Particulars of work	Centre Based	Camp Based	Total
1.	Persons Screened	5757	2306	8063
2.	Cervical Smears	2957	1040	3997
3.	Oral Smears	223	29	252
4.	Sputum	182	-	182
5.	Fine Needle Aspirations	1891	168	2059
6.	Body Fluids	83	-	83
7.	Washings & Lavages	5	-	5
8.	Nipple Discharge	50	2	52
9.	Histopathology	125	-	125
10.	Colposcopy	76	-	76

TABLE IV
Cancer Detection Camps 1993-1994.

Sl. No.	Date	Camp Place	Sponsors	No. of Participants
1.	24.04.93	P.H.C. Pambakkuda	D.M.O. Ernakulam	139
2.	13.05.93	Kunnukurudy	Malankara Orthodox Syrian X'an church	94
3.	18.05.93	Kurinji	St. Peter's Church	147
4.	21.05.93	Pattimattom	Congress Labour Party	38
5.	22.05.93	Perumbavoor T.H.Q.H.	D. M. O. Ernakulam	60
6.	05.06.93	Avunda School, Kolenchery	Malankara Orthodox Mission Hospital, Kolencherry	137
7.	26.06.93	Ezhikkara, P.H.C.	D.M.O. Ernakulam	48
8.	25.09.93	Snehabhavan, Ernakulam	Saksharatha Samithi, Ernakulam	35
9.	31.10.93	Perumbavoor	Congress Labour Party, Perumbavoor	38
10.	06.11.93	Cherthala	Rotary Club of Cherthala	79
11.	13.11.93	Thrippunithura	Sathya Sai Seva Samithi, Thrippunithura	32
12.	27.11.94	News print Nagar, Piravom	Young Men's Christian Association, Piravom	79
13.	04.12.93	Matha Nagar	All Kerala Catholic Congress, Kochi	69
14.	05.12.93	Kodakara	Kodakara Tensing F.F. Scout	200
15.	08.12.93	Govt. Dispensary, Poothotta	Govt. Dispensary, Poothotta	109
16.	15.12.93	Binanipuram	Consumer Protection Council	79
17.	08.01.94	Ravipuram	Powras Samithy, Ravipuram	31
18.	22.01.94	Sreemoolanagaram P.H.C.	Sreemoolanagaram Panchayath	79
19.	05.02.94	Koratty	Cherupushpam Mission League	151
20.	26.02.94	Kandanadu	Deepthi Mahila Samajam	79
21.	15.03.94	Kolenchery	District Education Health Club	63
22.	26.03.94	Rayamangalam Panchayath	Rayamangalam Panchayath	520
Total				2306

TABLE V
Awareness Programme 1993-1994

Sl. No.	Date	Place	Sponsors	Participants
1.	18.04.93	All India Radio, Kochi	All India Radio	
2.	08.05.93	Kunnukurudy	Malankara Orthodox X'an Syrian Church	75
3.	13.05.93	Early Cancer Detection Centre	Volunteers of St. Peter's Church, Kurunji	10
4.	04.11.93	"	Volunteers of Sathya Sai Seva Samithy	8
5.	02.12.93	Binanipuram	Consumer Protection Council, Binanipuram	46
6.	22.12.93	ECDC	Volunteers of Powra Samithy, Ravipuram	6
7.	21.01.94	ECDC	Volunteers of Deepthi Mahila Samajam	9

TABLE VI
Gynaecological Cytology

Sl. No.	Lesion	Centre	Camp	Follow up	Total
1.	Normal	251	170	125	546
2.	Inflammation	1463	684	628	2775
3.	Squamous Metaplasia	35	25	15	75
4.	Trichomonas Infection	143	103	36	282
5.	Fungal Infection	13	6	-	19
6.	H.P.V. Infection	10	7	5	22
7.	H.S.V. Infection	8	2	4	14
8.	Glandular Cell Hyperplasia	5	2	-	7
9.	Reserve Cell Hyperplasia	27	6	12	45
10.	Endocervical Regeneration	10	1	1	12
11.	Mild Dysplasia	51	21	22	94
12.	Moderate Dysplasia	18	-	3	21
13.	Severe Dysplasia	11	3	3	17
14.	Atypical and Suspicious of Malignancy	1	-	1	2
15.	Carcinoma In situ	2	1	1	4
16.	Invasive Carcinoma	46	3	1	50
17.	Adenocarcinoma	-	-	1	1
18.	Radiation Changes	-	2	-	2
19.	Miscellaneous	4	4	1	9
Total		2098	1040	859	3997

EARLY CANCER DETECTION CENTRE, PALAKKAD

Dr. R. Ananda Kamath

Medical Officer

This Centre was started in April, 1986 at Kanjikode, Palakkad. At first it functioned in a rented building. In July, 1988 the present building was donated, along with 67 cents of land by Instrumentation Ltd. (Palghat Unit), a public sector undertaking (Govt. of India) to this Centre.

The activities undertaken during the year were with the objectives of early detection and downstaging of cancer, cancer awareness and propagation of hazards of tobacco chewing and smoking in the community and extension of therapy of all curable cancers and affording palliative care for all incurable cancers.

Routine work in the institution included examination of persons attending the institution voluntarily or by referral from other institutions. Examination included a cancer related physical examination and collection of smears from suspected sites viz. cervix, oral cavity, ulcers, swellings of breast, neck etc. by fine needle aspiration. Cytopathological examination was done employing papanicolou staining method. Suspected cancer cases were referred to Regional Cancer Centre, Trivandrum or to other cancer institutions. For incurable cancer cases, palliative therapy was advised. Pain relief was given by employing the three step ladder principles recommended by the World Health Organisation.

Organisation of cancer detection camps with the aid of voluntary agencies were also undertaken where screening was done, cervical smears were taken in all women above 35 and in suspicious cases. A few already treated cancer cases also attended these camps for whom necessary advice was given. Cancer awareness campaign was also undertaken during such camps. This institution also participated in the camps organised by the Community Oncology Division of RCC in remote rural areas in North Kerala.

The details of activities during the year are given in the accompanying tables.

Conferences Attended See Section III

TABLE I

Resume of work done during the year 1993-1994

		Cancer Cases	
		Suspicious	Diagnosed
Number of persons screened in the centre	1144	31	96
Number of persons screened in the camp	2577	7	11
Total number of persons screened	3721	38	107
Smears taken for Cytological Examination - Centre	1014	10	31
Smears taken for Cytological Examination - Camp	1187	3	1
Total Number of smears taken	2201	13	32
Number of Camps Attended	16		
Number of known Cancer patients seen at Camps	22		
Number of Cancer Patients referred to RCC	43		
Number of Cancer Patients Referred to other institutions	64		

TABLE II

Break - up of Cytological Smears during the year 1993-1994

Sl. No.	Specimen	Centre	Camp	Cancer Cases		Total
				Centre	Camp	
1	Cervix	509	1135	11	-	1644
2	Buccal	123	29	9	-	152
3	Breast	51	13	8	-	64
4	Sputum	287	-	1	-	287
5	Pleural Fluids	5	-	-	-	5
6	Others	39	10	2	1	49
Total		1014	1187	31	1	2201

TABLE III
Analysis of Gynecological Smears 1993-1994

Cervical Smears	Centre	Camp	Total
Normal	46	257	303
Inflammation	357	718	1075
Inflammation & Squamous Metaplasia	40	82	122
Inflammation R.C.H	1	-	1
T.V. Infection	26	46	72
Mild Dysplasia	-	1	1
Mild to Moderate Dysplasia	-	3	3
Moderate Dysplasia	1	-	1
Moderate to Severe Dysplasia	1	1	2
Atypia	3	2	5
Suspicious	5	-	5
Malignancy	7	-	7
Squamous Cell Carcinoma	4	-	4
Ca-In-Situ? Invasive	2	1	3
No Malignant Cells	11	4	15
Fungus	2	1	3
Necrotic	-	2	2
Atypical Squamous Metaplasia	-	1	1
	506	1119	1625
Vault Smears	Centre	Camp	Total
Inflammation	3	9	12
Normal	3	7	7
	3	16	19
Total	509	1135	1644

