



REGIONAL CANCER CENTRE

TRIVANDRUM

1984 - 1985



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Shri. K. KARUNAKARAN

Hon. Chief Minister of Kerala laid the foundation stone of the R. C. C. building on 11th September 1984.

CONTENTS

- I. Introduction
- II. Departmental Activities
 - 1) Division of Radiotherapy
 - 2) Division of Cancer Surgery
 - 3) Division of Paediatric Oncology
 - 4) Dental Wing
 - 5) Division of Nuclear Medicine
 - 6) Division of Radiation Physics
 - 7) Division of Cytopathology
 - 8) Division of Research
 - 9) Division of Medical Records & Statistics & Cancer Registry
 - 10) Community Oriented Programmes
- III. Research Papers Published/
Presented in Conferences
- IV. Conferences/Seminars/Trainings etc.
attended by Staff
- V. Teaching Programmes
- VI. Academic Achievements
- VII. Distinguished Visitors
- VIII. Administration
 - 1) Governing Body Members
 - 2) Executive Committee Members
 - 3) Scientific Committee Members
 - 4) Building Committee Members
 - 5) Major recommendations of the Governing Body
 - 6) Major recommendations of the Executive Committee
- IX. Engineering Department
- X. Accounts
- XI. Staff
- XII. Acknowledgements

INTRODUCTION

The year under report, 1984-'85, marked the fourth year of existence of the Regional Cancer Centre and witnessed major changes and progress, despite the shortcomings and constraints associated with new institutes.

The important development during this year was the finalisation of the building plan and the subsequent approval of the same by the Governing Body.

Shri K. Karunakaran, Chief Minister of Kerala laid the foundation stone of the Regional Cancer Centre building in the Trivandrum Medical College Campus on 11-9-1984. It is quite gratifying to note that the construction work has been in progress in spite of the paucity of funds.

An earnest attempt was made by the Centre to give priority to Community Research Programmes and also to identify new thrust areas for research, especially in the Epidemiology of Cancer and its prevention. As a prelude to this ambitious programme, an Early Cancer Detection Centre was started on 15th August, 1984 at Ernakulam.

The Scientific and Research activities of the Centre gained considerable momentum. Excellent papers were either published in journals of repute or presented in conferences, and some of these gained international acceptance. As in the previous years ample opportunities were given to the staff for attending conferences, seminars, teaching and training programmes. During the year the Centre was fortunate in having some distinguished visitors, whose lectures and discussions with the staff were very much beneficial.

As a collaborative effort a full-fledged Paediatric Oncology section was organised, during the year, for improving the care and the quality of treatment of children with cancer.

In order to cope with the escalating workload and to fulfil the objectives of the Centre a staff scheme for the next five years has been adopted on the basis of the recommendation of the Scientific Committee.

The overall activities and the statement of accounts of the Regional Cancer Centre, Trivandrum are furnished in the report of the year 1984-'85.

DEPARTMENTAL ACTIVITIES

DIVISION OF RADIOTHERAPY:

Dr. M. Krishnan Nair	: Director and Professor
Dr. T. K. Padmanabhan	: Superintendent and Professor
Dr. F. Joseph	: Associate Professor
Dr. B. Rajan	: Associate Professor
Dr. T. Gangadevi	: Asst. Professor
Dr. C. S. Kuttappan	: Asst. Professor
Dr. G. Suresh Chandra Dutt	: Asst. Professor
Dr. P. G. Jayaprakash	: Asst. Professor
Dr. S. Parameswaran	: Asst. Professor
Dr. C. S. Rafeeka Beegum	: Tutor
Dr. V. N. Bhattathiri	: Tutor
Dr. P. R. Sasindran	: Tutor
Dr. Jayaprakash Madhavan	: Tutor
Dr. A. Sudhakaran	: Tutor
Dr. R. Gireesan	: Tutor
Dr. C. S. Madhu	: Tutor
Dr. K. Ratheesan	: Lecturer

CLINICAL

Number of new cases registered : 4060

Total number of patients
(New & Old) : 29763

Total number of I.P. Admissions	: 2512
Total number of selectron cases (no. of insertions)	: 400
Number of radium insertions for Carcinoma Cervix	: 40
Number of radium implantations	: 144
Number of radium mould	: 10
Intra cavitory application of Co ⁶⁰ to Ca.Oesophagus	: 14
Number of cases treated with teletherapy	: 4453
Number of cases treated with C. T.	: 4475

Radiotherapy and Oncology O.P. clinics were held on all working days. More than 4000 new cancer patients were seen during the year. Radiotherapy treatment was given both as out-patients and as in-patients. Chemotherapy was also administered both as OP and IP.

ACADEMIC :

Noon clinic:

All interesting and problem cases were discussed every day in the noon clinic for the benefit of Junior staff and students and also to arrive at the correct diagnosis and optimum treatment for the patient.

Paediatric Oncology Clinic:

Paediatric Oncology clinic was held once in a week to discuss all cases of children with malignancies.

Trophoblastic tumour clinic was held once in a week in the SAT Hospital with the help of Gynaecologists.

Oncology Seminar:

In order to provide up to date information on various aspects of cancer and to have interactions with persons engaged in different disciplines, seminars in Oncology were conducted regularly once every month. Apart from the staff of the Regional Cancer Centre and Medical College who are actually engaged in respective areas, foreign scientists and doctors have also given valuable lectures under this programme. They include Prof. E. J. Ambrose, Dr. K. B. Horibata and Dr. Tadashi Sugava. All aspects of experimental, diagnostic and clinical Oncology are being covered in these seminars which are well attended by postgraduate medical students, research scientists and doctors. These seminars have enabled us also to plan our new projects in clinical Oncology. Some of the major topics covered were:-

Review of current cancer chemotherapy

Dr. K. Horibata, Tokyo, Nippan Kayaku Company, Tokyo.