TABLE IV

Details of Camps conducted during the year 1993-1994

Sl. No.	Date	Place	Sponsored by
1	15-5-93	Kurachundu - Calicut Dt.	Little Way Association and St. Thomas Church.
2	16-5-93	Nadavayal - Wayanad Dt.	
3	23-5-93	Puthiyangadi - Kannur Dt.	S.Y.S and Y.M.B.R.
4	5/6/ -6-93	Chemperi - Kannur Dt.	Samagra Cancer Nivarana Padhathi
5	13-6-93	Ganeshgiri - Palghat Dt.	Dhanya Theatres-Shoranur
6	5/6/ -7-93	Kheezhariyoor - Calicut Dt.	Arbhoda Nivarana Samithi
7	20-9-93	Edavaka - Wayanad Dt.	Mananthavady Y.M.C.A.
8	26-9-93	Kollengode - Palghat Dt.	Sri. Sathya Sai Seva Samithi
9	2-10-93	Palghat - Palghat Dt.	Rotary Club - Palghat East
10	24-10-93	Vazhakkad - Malappuram Dt.	White Corss - Concer Nivarana Yanham
11	27-11-93	Palayadu - Calicut Dt.	Lions Club - Naduvanoor
12	19-12-93	Puthrithara - Trichur Dt.	Sri. Sathya Sai Seva Samithi
13	16-1-94	G.H. Chittoor - Palghat Dt.	Lions Club - Chittoor
14	20-2-94	Vatanappally - Trichur Dt.	Sri. Sathya Sai Seva Samithi
15	19-2-94	Angadikadavu - Kannur Dt.	Malabar Cancer Society
16	20-2-94	Ancharakandi - Kanur Dt.	Malabar Cancer Society

DIVISION OF LIBRARY AND INFORMATION SERVICES

Sri M.Chadrakumaran Nair

Librarian

Notable increase in all areas of library activity to support the clinical and research programmes of the Centre has been marked during the period under report. Apart from the internal staff, the library materials are being utilised by Post graduate students and academic staff from Medical College, University departments, Research institutes and other Organizations. Considerable efforts have been made to maximise the use of library resources.

Collection development

In spite of budgetary constraints, high priority has been accorded to subscription to journals. Currently R.C.C. Library subscribes to 95 scientific journals, mostly foreign, of which 15 numbers are received free of cost. On the basis of the review by the Library Committee, 5 Journals were added and 3 journals were discontinued for the year. The Library collection consists:

	Added during the period 1993-94	Position as on March, 1994
Books	592	3829
Monographs		
Back volumes		
Current periodicals	5	95
Reports & Reprints	400	1400

Online Access to Medlars Databases

One of the major activities of the Library and Information Division this year is the establishment of connectivity to NICNET, the prestigious nationwide satellite based computer communication network of National Informatics Centre (NIC). This dial-up link was established using the Micro Earth Station facility and its port 2 installed at Sri Chitra Tirunal Institute for Medical Sciences & Technology. Access to Medical Literature Analysis and Retrieval System

(MEDLARS) comprising 28 databases is provided in this network. One of the most important databases of MEDLARS is Medline which covers citations and abstracts from about 70 countries. In view of the tremendous growth of biomedical disciplines and the increasing need for interdisciplinary information, this network link becomes a boon to the users at RCC to have quick access and speedier retrieval of information. MEDLINE data from 1986 onwards is directly accessible and the previous years by offline. These search facilities are being utilised by the postgraduate students and academic staff from Medical Colleges and other Centres also.

CD ROM based information retrieval

Now the library receives the monthly updated ONCODISC, a one-stop cancer information source on CD ROM produced by National Cancer Institute (NCI), United States, which contain 6 databases including CANCERLIT and PDQ. Subscription to oncodisc databases is provided by NIC free of cost since the very beginning and this is being continued. These databases are heavily and widely used by the clinical and research staff and students. About 150 searches are being made a month.

Library Computerisation

In view of the modernisation of library and information services, steps have been initiated to computerise the house keeping operations. The work is in progress for the creation of the machine readable catalogue of monographs, conference proceedings, theses, reports, reprints etc. using Micro CDS/ISIS ver. 3 application software. For the computerisation of other operations, two packages have been received free of cost from World Health Organization developed by WHO SEARO Library.

RCC Publications

A database of RCC Publications with abstract covering the entire period, from 1980 till date has been created and this is being updated. As CDS/ISIS is used for its generation, quick access and fast retrieval is possible for any kind of search. Based on this database, a publication entitled, "RCC Publications: upto 1993" has been edited and released.

Audio-Visual System

Librarian took over the charge of all the available audiovisual equipments kept in various divisions and its maintenance which includes 5 slide projectors, 3 overhead projectors, VCR, TV, audio and video cassettes, slides and their accessories. Facilities provided for the smooth functioning of the system are widely used.

Other Information Services

Library continued to provide other services. A Current Contents Bulletin consisting of the contents pages of books and journals added to the collection is being distributed and circulated. Based on our users profile, the SDI service provided by BARC library and information services division using the INIS databases are being utilised. A quarterly Press Clippings Service on Oncology and related areas covering the important english dailies in India is being provided. Photocopies of articles and reprints that are not available in RCC Library are collected from INSDOC, National Medical Library, and other Centres. Regarding reprographic services, the entire xerox copy requirements, both professional and official of the Centre are being met by the Library.

RCC Library has renewed the institutional membership of British library, Trivandrum. The interlibrary borrowing facilities with other institutions also continued to be utilised. This was found helpful to a great extent in the context of price hike of books and other materials.

Publications/ Conferences etc. See Sections III & IV

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

- | | |
|---|---|
| Dr. K. Chitrathara, Lecturer in Surgical Oncology | 15th All Kerala Conference of Obsterics & Gynaecology, Kottayam, April, 1993. |
| Dr. Elizabeth K. Abraham, Assoc. Prof. of Pathology | Indian Association of Pathologists & Microbiologists, Regional Chapter meeting, Ernakulam, May, 1993. |
| Dr. T.P. Ramachandran, Prof. of Radiation Physics | Meeting of the evaluation panel for Radiological testing, New Delhi, May, 1993. |
| Smt. Beena R, Staff Nurse | The 29th Annual Conference of the Trained Nurses Association of India, Perumbavoor, June, 1993. |
| Smt. Lissy, C.V., Staff Nurse | do. |
| Dr. Babu Mathew, Prof. of Community Oncology | Vth Annual Conference of Indian Academy of Oral Medicine and Radiology, Madras, July, 1993 |
| Dr. T.P. Ramachandran, Prof. of Radiation Physics | Meeting of the Evaluation of Radiological Instrument BARC, Bombay July 1993. |
| Dr. Jayasree K, Lecturer in Cytopathology. | Workshop on Bone Tumour, Bangalore, July, 1993. |
| Dr. Gladys Jeevy, Anaesthetist | Symposium in Critical care, K.G. Hospital, Coimbatore, July, 1993. |