Chemotherapy in Gynaecologic malignancies

Dr. Tadashi Sugava Osaka University.

Histopathology of malignant ovarian tumour

Dr. M. Balaraman Nair, Principal, Medical College, Trivandrum.

Cytology of Ovarian tumours

Dr. N. Sreedevi Amma, Prof. of Cytology, RCC.

Brachytherapy with selectron—the present status

Dr. P. G. Jayaprakash, Asst. Professor, RCC.

Recent trends in cancer research

Prof. E. J. Ambrose, London.

Hybridoma techniques and application

Dr. Prabha Balram, RCC.

Teaching and Training: Regular teaching and training were imparted to the following categories of students.

M.D. (Radiotherapy) : 2 students per year

DMRT : 2 students per year

CRA (Certified radiological assistants) : 30 students per year

MS (General surgery) : 30 students per year

MD (Gynaecology) : 30 students per year

M.B.B.S. : 180 students per year

Special Programme : We had two intensive teaching and discussion of various topics in radiotherapy by Dr. R.C.S. Pointon Director, Christie Hospital and Holt Radium Institute, Manchester, England and Dr. M. L. Sutton Consultant, Radiotherapist, Christie Hospital and Holt Radium Institute, Manchester, England.

Papers Published / Seminars / Conference attended etc:

1. Dr. M. Krishnan Nair, Dr. T.K. Padmanabhan : Epidemiology of oral cancer in Kerala. Paper presented at the International Conference on Head and Neck Cancer 1984, Sept. at Baltimore, USA.
2. Dr. T.K. Padmanabhan & Dr. M. Krishnan Nair
Carcinoma Nasopharynx – Experience in Regional Cancer Centre, Trivandrum. Paper presented at the International Conference on Head and Neck Cancer 1984 Sept. at Baltimore, USA.

3. Dr. T.K. Padmanabhan, Dr. S.G. Dutt, Dr. D.M. Vasudevan, T. Vijayakumar : Giant Tonsillolith simulating tumour of the tonsil – A case report. Indian Journal of Cancer Vol. 21 (1984).
4. Dr. G. Suresh Chandra Dutt, Dr. Sathi, Dr. T.K. Padmanabhan, Dr. M. Krishnan Nair.
Neuroblastoma presenting as phantom Hernia pp 342, KMJ Vol. 25 1984.
5. Dr. M. Krishnan Nair, Cancer Control in developing countries UICC Meeting, Kuwait, 1984 Dec.
6. Dr. M. Krishnan Nair and Dr. P. G. Jayaprakash in "Brachytherapy" Ed. R.F. Mould. Nucleatron Co. Holland 1984.

DIVISION OF CANCER SURGERY

Dr. Thomas Cherian, Asst. Professor.

Dr. Paul Sebastian, Lecturer.

Dr. K.L. Jayakumar of ICMR Project.

Major activities

Clinical Service: This department got more actively involved in the surgical management of cancer especially of the head and neck in co-operation with the other oncological specialities. In spite of the limited facilities 234 operations (Major abalative surgeries such as wide excision, hemimandibulectomy with supra-mohyoid block, total glossectomy, radical block dissection neck, mastectomy, thyroidectomy etc) were routinely undertaken. It is the policy right from the beginning to do primary reconstruction in all cases of Oromandibular surgery. This division evolved a few new surgical techniques which are to be shortly published.

Research activities

This division co-operates actively with the research division of the Centre. A research fellow attached to the ICMR Project is involved in the isolation of the tumour associated antigen in carcinoma of the tongue. Kerala being an area with a large

proportion of cancer of oromandibular region is ideally set to study and clear certain ambiguities associated with treatment of cancer of this region. This division will be embarking on a major, strictly randomised trial of various treatment modalities of cancer of the oral cavity in association with other major centres.

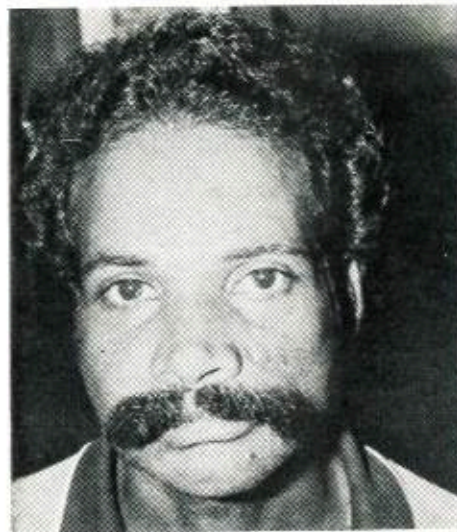
The following papers are under publication.

A simple technique for an aesthetically acceptable normal hair bearing repair of full thickness defect of upper lip. (See Fig.)

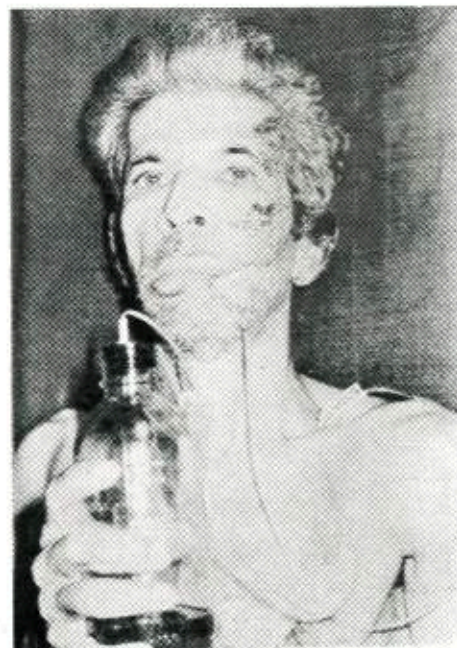
A simple and effective vacuum suction drain for closed wound drainage, useful in plastic and reconstructive surgery, made from readily available materials in the hospital (See Fig.).

During the year this division got an operation table, a Boyles Anaesthetic apparatus, and an electro surgical unit, and full range of fibrotic endoscopes. The endoscopic services will be started soon.

Dr. Thomas Cherian attended the International workshop on Head and Neck Cancer held at New Delhi in 1984.



The result of the single stage normal hairbearing Primary reconstruction of one half of upper lip following wide excision of Carcinoma of upper lip and adjoining area



A ready made disposable effective Vacuum suction drain for closed wound drainage

DIVISION OF PAEDIATRIC ONCOLOGY

Dr. P. Kusumakumari – Lecturer

The Paediatric Oncology Division was started on the basis of the recommendation of the Scientific Committee of the Regional Cancer Centre, in recognition of the need to provide specialist service to children with cancer. It is the common knowledge that about 60 percent of the children with cancer could be cured of their illness if they are properly followed up and treated adequately. The Paediatric Oncology service was started with the help of Dr. Alphonsa J. Erinjeri M. D. as consultant. During the year under report 150 new cases were seen in the section, under the following categories.

1. Brain tumour	— 36
2. Leukaemia	— 30
3. Lymphoma	— 22
4. Soft tissue Sarcoma	— 11
5. Bone tumours	— 11
6. Neuroblastoma	— 9
7. Kidney tumour	— 9
8. Others	— 23

All patients were investigated on modern lines with complete haematology, bone marrow, CSF aspiration, abdominal scan, CT & ultrasound, liver function test, renal function test and other investigations and were treated adequately by a multi disciplinary approach by a team consisting of Paediatric Oncologists Paediatric Surgeon, Radiotherapists and Paediatric Pathologists. This treatment was given free to poor patients on the basis of recommendations from the academic forum of the Regional Cancer Centre namely the noon clinic. The multi disciplinary team met every week and there were lively discussions on the management of each case. The decision of the Paediatric Tumour Conference was binding on all staff in the management of these cases.

This department actively participated in the Leukaemia clinics conducted in the SAT Hospital and also imparted training to MD and DCH students in Paediatrics.

Dr. Kusumakumari attended the Paediatric Oncology training Programme in Tata Memorial Hospital and the four day-seminar in Medical Oncology in the JIPMER Pondicherry during Feb. 1985.

DENTAL WING

Dr. L. Sudha – Tutor

Dr. Nalinakumari – Lecturer

During the year, 2800 patients reported for various Dental procedures. Extractions were done for 2079 patients and biopsy taken for 666 cases. Prosthetic appliances were provided for 68 patients. This department collected tissue for the conduct of certain immunological studies on Oral Cancer by the Research Division, and also collaborated with the British Columbia Cancer Control system of intervention study of Leukoplakia.

DIVISION OF NUCLEAR MEDICINE

Dr. P. Ramachandran Nair	— Associate Professor
Dr. V. Padmanabhan	— Senior Scientific Officer
Mr. Raghu Ram K. Nair	— Lecturer
Dr. V. M. Pradeep	— Lecturer

During the year 1984–85 a total of 5829 patients were registered in this division. Out of this 2961 cases were for thyroid investigations including hormone assays and scans, 2571 for ultrasound scanning of the abdomen and pelvis, and 144 patients were referred from the choriocarcinoma clinic for estimation of HCG.

A total of 3035 cases were referred to this department for various isotope investigations, 2571 for ultrasound scanning, constituting 54.1% and 44.9% respectively of the total cases.

The Department provides both diagnostic and therapeutic isotope facilities. In-vitro tests include Radioimmuno assays of the Thyroid related hormones T3, T4, TSH, and tumour marker HCG. A total of 3240 samples of blood were analysed. Out of this 3096 were for thyroid related hormones and 144 for HCG.

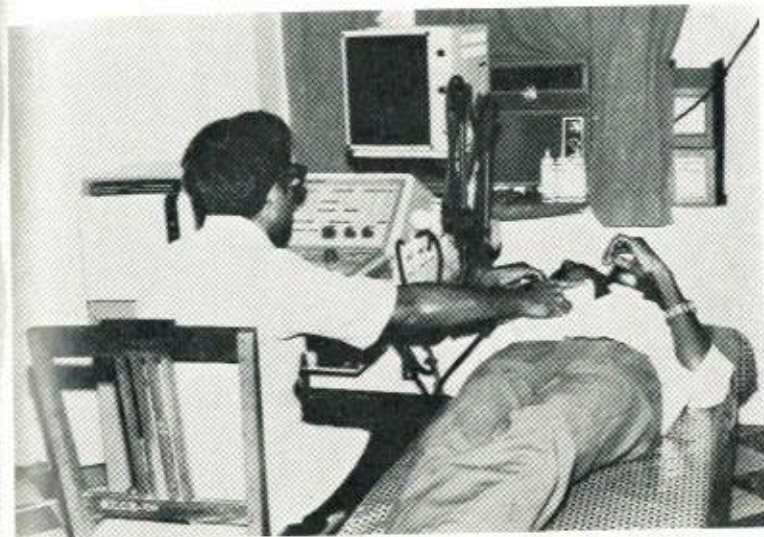
In-vivo diagnostic facilities include static scans of thyroid, hepatobiliary system, brain, bone, kidneys. A shadow-shielded whole body counter is being utilised for profile scanning and for absorption studies.

A total of 2523 ultrasound examinations were done. These include examination of liver, kidneys, pancreas, abdominal lymph nodes, spleen, retroperitoneum, obstetrics and gynaecology.

In addition to the diagnostic work, Nuclear Medicine department is engaged in Radioiodine Therapy for Thyrotoxicosis. Twenty patients were treated during the year 1985.

The staff of the department are involved in teaching undergraduate and post-graduate medical students, nursing students and certified radiological assistants.