Dr. Vasudevan Mappat Anaesthesiologist	do
Dr. K. Chitrathara Lecturer in Surgical Oncology	do
Dr. V.P. Gangadharan Asst. Prof. of Medical Oncology	do
Sri. Thomas Abraham, Scientific officer Cancer Research Dept.	Collaborative pilot study at CCMB, Hyderabad, August, 1993.
Dr. Ravindran Ankathil Scientific Officer Cancer Research Dept.	XIV Annual Conference of Indian As- sociation of Biomedical Scientists, Madras, September 1993.
Dr. N. Sreedevi Amma, Prof. of Cytopathology	Interregistry panel of Pathologists meeting of the National Tumour Reg- istry of ICMR, Bangalore, October 1993.
Dr. Kusumakumari Asst. Prof. Paediatric Oncology	Conference of Paediatric Surgeons of India South Zonal, Kodaikanal, Octo- ber, 1993.
Dr. Francis V. James Lecturer in Radiotherapy	International Conference on Pain, New Delhi, October, 1993.
Dr. Paul Sebastian Asst. Prof. of Cancer Surgery	do

Dr. N. Sreedevi Amma Prof. of Cytopathology	CME Programme on Gynaec Pathol- ogy update, Kottayam, October, 1993
Dr. Elizabeth K. Abraham Assoc. Prof of Cytopathology	-do-
Sri. Kurien K. Eapen Systems Manager	Training Courses network interconnectivity Bangalore, Novem- ber 1993.
Dr. Ravindran Ankathil Asst. Prof. of Cancer Re- search	Workshop on molecular genetics and international conference on human genetics and family welfare Pune, De- cember, 1993.
Dr. Prabha Balaram Assoc. Prof. of Cancer Re- search	International Symposium on HLA in Health & Disease, New Delhi, Decem- ber, 1993.
Sri Kurien K. Epen Systems Manager	A Course on Client, Server comput- ing, Hyderabad, December, 1993.
Dr. Prabha Blaram Assoc. Prof. of Cancer Research	XX Annual conference of Indian Im- munology & national symposium on Immunodiagnostic in blood transfu- sion, Bhopal, December, 1993.
Dr. P.G. Jayaprakash Assoc. Prof. of Radio therapy	3rd Annual Conference of Association of Radiation Oncologists of India, Kerala Chapter, Kottayam, December, 1993
Dr. S. Parmeswaran Assoc. Prof. of Radio- therapy	Indo American Cancer Symposium Madras, December, 1993.
Dr. Jayaprakash Madhavan, Asst. Prof. of Radiotherapy	do

Dr. K. Ramadas, Asst. Prof. of Radiotherapy	do	
Dr.P.G. Jayaprakash Assoc. Prof. of Radio- therapy	do	
Dr. Francis V. James lecturer in Radiotherapy	do	
Dr. Jayaprakash Madhavan Asst Prof. of Radiotherapy		XV AROI National Conference Jamshedpur, January 1994.
Dr. Rema Jyothirmayi Lecturer in Radiotherapy	do	
Dr. Rojymon Jacob Lecturer in Radiotherapy	do	
Dr. N. Balakrishnan Nair Prof. of Radiotherapy		3rd International Congress on Oral Cancer, Madras, January, 1994.
Dr. Francis V. James Lecturer in Radiotherapy	do	
Dr. K. Ratheesan Asst. Prof. of Radio- therapy	do	
Smt. Latha P.T Social Investigator	do	

Dr. V. Padmanabhan Assoc. Prof. of Nuclear Medicine		One day meeting of demonstration of Gamma Camera and its applications, Madras, January, 1994.
Dr. Babu Mathew Prof. of Community Oncology		V National Conference of International Union for Health, Madras, January, 1994.
Dr. Ravindran Ankathil Asst. Prof. of Cancer Re- search		Annual Convention of Indian Associa- tion for Cancer Research Hyderabad January, 1994.
Dr. Vasudevan Mappat Anaesthesiologist		The 1st International Conference of Palliative Care, Varanasi, January 1994.
Sr. Vijaya Nursing Superintendent	do	
Smt. Latha P.T. Social Investigator	do	
Smt. Santhamma E.C. Staff Nurse	do	
Dr. Prabha Balaram Assoc. Prof. of Cancer Re- search		6th Kerala Science Congress, Trivandrum, January, 1994.
Dr. Remani P. Lecturer in Cancer Re- search	do	
Dr Sasidharan Prof. of Imageology		28 th International Conference of Radiology, January 1994.

Dr. Ananda Kamath Cytopathologist, ECDC, Palghat	XXIII Annual conference of Indian Academy of Cytologists, Trivandrum January, 1994.		Dr. M. Radhakrishna Pillai Asst. Prof. of Cancer Research	International Atomic Energy Agency Radiation Responsiveness criteria for human tumours as determinant for therapeutic modality planning, Krakow, Poland, February 1994.
Smt. C. Radha Cytotechnologist, ECDS, Palghat		do	Dr. Prabha Balaram Assoc. Prof. of Cancer Re- search	II Annual National Conference of Indian Association of oral pathologists, Dharwad, Karnataka, February 1994.
Smt. Molykutty John Lecturer in Cancer Re- search	Training course in cancer research, Melbourne Australia January, 1994.		Smt. Nirmala Kumari T. Staff Nurse	Orientation programme at TMH, Bom- bay, February, 1994.
Dr. Alex K. Ittyavirah Assoc. Prof. of Imageology	74th Annual Congress of Indian Radiological and Imaging Association Cochin, February, 1994		Smt. Jikky.M., Staff Nurse Smt. Santhakumari, Staff Nurse	do do
Dr. Prabha Balaram Assoc. Prof. of Cancer Research	Meeting of the Indian Co-operative group on Lymphoma Biology Section Paediatrics, NCI, New Delhi. Febru- ary, 1994.		Smt. Sheela V. Radiographer	Workshop on Radioaerosol inhalation imaging in respiratory disorders, Bom- bay, February, 1994.
Dr. P. Kusumakumari Asst. Prof. of Paediatric Oncology	International Symposium in Paediat- ric Oncology, New Delhi, February, 1994.		Dr.V. Padamanabhan Assoc. of.f. Nuclear Medicine	Setting of the question paper for the DRM course of University of Bangalore, March 1994.
Dr. Ananda Kamath Cytopathologist, ECDC, Palghat	44th Annual Congress of Indian Ra- diological & Imaging Association Kochi, February, 1994		Dr. Sudha Raveendran Blood Bank Officer	3rd Annual Meet of Indian Society of blood transfusion and Immunohaem- atology, Kerala Chapter Calicut, March 1994.
Dr. S. Krishna Kumar Lecturer in Imageology		-do-	Dr. Prabha Balaram Assoc. Prof. of Cancer Re- search	Presentation of project proposal, New Delhi, March 1994.
Dr. K. Ramachandran Asst. Prof. of Imageology		-do-	Dr. N. Sreedevi Amma Prof. of Cytopathology	21st Annual course in cytology and colposcopy, Bombay, March 1994.

Dr. Paul Sebastian
Assoc. Prof. of Cancer
Surgery

Head and Neck Surgery Workshop,
Rajasthan, March 1994.

Dr. M. Krishnan Nair
Director

Indo - Japanese Joint Working Party
Meeting Tokyo, Japan, April, 1993.

New Approaches in Pain Manage-
ment, Regional Cancer Centre,
Trivandrum, July, 1993.

National Cancer Control Meeting,
Banff Canada Pain & Palliative Care
Workshop, Toronto." British Council
Programmes in Palliative Care, Lon-
don, Sept, 1993 & Oct. 1993.

Early Detection of Cancer of the
Uterine Cervix, Adyar, Nov., 1993.

Advisory Group Consultation on the
Design Requirements for
Megavoltage X-ray Machine for Can-
cer Treatment in Developing Coun-
tries, Washington, December, 1993.