The two physicists Dr. V. Padmanabhan and Mr. Raghu Ram K. Nair were trained in Holland and U. K. on the use and routine maintenance of the Gamma-camera. Dr. P. Ramachandran Nair presented two papers at the 3rd Asia and Oceania Congress of Nuclear Medicine at Seoul, S. Korea.



Ultra sound Scanning in Progress



Work in progress in the Radio immuno assay Division

DIVISION OF RADIATION PHYSICS

Associate Professor	:	Dr. T. P. Ramachandran
Assistant Professor	:	Mr. P.G. Gopalakrishna Kurup
Lecturer	:	Mr. C.A. Davis

This division undertakes routine treatment planning and relevant dose calculations for individual patients requiring radiation treatment, both with external beam therapy machines as well as brachytherapy sources. During the year 1984-85 the number of patients registered was 4453 for external beam therapy. In cases requiring radical radiation treatment for cancer of the head and neck regions, plaster of paris shells were made ensuring proper beam direction and accurate dose delivery. Relevant dosimetry is done for total body irradiation and hemi body irradiation treatments.

Treatment planning and relevant dose calculations are carried out in individual cases for interstitial implantation using radium with the help of orthogonal radiographs and 144 such cases were treated. Besides this, radium moulds were prepared for 10 patients and 14 patients were treated with intracavitary implantation of Cobalt ⁶⁰ tubes for cancer of the oesophagus. Conventional preloaded intracavitary implantation with radium was done in 40 patients for the treatment of Cancer of the cervix uteri.

Intracavitary implantation was done with Selectron Remote Controlled Afterloading System (LDR) for 400 patients during the year.

With the help of 5-channel Direct Patient Dose Monitoring System, (DPD-5 Therados) actual doses delivered to the patients during external beam therapy were measured in certain cases. Such random measurements provided a check on the accuracy of dose delivery in such treatments. This instrument with its intracavitary probe was also used for measuring rectal doses in patients undergoing treatment with Selectron. Dose profile measurements were made with TLD discs in 10 patients undergoing hemi-body

irradiation. A computerised treatment planning system is being installed for optimising the treatment plans, which will help in accurate dose delivery in radiotherapy.

Routine output calibrations and other quality assurance tests are undertaken regularly to ensure the proper performance of all the machines used in this Centre for radiotherapy. All the machine breakdowns are attended to by the physicists and possible repairs undertaken which has helped in providing almost uninterrupted treatment and hence better patient service.

The Centre is routinely participating in the WHO/IAEA dose intercomparison programme of the Radiological Standards Laboratory, Bhabha Atomic Research Centre, in the case of all teletherapy machines in use here. We are collaborating with the Division of Radiological Protection, BARC, Bombay by way of imparting field training for a period of one month to students of the one year post graduate diploma course in Radiological Physics.

The division is responsible for various radiation protection activities in this institution and thereby ensuring safe working conditions for all the radiation workers. A film badge service is maintained whereby personnel monitoring is carried out for about 90 radiation workers. The services of the division are extended to the Department of Radiodiagnosis, Medical College Hospital, Trivandrum by way of teaching, performing quality assurance tests on diagnostic x-ray machines, attending to machine breakdowns and providing radiation safety services.

Regular teaching in Radiological Physics is undertaken for the students of the following categories.

1. Medical undergraduates.
2. Medical Postgraduates in Radiotherapy & Radiodiagnosis.
3. Students of the 2 year certified Radiological Assistants Course.

Papers Published/Presented:

✓ "Beam Directed Radiotherapy in head and neck Cancer".
P. G. G. Kurup and C. A. Davis; paper presented in the Vth Congress of AROI, held at Hubli during November 1984.

Participation in Workshop:

✓ Dr. T. P. Ramachandran, Associate Professor participated in the workshop on Radium Substitutes and Brachytherapy Techniques at Bhabha Atomic Research Centre and Tata Memorial Hospital, Bombay, in February 1985.

DIVISION OF CYTOPATHOLOGY

1. Dr. N. Sreedevi Amma — Professor
2. Dr. M. K. Lalitha Bai — Associate Professor
3. Dr. B. Chandralekha — Assistant Professor
4. Dr. B. Kumari Chandrika — Assistant Professor
5. Dr. Elizabeth Abraham — Assistant Professor
6. Smt. J. Ambika Kumari — Senior Scientific Officer
7. Sri. G. Raghunathan Nair — Cytologist

CLINICAL

The cytology division rendered diagnostic services to both Gynaecology and Paediatric sections of the SAT Hospital, all units and specialities of M. C. Hospital, SCD Pulayanarkotta and a few other nearby Government and Private Hospitals in addition to the services rendered to the Regional Cancer Centre. More than 32718 slides were examined in this laboratory during this year.

7358 smears were collected from women, attending the Gynaec O. P. of SAT Hospital. The majority of the lesions were nonspecific inflammations.

Population Screening

During the field work at Thrikkadavoor and Trivandrum Corporation a total number of 594 smears were screened. Most of them showed non specific inflammation.

Hormonal Cytology

3248 smears were examined, most of the smears were collected from cases having bad obstetric history like repeated abortion, few smear from cases of primary or secondary amenorrhoea and cases of carcinoma breast.

Non Gynaec and Aspiration Cytology

A total of 4981 cases were studied for Cytodiagnosis. The specimens examined included body fluids, sputum, CSF, Urine, Endoscopic Aspirations, Diagnostic Aspirates and Imprint Cytology of all sites. From each case a minimum of 2 to 3 slides were examined to arrive at a diagnosis. They constituted a

workload of examining 19,924 smears. The common sites from which diagnostic aspirates collected were liver, breast, thyroid, lymphnodes, CSF, bronchus and subcutaneous lumps. Few parotid tumours were also aspirated. Most of the diagnostic fine needle aspiration of lumps were done in the lab itself.

Histopathology :

The total number of histopathology slides for second opinion received in the lab increased from 70 to 134 during this year. Histopathology lab started functioning from 1-1-1985.

Bone marrow and peripheral smear

365 cases of Bone Marrow and Pheripheral Smear were examined in this lab during this year. From each case a minimum of 3 smears were studied. The total number of smears examined was 1460.

Teaching and training

Undergraduates, pathology graduates, MLT students, B.Sc. Laboratory Technology students are posted in the lab for different periods of time and were given training. The postgraduates of various other departments are given guidance in their thesis work which involve cytological aspects.

Indian Academy of Cytologists have accredited our Cytology Lab for training and examination purposes. Cytotechnologists and Cytotechnician's training courses were started during this year. The first batch of Cytotechnicians (6 numbers) have successfully completed their six months training course. Cytotechnologist's training is in progress. Training in detection of cancer was also given for ANMS and Assistant Surgeons.

Research

The following research work are progressing.

- i. Evaluation of rapid staining techniques in Cytology.
- ii. Pragmatic importance and value of needle aspiration of thyroid swelling in diagnosis and treatment.

Conference

Dr. N. Sreedevi Amma, Dr. M. Lalitha Bai, Dr. B. Chandralekha attended the Kerala chapter of IA PM held at Trivandrum.

DIVISION OF RESEARCH

Dr. J. Stephen	: Associate Professor
Dr. B. Prabha	: Asst. Professor
Mr. T. Vijayakumar	: Senior Research Officer
Mr. K. K. Vijayan	: Lecturer
Mr. Thomas Abraham	: Scientific Officer
Mr. Ravindran Ankathil	: Scientific Officer

The Research Division has been engaged in clinically oriented research on human Cancer. The main objectives have been development of better criteria for early detection and correct diagnosis, prediction of drug response and prognosis, assessment of immune status, target oriented Chemotherapy, identification of etiological agents and preventive toxicology.

A search for biochemical and immunological markers which may serve as early warning signs in the body fluids of human populations is proposed to be carried out as a screening programme for Cancer. As a prelude for the same, Alpha foeto-proteins, Carcinoembryonic antigen, Beta₂ microglobulin, Beta human Chorionic gonadotropin etc. which serve as reliable markers in different Cancers are being estimated in patients and control population. The search for new markers is also being continued. Characterization of premalignant lesions based on Cytological characteristics, behaviour in cultures, response to growth regulators and inhibitors, enzyme histochemistry and immunological properties is another study in progress.

In the identification of malignant cells and in the finer classification of Cancers, histopathology is being supplemented by tissue culture, enzyme histochemistry and immunology.

With regard to prediction of drug response, *in vitro* autoradiography (Ambrose *et.al.* 1976; Stephen and Ambrose 1983) is being pursued in the case of solid tumours. The same bioassay also is used in the

screening of new drugs for anticancer activity. This involves growing microexplant cultures of solid tumours, treatment of these cultures with different concentrations of chemotherapeutic agents followed by incubation with radioactive precursors of nucleic acids and proteins, fixing, autoradiographic processing, staining and photomicrography. This work has been undertaken with British Collaboration.

In the field of immunology, antitumour antibodies were detected by immunofluorescence in Oral Cancer patients. This study was done in Oral Cancer patients, patients with Cancers at other sites and patients with oral leukoplakia. The results pointed out that more than 80% of the Oral Cancer patients have antibodies in the sera against Cytoplasmic component of Oral Cancer Cells. In 50% of the patients with oral leukoplakia also antibodies against Oral Cancer cells were detected.

Attempts are being made to prepare antiserum specific to oral cancer and use it for immunodetection. Immunotherapy of Oral Cancer is another ICMR funded research project in progress in this Division. Estimation of immune complexes in patients before and after radiotherapy is another work currently undertaken. The immune complexes in patients' sera showed a sudden increase after radiotherapy followed by a gradual decrease.

Quantitative estimation of serum and tissue immunoglobulin levels in patients with carcinoma of the oral cavity was an ICMR assisted project completed this year. Measurement of individual immunoglobulins Ig G, Ig A, Ig M, Ig D and Ig E in sera was carried out by radial immunodiffusion method.

Cell mediated and humoral immune responses were assessed in Cancer patients, patients with mammary dysplasia and patients with moderate dysplasia of the uterine cervix and the values were compared

with healthy controls. None of these subjects had any history of asthma or allergy. Total and high affinity rosette forming cells were enumerated to assess cell mediated immunity and Immunoglobulins were estimated for assessing the humoral immunity.

Research on plant lectins is being continued with the hope of finding tissue specific lectins which can be used as carriers of chemotherapeutic agents to target cells. Lectins isolated from jackfruit, winged bean, peanut and sword bean were conjugated with horse radish peroxidase and tissue specificity studies were made with cryostat sections, paraffin sections and smears of carcinoma of the oral cavity, uterine cervix, thyroid, brain tumour and in leukaemic bone marrow. Out of the four lectins studied only jackfruit lectin showed fairly good specificity. Its binding pattern was different in adenoma and adenocarcinoma of the thyroid. In astrocytoma also jackfruit lectin gave specific staining. Inhibition of lectin binding by N-acetyl-D-galactosamine was observed. Eventhough jackfruit and winged bean lectins are identical in the sugar moiety (N-acetyl-D-galactosamine) they showed considerable differences in tissue specificity. Winged bean lectin showed no tissue specificity. Hence the structural difference in the glycopeptide chain is being investigated. Screening of plant seeds for new lectins is also in progress. Further work on lectins is in progress in our Centre and also at Chester Beatty Research Institute, London as a joint venture.

Some 3-phenylcoumarin derivatives were synthesized in the laboratory and these have been studied for their single electron potential as a prerequisite for radiosensitizing activity. Two of these compounds were subjected to toxicity studies on laboratory mice.