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ADMINISTRATION

MEMBERS OF THE GOVERNING BODY OF THE REGIONAL CANCER CENTRE - 1993-94

1. Sri K. Karunakaran,
Chief Minister of Kerala,
Thiruvananthapuram Chairman
2. Sri R. Ramachandran Nair
Minister for Health
Govt. of Kerala Vice - Chairman
3. Sri Gopal Krishna Pillai,
Secretary to Govt.
Health & Family Welfare Dept.
Thiruvananthapuram Alt. Vice - Chairman
4. Sri M. Mohankumar,
Commissioner & Secretary to Govt.
Finance Dept.
Thiruvananthapuram Member
5. Sri. K.V. Nambiar,
Secretary to Govt.
Planning Dept.
Thiruvananthapuram Member
6. Dr. S. C. Gupta,
Eminent Scientist Member
7. Dr. M.S. Valiathan,
Eminent Scientist Member
8. Dr.M.A. Aleykutty,
Director of Medical Education
Thiruvananthapuram Member
9. Dr. P. Sivasankara Pillai,
Principal, Medical College,
Thiruvananthapuram Member

10. Secretary to Govt.
Health & Family Welfare Dept.
Govt. of India,
New Delhi Member

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

Members of the Executive Committee of Regional Cancer Centre 1993-94

1. Sri G. Gopalakrishna Pillai, IAS
Commissioner and Secretary to Govt.
Health & Family Welfare Dept.
Govt. of Kerala Chairman (till May '93)
2. Sri Gopal Krishna Pillai, IAS
Secretary to Govt.
Health & Family Welfare Dept.
Govt. of Kerala Chairman (from July '93)
3. Sri. M. Mohankumar, IAS
Commissioner & Secretary to Govt.
Finance Dept., Govt. of Kerala Member
4. Sri. K.V. Nambiar, IAS
Secretary to Govt.
Planning Dept., Govt. of Kerala Member
5. Dr. M. A. Aleykutty
Director of Medical Education
(in charge) & Principal, Medical
College, Trivandrum. Member
6. Dr. M. Krishnan Nair,
Director, Regional Cancer Centre,
Trivandrum. Convener

BUILDING COMMITTEE MEMBERS OF THE R.C.C.

Sri.K. Madhavan Pillai Chief Engineer, P.W.D., Building & Local Works, Thiruvananthapuram.	Chairman
Sri. N.S. Sudhi, Chief Engineer, P.W.D., Buildings & Local Works, Thiruvananthapuram.	-do-
Sri. G. Dharaneendra Panicker Chief Architect, P.W.D., Thiruvananthapuram.	Member
Dr. (Mrs.) M. A. Aleykutty Principal Medical College, Thiruvananthapuram	Member
Dr.M. Krishnan Nair, Director, Regional Cancer Centre, Thiruvananthapuram	Member
Sri. K. R. Bhaskaran Nair, Finance & Accounts Officer, Regional Cancer Centre, Thiruvananthapuram.	Member
Sri. G. Raveendranathan Nair Chief Construction Engineer, Regional Cancer Centre , Thiruvananthapuram.	Convener

MAJOR DECISIONS OF THE EXECUTIVE COMMITTEE 1993-94

The Executive Committee resolved to purchase a Gamma Camera, a Radiotherapy simulator, a Linear accelerator and an Incinerator at an approximate cost of Rs. 100 lakhs with the financial support provided by the Dept. of Health and Family Welfare and Dept. of Atomic Energy, Govt. of India.

The Committee resolved to depute Dr. B. Rajan for training in Stereotactic Radiotherapy in the Neuro Oncology Unit of the Royal Marsdon Hospital, Sutton, U.K. with the sponsorship of the UICC (ICRETT) fellowship for 5 months.

It was resolved to create one post of Assoc. Prof. of Anaesthesiology and to appoint Dr. Gladys Jeevi to that post.

The Committee resolved to approve participation of Dr. M. Krishnan Nair, Director in the Advisory Group Consultations on the "Design Requirements of Megavoltage X-ray Machine for Cancer Treatment in Developing countries" in Washington, his visit to National Cancer Institute, Bethesda, Maryland, USA for Leukaemia project collaborative studies with this Institute, his participation in the International Symposium on Lymphoma and Acute Lymphatic Leukemia at Cairo, W.H.O. working group meeting on Cancer Control Programme at Banff, Canada and working group meeting on Palliative care, University of Alberta, Canada.

It was also resolved to approve participation of Dr. Babu Mathew, Prof. of Community Oncology and be a member of Faculty in a working group meeting on Cancer Control programme at Banff, Canada without financial commitment for his journeys.

The Committee resolved to depute Dr. Vasudevan Mappat, Associate Professor to undergo training in Palliative Care in the International School of Cancer Care at Sir Michael Sobwel House, Oxford without any financial commitment to R.C.C.

It was resolved to permit Sr. Vijaya Puthusseril, Nursing Supdt. to attend training programmes in U.K. one at Princess Alice Hospice, Esher, Sutton, Surrey and the other at Royal Marsdon

Hospital, Sutton, Surrey sponsored by the Cancer Relief Mac Millan Fund, London and British Council, Madras.

Resolved to purchase a Beam Centerline for Cliniac 4 linear accelerator at a cost of US \$ 45, 208/- (Rs. 14.5 lakhs) utilising Govt. of India funds.

The Committee resolved to implement the scales of pay of Govt. of Kerala to the nonacademic staff of the R.C.C. consequent on implementation of Pay Equalisation Committee recommendations.

It was resolved to promote Dr. K. Chithrathara, Lecturer as Asst. Professor in the Cancer Surgery Division, upgrade the post of Lecturer in Community Oncology as Asst. Professor and promote Dr. Remani S. Wesley to that post, upgrade the post of Asst. Prof. of Paediatric Oncology to that of Assoc. Prof. and promote Dr.P.Kusuma Kumari to that post and to upgrade the post of Lecturer in Anaesthesiology to that of Asst. Professor and to promote Dr. S. Chandralekha, Assoc. Prof. of Pathology as Professor of Pathology.

It was also resolved to promote Dr. V. M. Pradeep, Asst. Professor of Imageology as Assoc. Professor of Imageology and Dr. A. S. Krishnakumar, Lecturer in Imageology as Asst. Prof. of Imageology and to promote Dr. Paul Sebastian, Asst. Prof. of Cancer Surgery as Assoc. Prof. of Cancer Surgery.

MAJOR DECISIONS OF THE GOVERNING BODY- 1993 -94

1. The Governing Body resolved to authorise the Chairman and Director to reconstitute the Scientific Committee.
2. It was resolved to recommend to Government to expedite action for approval of the proposal for revision of salary and service conditions of the academic staff of the R.C.C.
3. It was resolved to approve the Annual Report, audited statement of accounts for the year 1992-93 and Budget proposals for the year 1994-95.
4. The Governing Body resolved to approve certain modifications in the IIInd series of the "Cancer Care for Life Scheme" in order to popularise the scheme and to give reduction in family membership. In order to encourage employees of the Institutions to enroll its employees and families to join the scheme, an incentive of Rs. 25/- each for every application not for each member provided a minimum of 500 members are enrolled was recommended.
 - 4(a) It was further resolved that in order to encourage people of the lower economic strata join the scheme, (the Bankers of the scheme) the Federal Bank were permitted to collect the membership fee in instalments and enrolment made only on completing recovery of the membership fee.
 - 4(b) It was further resolved that in order to encourage staff and their family of the R.C.C. joining the scheme, a reduction in membership fee of Rs. 50/- for the staff or one member of his family and Rs. 100/- if more than one member of the family may be given.
5. The Governing Body resolved to recommend to the Govt. to restore the concessions contained in notification SRO No. 493/90 and 1608/90 allowing 4% concession in sales tax for the purchases made by the RCC within the state as in the case of other Govt. Departments.