Cytogenetical studies made on lymphomas and leukaemias have revealed the predominance of aneu-

ploidy. In A M L 40% of cases were aneuploid whereas the majority (60%) showed only normal karyotype. Chromosomes involved in aneuploidy were mostly 8 and 21. In the case of ALL 50% showed normal karyotype while the others showed cells with 45, 47, 48, 49, and 54 Chromosomes. Large acrocentric chromosomes were seen in a few cases. Ph1 chromosome was present in 95% of CML cases. Fuzzy Chromosomes were seen in a few CML cases. Aneuploidy was also found in CLL. Also polyploid cells were seen sporadically in most of the above leukaemias. Coenocytic cells and cells with nuclear polymorphism were also encountered in this study involving blood and bone marrow cultures.

Regarding etiological factors, the association of *Herpes simplex* virus type 2 (HSV2) with Cancer of the uterine cervix was further established. Experiments in preventive toxicology have revealed that some therapeutic drugs, have carcinogenic and clastogenic properties. Also a very sensitive test system was developed for screening chemicals for clastogenic, carcinogenic and mutagenic properties.

The list of papers published is shown separately and some more papers are under publication. A statement of Conferences/Seminars etc attended by the staff is also given separately. Mr. T. Vijayakumar, Senior Research Officer joined duty after his deputation for doing research work at the Chester Beatty Research Institute, London under a Commonwealth Medical Fellowship. Mr. Thomas Abraham and Mr. Ravindran Ankathil joined this Division as Scientific Officers. Mrs. B. Padmavathy Amma joined as Technical Officer in the Clinical Laboratory. The Clinical Laboratory of the Regional Cancer Centre, functioning under the Research Division has done the following investigations this year.

Complete Haematology	: 11418
Urine	: 5312
Blood sugar	: 2525
Blood urea	: 3728
Creatinine	: 3618
Uric Acid	: 2014
Bilirubin	: 2008
SGOT	: 2008
SGPT	: 2008
Alk. Phosphatase	: 2121
Acid phosphatase	: 561
Total protein	: 523
Albumin	: 523
Cholesterol	: 103
Calcium	: 178
Phosphorous	: 178
CSF Protein sugar	: 224

Bone Marrow

Staining and screening	: 4828
Special staining (Peroxidase)	: 2122

DEPARTMENT OF MEDICAL RECORDS & STATISTICS AND CANCER REGISTRY (NCRP)

Mr. P. Gangadharan	— Biostatistician
Dr. R. Sankara Narayanan	— Senior Research Officer
Mr. S. Muralidharan Nair	— Medical Statistician
Mr. R. Raveendran Nair	— Medical Record Officer

The department managed the following activities:

1. Out-patient Registrations
2. Patient follow-up
3. Inpatient admissions and discharges
4. Assessment of Patient's income and levying charges for treatment and investigations.
5. The maintenance of medical records of Regional Cancer Centre
6. Other patient services.

A total of 4060 new patients were registered during 1984 which was 6.7% more than the previous year. A continuous increase of patient registration has been noted during the past 4 years. Apart from the patients, identity, several socio-demographic characteristics of the patients were noted. This has provided us a very valuable data source for epidemiologic studies.

Old patient attendance during the year numbered 25,703 the average daily attendance of old and new patients together was 97 per day. Regular follow-up of patients was ensured by appointment system whereas the first attendance and registration did not require any such previous appointment.

Follow-up of patients for routine check up and for special studies have been an important function of the department and during the year, 4252 pre paid follow-up cards were sent for follow-up purposes. 66% of the given appointments were kept up by the patients themselves. Those who did not present themselves for follow-up check-up were reminded by reply paid follow-up letters apart from special study follow-up cases. The department also managed the inpatient admissions/discharges, 2512 patients were admitted to the wards. On an average, each patient stayed in the wards for 22 days.

The patient services extended by the department included issuing of Rail & Air travel concession Certificates, Certifying medical reimbursement claims, Pension Certificates etc. Since February 1, 1985, the indoor admissions are also handled by the department.

The assessment of income status of patients by the department staff has helped the Centre, to levy minimal charges, according to the income status, from patients who can afford such payment. Thus, part of the expenditure incurred by the Centre for their treatment is being recovered.

Oral, Pharyngeal and lung cancers in men, Cervix, Breast and Oral cancers in women continue to be the major cancer sites seen at this centre. The medical records are continuously used for research studies, post graduate thesis etc.

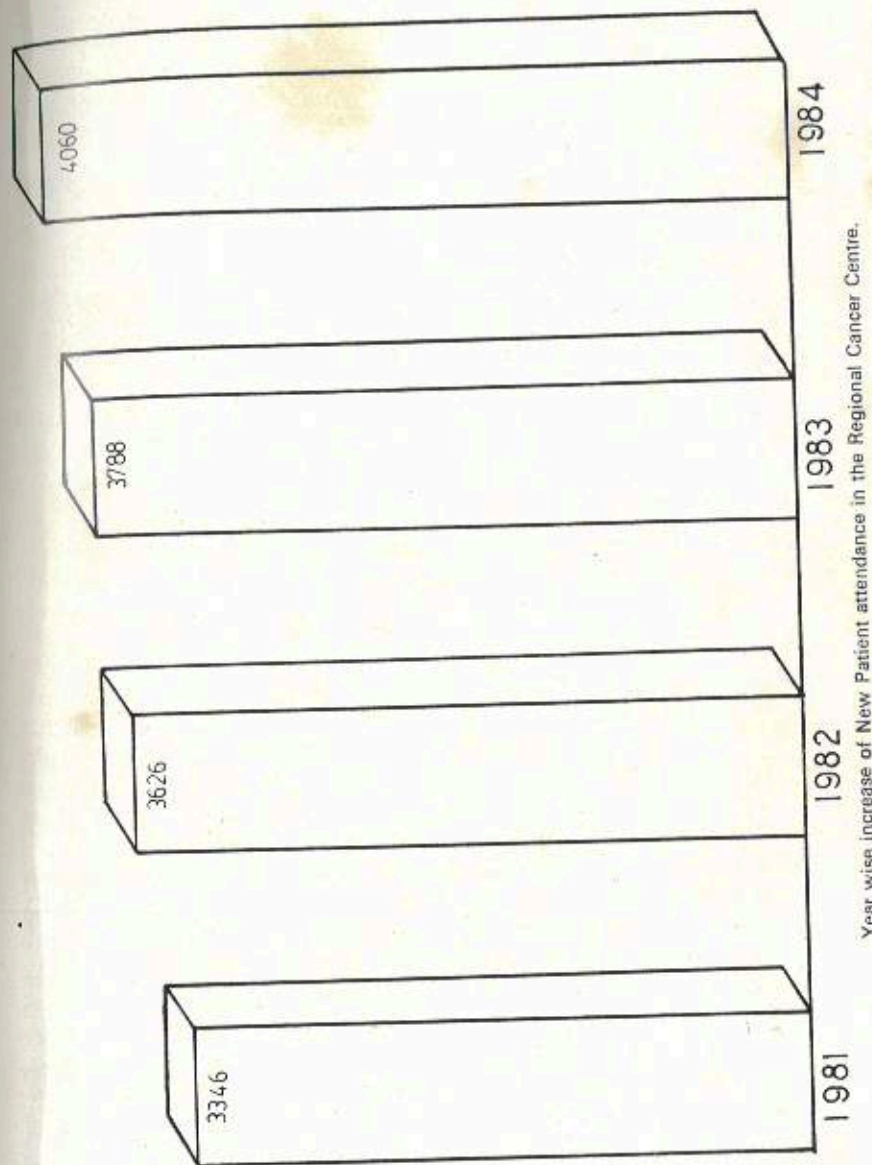
The department has undertaken several End Results Studies and Epidemiologic studies in collaboration with other departments and staff of the centre.

Two epidemiologic research papers were presented at National Conferences during the year.

1. Epidemiology of Lung Cancer: IVth National Congress in Respiratory diseases, Trivandrum, December 1984.
2. Malignant Neoplasms of Skin seen at Trivandrum:- XIIIth Annual Conference of Indian Association of Dermatologists, Venereologists and Leprologists-Ernakulam, January 1985.

THE HOSPITAL CANCER REGISTRY

The Hospital Cancer Registry of the National Cancer Registry Project continued its activities and by the end of 1984, more than 11,000 cancer patients have been accessioned to the Cancer Registry. The Social Investigators visit the various clinics, inpatient wards and medical records daily and collect information on every suspected cancer case seen at the Medical College Hospital, Sree Avittom Thirunal Hospital, Dental College and the Regional Cancer Centre. In 1984 such information was obtained from over 5500 patients and the process of eliminating duplications, prior 1982 cancer cases, and non cancer cases from the new case registrations are progressing, as also the final scrutiny of medical records of Medical College Records Library for any missing cases. Several epidemiologic studies are in progress using this data also.



Year wise increase of New Patient attendance in the Regional Cancer Centre.

COMMUNITY ORIENTED PROGRAMMES

Early Cancer Detection Centre:

Dr. B. Syamalakumari—Cytopathologist

The Government of India, in its cancer programme sanctioned Rs 1,00,000 in 1979 to the Government of Kerala as a one time grant for setting up two Early Cancer Detection Centres, one in Ernakulam District and the other in Palghat District both places having no medical colleges. Upon request from the Regional Cancer Centre, the Government of Kerala transferred the responsibility of organising and managing these Detection Centres to the Regional Cancer centre in 1983.

A suitable building capable of expansion and situated at a convenient place in the city was suggested by the Rotary Club of Cochin and the Corporation of Cochin very generously offered the place free of rent. The centre is located on the National Highway, adjacent to the City Bus Stand, Kaloore, Cochin and is easily accessible by road and rail. The place was renovated jointly by the Corporation of Cochin and the Rotary Club. Part of the furniture and equipments were also provided by the Club. At present the floor area of the building is about 1000 sq. ft.

The Centre was named as Rotary Early Cancer Detection Centre after a unanimous resolution adopted at a meeting held at the Regional Cancer Centre in the presence of among others, the Director of Health Services, District Medical Officer, Ernakulam, Principal, Medical College, Trivandrum and Director, Regional Cancer Centre, Trivandrum.

The Rotary Early Cancer Detection Centre, was inaugurated on 15th August 1984, by the Worshipful Mayor of Cochin Sri. K. Balachandran. The Cancer Detection Centre functions under a management committee consisting of representatives of the Corporation of Cochin, the Rotary Club of Cochin, and the Regional Cancer Centre. The day to day affairs of the centre are managed by the Cytopathologist who is in charge of the centre.

The centre has now facilities to do Pap Smear tests, and examination of Cervix, Breast and also of Oral Cavity. These three

regions together account for almost 40% of the cancer load. These are also the cancers that can be prevented, easily detected, and completely cured when treated properly. The centre is also equipped to undertake fine needle aspirations from lumps and swellings all over the body.

During the four and a half month period, upto the end of December 1984, 256 persons were examined at the centre.

Of the persons examined, 237 had Pap Smear examination of which only 60 were found to be normal smears. 4 persons were found to have cancer. Others had either dysplasia or infection or both. These persons were advised and are being followed up. There were 38 buccal smear examinations of which 3 were found to have cancer. Breast aspirates, Ascitic fluid, Pleural and Peritoneal fluid, Blood smear and other swelling aspirates were also examined. Out of 55 such examinations 11 were malignant cases.