ENGINEERING DEPARTMENT

Sri. G. Raveendranathan Nair Chief Construction Engineer

The D.A.E. Block for Radiotherapy and Payward was inaugurated by the Hon'ble Chief Minister of Kerala, Sri. K. Karunakaran on 25th January, 1994. The Ground Floor and First Floor of the 6 storey Building accommodates Radiotherapy facilities. A 780 C Theratron Machine with Computerised treatment planning system has already been installed and other machines like Linear Accelerator, Selectron, Simulator, H.D.R. etc. are expected to arrive shortly. The Brachytherapy Unit with 10 beds and an Operation Theatre for radium implantation have also been set up. The remaining 4 floors are for Payward Rooms for 48 persons. There are single rooms, double rooms, A/C Deluxe rooms, the rent varying from Rs. 50/- to Rs. 500/-. The well equipped Canteen is also functioning, catering to the needs of patients and staff. M/s P.R.S. Builders have done the Civil Works for this block at a cost of Rs. 1.65 crores. M/s Blue Star Limited have done the Air-conditioning works for Rs. 20 lakhs. The Electrification works were done by M/s. Reunion Engineering Company Limited for Rs. 22 lakhs. M/s Globe Detective Agency Pvt. Limited have done the Fire Fighting and Fire protection works and M/s Kone Elevator Limited have supplied and installed a 26 person passenger - cum-bed lift. M/s Metal Beds Co. Ltd, Bombay and M/s Jupiter Manufacturing Company, Coimbatore have supplied the Hospital Furniture.

The Civil Works of the Main Building is in progress despite financial constraints. The work is expected to be completed by the middle of next year. The Electrification for this building is being carried out by M/s. Harrisons Malayalam Ltd for Rs. 76,60,000/-. M/s Kone Elevator Pvt. Ltd have been entrusted with the work for supply and Installation of 4 Nos. Lift for Rs. 42,40,000 M/s. Blue Star Limited has been awarded Airconditioning of the Main Building. The Building Committee met 6 times and took timely decisions regarding the Second phase of Construction Programme.

LIST OF STAFF

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

Radiotherapy

Dr. M. Krishnan Nair	- Director & Professor
Dr. N. Balakrishnan Nair	- Professor
Dr. F. Joseph	- Professor
Dr. B. Rajan	- Associate Professor
Dr. T. Gangadevi	- "
Dr. C.S. Rafeeka Beegum	- "
Dr. S. Parameswaran	- "
Dr. P.G. Jayaprakash	- "
Dr. V. N. Bhattathiri	- "
Dr. Jayaprakash Madhavan	- "
Dr. Ramadas. K	- Assistant Professor
Dr. Sureshchandra Dutt	- "
Dr. K. Ratheesan	- "
Dr. Thomas Koilparambil	- Lecturer
Dr. Francis V. James	- "

Dental Wing

Dr. K.R. Nalina Kumari	- Lecturer
Smt. M. Sulochana Bai	- Dental Hygienist

Imageology

Dr. K. Sasidharan	- Professor
Dr. V. Padmanabhan	- Associate Professor
Dr. Alex K. Ittyavirah	- Associate Professor

Dr. V. M. Pradeep	- "
Dr. K. Ramachandran	- Assistant Professor
Sri. Reghuran Nair. K	- "
Dr. A. S. Krishna Kumar	- "
Dr. Kuruvila Varkey	- Lecturer (long leave)
Smt. B. Vimala	- Radiographer
Smt. V. Sheela	- "
Sri. Joe D' Cruz	- "
Smt. B.R. Suja	- "
Smt. S.I. Sathyalekha	- "
Sri. T. Radhakrishnan Nair	- "
Sri. J. S. Sherif	- "
Sri. S. Pradeep	- "
Si. K.R. Udayakumar	- "
Sri. P.P. Prasad	- "
Smt. S.R. Sheeja	- "
Smt. K. Miniamma	- RIA Technician
Smt. B. Bindu	- "
Smt. P. Sindhu	- "

Radiation Physics

Dr. T.P. Ramachandran	- Professor
Dr. P.G. Gopalakrishna Kurup	- Asso. Professor (on leave)
Dr. C. A. Davis	- "
Dr. Thayal Singh Elias	- Assistant Professor
Sri. N. Sadasivan Nair	- Radiographer
Sri. C. Viswanathan	- "
Smt. P. Seetha	- "
Smt. S. Suseelamma	- "
Smt. T.G. Radhamony 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. Sunil Kumar	- "
Smt. K. Geethamma	- "
Smt. K. N. Sailesh Kumar	- "
Smt. C. G. Jayasree	- "
Smt. D. R. Sheeba	- "
Sri. Robert Raj	- "
Smt. D. Sreekala	- Mould Room Technician

Cytology Division

Dr. N. Sreedevi Amma	- Professor
Dr. B. Chandralekha	- "
Dr. Elizabeth K. Abraham	- Assoc. Professor
Dr. Rajasekharan Pillai G	- "
Dr. K. Jayasree	- Asst. Professor
Smt. J. Ambika Kumari	- Senior Scientific Officer
Sri. K. Raveendran Pillai	- Cytotechnologist
Sri. K. Sujathan	- Cytotechnologist
Sri. A. Natarajan	- Cytotechnician
Smt. S. Najeeya	- Lab Technician
Smt. T.P. Brinda	- "
Smt. A. Saina	- "
Smt. S. Sulochana	- "

Surgical Oncology Division

Dr. Thomas Cherian	- Associate Professor (on leave)
--------------------	----------------------------------

Dr. Gladys Jeevy	- "
Dr. Paul Sebastian	- "
Dr. Iqbal Ahamed	- Assistant Professor
Dr. K. Chithrathara	- "
Dr. Rachel Cherian Koshy	- "
Dr. D. K. Vijayakumar	- Lecturer
Sri. R. Hari Kumar	- Chief Anaesthesia Technician
Sri. Thankappan Chettiar	- Helper

Paediatric Oncology

Dr. P. Kusumakumari	- Associate Professor
Dr. N. Geetha	- Lecturer
Dr. S. Rajeev Kumar	- Lecturer (on leave)

Community Oncology

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

Cancer Research

Dr. Prabha Balaram	- Associate Professor
Dr. M. Radhakrishna Pillai	- Assistant Professor
Dr. Ravindran Ankathil	- Assistant Professor
Sri. Thomas Abraham	- Scientific Officer
Smt. Molykutty John	- Lecturer
Dr. P. Remani	- "

Medical Oncology

Dr. V.P. Gangadharan	- Asst. Professor
----------------------	-------------------

Clinical Laboratory

Smt. B. Padmavathy Amma	- Technicl Officer
Smt. J. Usha	- Lab Technician
Smt. P. Renuka	- "
Sri. S. Hariharan	- "
Sri. V. Surendran Nair	- "
Sri. K. R. Rajesh Kumar	- "
Smt. B. Helan	- "
Smt. S. Anitha	- "
Sri. James. T	- "
Smt. A. Leela	- Animal House Keeper cum Attender
Sri. Vikraman Nair	- "

Blood Bank

Dr. Sudha Raveendran	- Blood Bank Officer
Sri. Meera Sahib	- Asst. Technical Officer
Smt. C. Gangadevi	- Lab Technician
Sri. Sanjai D	- "

Palliative Care

Dr. Vasudevan Mappat	- Anaeshesiologist
----------------------	--------------------

Ethnopharmacology Division

Dr. Stephen J	- Associate Professor
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Pharmacy

Smt. Maya K.C.	Pharmacist
Sri. Selvaraj	- Head Clerk

Hospital Cancer Registry & Medical Records

Mr. P. Gangadharan	- Assoc: Professor
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	- Medical Records & Clinical Services Officer
Smt. G. Padmakumari Amma	- Medical Statistician
Smt. Aleyamma Mathew	- Lecturer in Computational Statistics & Electronic Data Processing
Sri. Kurien K. Eapen	- Systems Manager in Computer Applications
Smt. P. T. Latha	- Social Investigator
Smt. Anitha Nayar	- Social Investigator
Smt. V. Jalaja Kumari	- Clerk
Sri. L. G. Amaldas	- Clerk
Sri. Rajasekharan Nair	- Clerk
Smt. D. Chandrika	- Coding Clerk
Smt. B. Sreekumar	- Coding Clerk
Smt. P. G. Saraladevi	- Cashier
Smt. R. Sheela Kumari	- "
Sri. C. Mohanachandran Nair	- Clinical Records Assistant
Sri. K. Anil Kumar	- "
Smt. Siju R Nair	- "
Smt. S. Sreelatha	- "
Smt. M. A. Mariamma	- "
Sri. K. Thankappan Nair	- Telephone Operator - cum- Receptionist
Sri. S. Rajayyan	- Helper

Security

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

Nursing Services

Sr. Vijaya	- Chief Nursing Officer
Smt. Flower Augustine	- Nursing Supdt.
Smt. S. Geetha	- Head Nurse
Smt. E. Saraswathy Amma	- "
Smt. Graceamma Joseph	- "
Sr. Modesty	- "
Smt. Lizyamma Jacob	- "
Smt. Annamma Jacob	- "
Smt. Aleykutty P.M.	- "
Smt. V. S. Anithamony	- Staff Nurse
Smt. S. Prasanna Kumari	- "
Smt. Sheela Rodreguez	- "
Smt. Christeen V	- "
Smt. N. Sobhana	- " (on leave)
Smt. V. Valsala Kumari	- "
Smt. R. Sunitha Kumari	- "
Smt. S. Jayalekshmi	- " (on leave)
Smt. B. S. Geethakumari	- "

Smt. L. Mini	-	"
Smt. P. V. Padmaja	-	Staff Nurse
Smt. Sulekha Beevi. P	-	"
Smt. N. Geetha	-	"
Smt. Shamla Beevi	-	"
Smt. C. Girija	-	"
Smt. T. Sreedevi	-	"
Smt. V. K. Pushpalatha	-	"
Smt. Jolly I. G.	-	" (on leave)
Smt. C. N. Ani	-	"
Smt. S. Sobha	-	"
Smt. Valsamma N. A.	-	"
Smt. Susan Albert	-	"
Smt. S. Syamala	-	"
Smt. Philomina Joseph	-	"
Smt. Jayasree P	-	"
Smt. C. V. Lissy	-	"
Smt. K. Omana	-	"
Smt. Laila K. P.	-	"
Smt. Mercy P. J.	-	"
Smt. T. S. Jaya	-	"
Smt. O. B. Lekshmidevi Amma	-	"
Smt. S. Nissa	-	"
Smt. Mercy K. Varghese	-	"
Smt. Sasikala Amma P	-	"
Smt. S. V. Sheeba	-	"
Smt. K. Jayakumari	-	"
Smt. Jayasree S.	-	"
Smt. Jikky M.	-	"
Smt. A. K. Vijaya	-	"
Smt. E. C. Santhamma	-	"
Smt. K. Salma	-	"

Smt. P. K. Santhakumari	-	"
Smt. P. T. Geetha	-	"
Smt. T. K. Sasikala	-	"
Smt. S. Lekha	-	"
Smt. R. V. Lissy	-	"
Smt. Anna V. J.	-	"
Smt. Linnet Sebastian	-	"
Smt. Beena R	-	"
Smt. K. J. Lillykutty	-	"
Smt. Aniamma Joseph	-	"
Smt. Nirmalakumari T.	-	"
Smt. Daisy Mathew	-	"
Smt. Sudha P. M.	-	"
Smt. Rejila Beegum	-	"
Smt. Annamma Simon	-	"
Smt. P. N. Sindhu	-	"
Smt. C. S. Girija Devi	-	"
Smt. Gracy George	-	"
Smt. Sisy Das	-	"
Smt. Sally Abraham	-	"
Smt. Maya G	-	"
Smt. Shema C	-	"
Smt. T. Anitha	-	"
Smt. P. K. Ajitha	-	"
Smt. V. C. Minimol	-	"
Smt. S. Beena Rani	-	"
Smt. S. Sindhu	-	"
Smt. Suneethi M. S.	-	"
Smt. K. M. Minilal	-	"
Smt. M. B. Latha	-	"
Smt. Priyamvada V Attukadavil	-	"

Library

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

Director's Office

Sri. N. Ramaswamy Iyer	- Secretary & CA to Director
Smt. B. Savithri Amma	- Confidential Assistant
Sri. P. Antony	- Helper

Administrative Office

Sri. C. V. Francis	- Registrar
Sri. K. J. Zacharias	- Administrative Officer
Sri. K. R. Bhaskaran Nair	- Finance & Accounts Officer
Sri. K. J. Raju	- Finance Officer
Sri. G. Gnaneswaran	- Accountant
Sri. K. Sreedharan Nair	- Office Assistant
Sri. S. V. Sasikumar	- "
Smt. C. K. Ramila	- "
Smt. B. Lalitha	- "
Smt. Jumailathu Beevi K. M.	- "
Smt. Beena N	- "
Smt. Shylaja C	- "
Sri. Sasikumar K	- Cashier
Smt. Usha V	- Data Entry Operator
Smt. Sudevi R	- Confidential Assistant
Smt. Mallikadevi S	- "
Smt. Anitha S	- "
Sri. Sasikumaran Nair R	- Helper cum watchman
Sri. P. Krishnan Nair	- Driver
Sri. P. Sreekumaran Nair	- "

Sri. N. Sasidharan Nair	- "
Sri. T. P. Krishnadasan	- "
Sri. Subair M	- Helper
Sri. Devaraja Panicker K	- "
Sri. Anil Kumar R	- "
Sri. Hari C	- "
Sri. Balachandran K. G.	- "
Sri. Gopakumar P	- "
Smt. Seetha Lakshmi P. S	- "
Smt. Amrithamma M.	- "
Sri. Santhosh Kumar C. S.	- "
Sri. John Evidus P.P.	- "
Sri. Krishnankutty A	- "
Sri. Krishnankutty R	- "
Sri. Suresh P. S.	- "
Sri. Balachandran L	- "
Sri. Sivankutty K	- "
Sri. Senan S	- "

Engineering Wing

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

Early Cancer Detection Centre, Ernakulam

Dr. B. Syamala Kumari	- Cytopathologist
-----------------------	-------------------

Smt. Mercy Joseph	-	Cytotechnologist
Sri. Jayalal K. S.	-	Cytotechnician
Smt. Ambujam P. V.	-	Staff Nurse
Sri. Abdul Rahiman P. M.	-	Helper
Sri. Dass G	-	"

Early Cancer Detection Centre, Palakkad

Dr. Ananda Kamath	-	Cytopathologist
Smt. Radha C	-	Cytotechnologist
Sri. James Thomas	-	Cytotechnician
Smt. Nirmala K. C.	-	Staff Nurse
Sri. Soman V	-	Helper
Sri. Louis T. C.	-	"

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 Science & 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 Welsch, 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 Research, 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 Rever, Dr. Tersesa Ulrey, Dr. Sudha A. Ved, Dr. Karen Colton, Dr. K. Vinayakom, Georgetown University Medical Centre, Washington.

ACCOUNTS
REGIONAL CANCER CENTRE
(REG. NO.
BALANCE SHEET

<i>LIABILITIES</i>		
Previous Year Amount (Rupees)		Current Year Amount (Rupees)
111,220,547.00	CAPITAL FUND	148,729,756.21
124,432.00	Specific funds	413,905.15
160,000.00	Capital grants	-
4,421,527.00	Unutilised grants	2,446,100.45
18,961,170.00	Cancer Care for life funds	22,283,518.10
488,512.00	Advance received for research projects	3,117,451.05
14,431,603.00	Secured loans	12,360,644.69
	Current liabilities and Provisions:	
8,627,870.00	Sundry Creditors	8,260,179.86
348,919.00	Recoveries pending remittance	595,300.45
36,377,652.00	Provision for depreciation.	45,741,216.27
195,162,232.00	Total	243,948,072.23

Place: Trivandrum
Date: 31.01.1995

Auditor's Report
Vide our separate report of even date

1993 - '94
SOCIETY, TRIVANDRUM
567/81)
AS ON 31.3.1994

<i>ASSETS</i>		
Previous Year Amount (Rupees)		Current Year Amount (Rupees)
94,204,652.00	FIXED ASSETS	123,983,230.32
809,488.00	Machinery at site	-
26,043,189.00	Capital work in progress	27,144,482.51
20,686,114.00	Investments	23,768,866.05
346,059.00	Deposits	356,175.00
	Current Assets, Loans and Advances:	
4,309,223.00	Closing stock	2,855,347.67
612,713.00	Interest accrued on deposits	640,909.00
891,929.00	Advances to projects	1,248,930.07
8,865,874.00	Advances-Others	9,767,177.56
1,913,828.00	Sundry debtors	-
3,946,038.00	Balance with banks	4,456,922.05
37,335.00	Cash in hand	19,397.15
3,000,000.00	Cash in transit	5,000,000.00
29,495,790.00	Income and Expenditure account	44,706,634.85
195,162,232.00	Total	243,948,072.23

Sd/-
S. Vijayakumar

**REGIONAL CANCER CENTRE
(REG. NO.)**

INCOME AND EXPENDITURE ACCOUNT

**SOCIETY, TRIVANDRUM
567/81)**

FOR THE YEAR ENDED 31.3.1994

<i>EXPENDITURE</i>		
Previous Year Amount (Rupees)	Current Year Amount (Rupees)	
3,074,176.00	Opening stock	4,115,532.05
7,241,855.00	Purchases	8,396,836.07
11,075,784.00	Salaries and Allowances	14,847,308.72
42,600.00	Consultation Service fee	50,400.00
34,209.00	Uniform and Liveries	87,102.30
34,719.00	Rent, Rates and taxes	14,459.65
389,586.00	Postage, Telegram and Telephone	498,306.60
219,115.00	Travelling expenses	322,883.05
410,547.00	Printing and Stationery	472,641.50
127,082.00	Advertisement	144,056.00
996,336.00	Electricity & Water charges	1,283,643.85
100.00	Legal charges	-
11,500.00	Remuneration to Auditors	18,000.00
1,398,964.00	Repairs & Maintenance	2,660,677.45
548,050.00	Service contract charges	640,583.25
2,644,797.00	Interest & Bank charges	2,073,203.00
5,833.00	Training expenses	23,681.00
46,984.00	Conference, Seminar and Workshop	142,364.00
15,236.00	Computer expenses	28,773.20
14,668.00	Books & Periodicals	1,780.00
17,667.00	Landscaping and Gardening	29,669.50
315,549.00	Proportionate Share of N.T.R.	364,608.95
78,212.00	Miscellaneous expenses	34,465.65
<u>8,832,822.00</u>	Depreciation	<u>11,583,444.10</u>
<u>37,576,391.00</u>	Total	<u>47,834,419.89</u>

Place: Trivandrum
Date: 31.01.1995

<i>INCOME</i>		
Previous Year Amount (Rupees)	Current Year Amount (Rupees)	
13,594,589.00	Grant received	10,953,723.05
11,458,039.00	Investigation fees	16,350,247.00
-	Ward charges	205,410.00
485,440.00	Interest received	521,596.00
2,950.00	Training fee	7,635.00
1,750.00	Donation	14,801.00
65,864.00	Miscellaneous receipts	182,122.90
4,115,532.00	Closing stock	2,675,534.42
7,852,227.00	Excess of expenditure over income during the year	16,923,350.52
<u>37,576,391.00</u>	Total	<u>47,834,419.89</u>

Sd/-
S. Vijayakumar

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

**SOCIETY, TRIVANDRUM
567/81)
FOR LIFE SCHEME
FOR THE YEAR ENDED 31.3.1994**

<i>EXPENDITURE</i>		
Previous Year Amount (Rupees)		Current Year Amount (Rupees)
43,896.00	Salaries and Allowances	49,950.00
15,000.00	Advertisement and Publicity	
13,014.00	Printing and forwarding of Membership Card	51,654.00
43,175.00	Printing & Stationery	
236.00	Cost of Application form	
22,959.00	Postage, Telephone & Telegram	30,677.00
34,394.00	Repairs & Maintenance-Vehicle	
	-Fuel charges 13,649.65	
	-Maintenance 1,167.00	
	-Insurance 5,087.00	
	-Spare parts 1,095.00	20,998.65
582,675.00	Cost of Medicine & Expenses reimbursed to patients	1,336,999.80
4,213.00	Miscellaneous expenses	4,733.00
406,575.00	Commission to Federal Bank	822,444.50
2,097,523.00	Excess of Income over Expenditure	1,195,400.60
3,263,660.00	Total	3,512,857.55

Place: Trivandrum
Date: 31.01.1995

<i>INCOME</i>		
Previous Year Amount (Rupees)		Current Year Amount (Rupees)
2,216,334.00	Interest on Fixed deposits and other investments	2,682,271.55
1,047,326.00	CCL Membership fee not invested	830,586.00
3,263,660.00	Total	3,512,857.55

Sd/-
S. Vijayakumar

**REGIONAL CANCER CENTRE
(REG. NO.**

SCHEDULE OF FIXED

Particulars	GROSS BLOCK			Cost as on 31.3.1994
	Cost as on 1.4.93	Additions	Sale/ Adjustments	
Buildings (old)	860,110.25			860,110.25
Building	26,403,488.66	368,762.00		26,772,250.66
Building-Rt		14,208,440.70		14,208,440.70
Boundary Wall	127,118.63			127,118.63
Water Supply	1,175,784.93			1,175,784.93
Furniture & Fittings	2,775,157.19	1,317,438.97		4,092,596.16
Office Equipments	668,905.42	38,365.40		707,270.82
Telephone Equipments	800,696.00	45,890.00		846,586.00
Hospital & Lab Equipments	43,959,846.57	11,493,550.70	2,219,880.00	53,233,517.27
Electrical Installation And Fittings	6,376,509.90	2,126,278.00		8,502,787.90
Fire Detection	294,027.00	318,135.00		612,162.00
Air conditioning	6,625,883.35	280,820.00		6,906,703.35
Computer (Hardware)	332,053.00	621,470.00		953,523.00
Gas Plant & Cylinders	441,968.15	520,843.00		962,811.15
Vehicles	444,597.95			444,597.95
Library Books	1,265,313.85	635,614.70		1,900,928.55
Lift/Elevator	1,325,579.00	12,850.00		1,338,429.00
Assets Received as Donations	327,612.00	10,000.00		337,612.00
Total	94,204,651.85	31,998,458.47	2,219,880.00	123,983,230.32

Place: Trivandrum
Date: 31.01.1995

**SOCIETY, TRIVANDRUM
567/81)**

ASSETS AS ON 31.3.1994

DEPRECIATION BLOCK			NET BLOCK		
Upto 31.3.1993	Additions	Adjustments	Total Upto 31.3.94	As on 31.3.94	As on 31.3.93
261,127.25	29,949.00		291,076.25	569,034.00	598,963.00
4,387,341.18	1,119,245.00		5,506,586.18	21,265,664.48	22,016,147.48
	710,422.00		710,422.00	13,498,018.70	
28,755.63	4,918.00		33,673.63	93,445.00	98,363.00
494,080.73	102,255.20		596,335.93	579,449.00	681,704.20
743,088.19	334,950.97		1,078,039.16	3,014,557.00	2,032,069.00
238,799.02	70,270.40		309,069.42	398,201.40	430,106.40
348,916.00	74,650.00		423,566.00	423,020.00	451,780.00
23,032,271.57	6,674,911.38	2,219,880.00	27,487,302.95	25,746,214.32	20,927,575.00
2,960,430.90	831,354.00		3,791,784.90	4,711,003.00	3,416,079.00
69,604.00	81,384.00		150,988.00	461,174.00	224,423.00
2,428,677.35	671,704.00		3,100,381.35	3,806,322.00	4,197,206.00
207,903.00	298,248.00		506,151.00	447,372.00	124,150.00
112,988.00	127,473.15		240,461.15	722,350.00	328,980.15
284,118.95	32,096.00		316,214.95	128,383.00	160,479.00
403,122.40	224,671.00		627,793.40	1,273,135.15	862,191.45
359,383.00	146,857.00		506,240.00	832,189.00	966,196.00
17,045.00	48,085.00		65,130.00	272,482.00	310,567.00
Total	36,377,652.17	11,583,444.10	2,219,880.00	45,741,216.27	57,826,999.68

Sd/-
S. Vijayakumar

NOTES FORMING PART OF ACCOUNTS

1. An amount of Rs. 2,37,582.00 paid during the year in respect of expenses for the financial year 1994-95 has been shown as prepaid expenses, under Schedule of Advances-others to Balance Sheet.
2. Out of the Grant received from Government of Kerala during the Financial year 1993-94 amounting to Rs. 342.25 lakhs and amount of Rs. 232.71 lakhs have been transferred to capital fund, representing Fixed Assets acquired or construction of building during the year. The balance of Rs. 109.54 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. 15,897/- 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 amount 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 accounts 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. 10,000/- representing value of assets received as donation in kind have been included in the Fixed Assets by credit to Capital Fund and depreciation provided on these assets have been made as per the rates applicable.
9. The balance in party accounts are subject to confirmation.
10. Capital commitments pending execution as at 31st March, 1994 works out Rs. 4,84,65,666.23 which represents building work phase-II.
11. Stationery account is on cash basis and no stock in hand is taken into account as on 31st March, 1994.
12. The purchase as shown in the income and expenditure account is the net of sales during the year 1993-94.
13. Previous year figures have been re-grouped wherever necessary.

for M/s VIJAYAKUMAR & EASWARAN
Chartered Accountants

Sd/-
(S. Vijayakumar)

Place: Trivandrum
Dated: 31.01.1995

AUDIT REPORT

We have examined the attached Balance Sheet of the Regional Cancer Centre Society, Regn. No. 567/81, Thiruvananthapuram as on 31.3.1994 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. 342.25 lakhs received from Government of Kerala between Capital and Revenue at Rs. 232.71 lakhs and Rs. 109.54 lakhs respectively, on the basis of the addition to fixed assets or construction of building during the year 1993-94 as referred to in Note - 2.

- (iv) The land assigned by the State Government vide GO/619/88/RD dt 28.7.1988, measuring 69 cents at Palghat and the building constructed thereon has not been brought to the account for want of clear title 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. GO/MS/1054/22/RD dated 17.11.1982 had 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 CC FUND ACCOUNT amounting to Rs. 15,897/- has been shown as Term Deposit Suspense Accounts as referred to in Note No. 3 and
- (vii) A portion of the Building-Phase-II has been capitalised as "Building Works-Phase-II RT" on the basis of the approximate cost.
- (viii) The Balance Sheet read with notes thereon gives a true and fair view of the state of affairs of the society as at 31.3.1994, and
- (ix) The Income and Expenditure Account read with notes thereon give a true and fair view of the deficit of the society as at 31.3.1994.

for M/s VIJAYAKUMAR & EASWARAN
Chartered Accountants

Sd/-
(S. Vijayakumar)

Place: Trivandrum
Dated : 31.01.1995

VIJAYAKUMAR & EASWARAN
Chartered Accountants

Cheruvilakom
Sasthamangalam
Trivandrum-10
Phone: (O) 64580
(R) 67769

UTILISATION CERTIFICATE

Certified that the grant of Rs. 3,42,25,000/- (Rupees Three crores forty-two lakhs twenty-five thousand only) received during the Financial year 1993-94 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) 1252/93 Dated 13.5.1993	80.00
G.O. (Rt) 1824/93 Dated 12.7.1993	30.00
G.O. (Rt) 2203/93 Dated 19.8.1993	80.00
G.O. (Rt) 3006/93 Dated 16.11.1993	80.00
G.O. (Rt) 521/94 Dated 9.2.1994	72.25
Total	342.25

have been utilised by the Society during the Financial year 1993-94 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

Sd/-
(S. Vijayakumar)

Place: Trivandrum
Dated : 31.01.1995

VIJAYAKUMAR & EASWARAN
Chartered Accountants

Cheruvilakom
Sasthamangalam
Trivandrum-10
Phone: (O) 64580
(R) 67769

UTILISATION CERTIFICATE

Certified that an amount of Rs. 50,26,491/- (Rupees fifty lakhs twenty-six thousand four hundred and ninety-one only) has been utilised out of the following grants:

	Amount (in rupees)
Grant received during the Financial year 1993-94 vide letter No. 22015/1/93-R dated 28.3.1994 from Ministry of Health and Family Welfare, Government of India, New Delhi	50,00,000.00
Add: Unutilised grant of the Financial year 1992-93	26,491.00
Total	50,26,491.00

by the Regional Cancer Centre Society, Trivandrum during the financial year 1993-94 for acquiring equipments for the development of the society.

for M/s VIJAYAKUMAR & EASWARAN
Chartered Accountants

Sd/-
(S. Vijayakumar)

Place: Trivandrum
Dated : 31.01.1995

VIJAYAKUMAR & EASWARAN
Chartered Accountants

Cheruvilakom
Sasthamangalam
Trivandrum-10
Phone: (O) 64580
(R) 67769

UTILISATION CERTIFICATE

Certified that an amount of Rs. 38,88,506.60 (Rupees Thirty-eight lakhs Eighty eight thousand five hundred and six and paise sixty only) has been utilised out of the following grants:

	Amount (in rupees)
Grant received during the Financial year 1993-94 vide letter No. 5/3/91-G/1404 dated 27.7.1994 from Department of Atomic Energy Government of India, New Delhi	20,00,000.00
Add: Unutilised grant of the Financial year 1992-93	15,00,000.00
Unutilised grant of the financial year 1991-92	<u>25,00,000.00</u>
	60,00,000.00
Less: Unutilised grant carried to financial year 1994-95	21,11,493.40
Total	<u>38,88,506.60</u>

by the Regional Cancer Centre Society, Trivandrum during the financial year 1993-94 for acquiring equipments for the development of the society.

for M/s VIJAYAKUMAR & EASWARAN
Chartered Accountants
Sd/-
(S. Vijayakumar)

Place: Trivandrum
Dated : 31.01.1995

CANCER CARE FOR LIFE SCHEME

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 is not a cancer patient could become a member of the scheme by filling in an application form for membership and 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 and travel 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 June, 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 Rs. 500/- per person and a discount for family membership.

Details of working of the scheme are given below

	Upto 31.3.1993	During 1993-94	Upto 31.3.1994
1. No. of persons enrolled in the scheme	1,77,000	19000	196000
2. Investments under the scheme	Rs.2,03,20,000	34,49,000	2,37,69,000
3. No. of persons to whom benefits have been made available under the scheme	300	112	412
4. Expenditure incurred on granting benefits under the scheme. Rs.	15,29,000	13,37,000	28,66,000