The centre participates in the health camps organised by various voluntary organisations and conduct cancer detected activities. During the period under report one such camp was conducted by the centre.

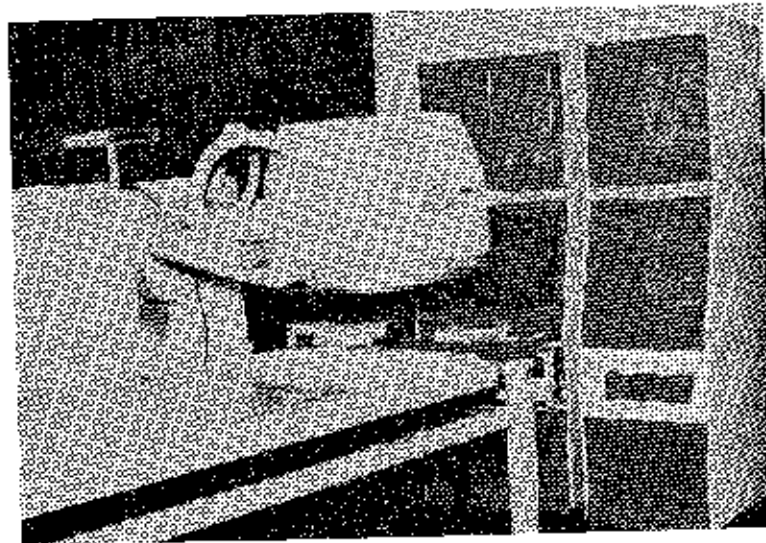
As this centre is also designed to function as training centre for Early Cancer Detection, the first batch of ANMS from the Corporation of Cochin had their training for early cancer detection here. They were trained (1) to identify the suspicious conditions in the body which may become cancer (2) locate high risk individuals for developing cancer (3) undertake public education with regard to cancer and (4) for taking cervical smears. The first batch consisted of 16 ANMS.

The centre has plans to increase the facilities and capabilities for early cancer detection and also to train all the Primary Health Centre Workers of the district in Early Cancer Detection.

The Early Cancer Detection Centre at Palghat will be inaugurated soon in collaboration with Messrs Instrumentation Ltd., Palghat. A suitable place for the centre has been offered by them. Plans are under way to organise public education campaigns, and to prepare booklets and newsletters on cancer. Emphasis will



Shri. K. Balachandran, Mayor of Cochin inaugurating the Early Cancer Detection Centre at Ernakulam on 15-8-85



Gamma Camera with the Computer system in the Nuclear Medicine Division

be to educate the public on the ill effects of Chewing, Smoking and the necessity to quit such habits. The advantages of Cancer Related medical check up, Pap Smear Test, Breast self examination, Oral self examination, etc will be published.

We wish to express our deep thanks to Sri. M.P. Joseph, I.A.S, District Collector, Ernakulam, for his keen interest in the anticancer activities and also the whole hearted co-operation extended for the management of the centre.

MANAGING COMMITTEE OF THE CANCER DETECTION CENTRE, ERNAKULAM

1. Dr. T. Radhakrishnan, .. Chairman
Dist. Medical Officer of Health,
Ernakulam.
2. Mr. G. I. Varghese, .. Member
President,
Rotary Club, Cochin
3. Dr. T. Premachandran Nair, .. Member
Health Officer,
(Representative of Cochin Corpn.)
4. Dr. N. Sreedevi Amma .. Member
Prof. of Cytology,
RCC, Trivandrum.
5. Mr. P. Gangadharan, .. Member
Biostatistician
RCC, Trivandrum
6. Mr. R. Ramachandran, .. Member
Registrar,
RCC, Trivandrum.
7. Mr. Joseph Stephen, .. Member
Accounts Officer,
RCC, Trivandrum.
8. Dr. B. Syamalakumari, .. Convener
Cytopathologist,
Rotary Cancer Detection Centre,
Kaloor, Cochin.

RESEARCH PAPERS PUBLISHED / PRESENTED IN
CONFERENCES ETC.

1. Vijayakumar, T., Vasudevan, D. M. 1984. Age of sheep RBC as an important variable in spontaneous rosette formation test. *Ind. Med.Caz.* 118 : 103
2. Padmanabhan, T. K., Dutt S.G., Vasudevan D. M. and Vijayakumar T., 1984. Giant tonsillolith simulating Tumour of the tonsil. *Ind. J. Cancer* 21 : 90-91.
3. Vijayakumar, A., Sasidharan V. K., T., Ravindran, A., Remani P., Kumari T. V. and Vasudevan. D. M. 1984. Incidence of HBS Ag in Oral Cancer and Carcinoma of Uterine Cervix. *Ind. J. Cancer* 21 : 7-10.
4. Sasidharan, V. K., Kumari T. V., Vijayakumar, T. and Vasudevan D. M. 1985. Immunological assessment of patients suffering from Carcinoma. *Ind. J. Rad. & Imaging* 39 : 67-70.
5. Kumari, T. V., Thankamoni Harikumar, Prabha. B., Sasidharan, V. K. and Vasudevan D. M. 1985. Detection of antibodies against *Herpes simplex* virus in patients with Oral Cancer. *Ind. J. Cancer* 21 : 137-140.
6. Santhakumari, G. and Stephen J. "Holothurin, a potent antimilotic agent isolated from Sea cucumber." *Cytologia* (in Press).
7. Dutt, S.G., Sathi & Padmanabhan T. K., Krishnan Nair, M. Neuroblastoma presenting as phantoms Hernia. PP 342. *Ker : Med : Jr: Vol. 25* 1984.
8. Krishnan Nair, M. and Jayaprakash P. G. in Brachytherapy Ed. R.F. Mould. : Nucleatron. Co : HOLLAND 1984.
9. Krishnan Nair, M., Padmanabhan, T. K. "Epidemiology of Oral Cancer in Kerala. Inter Confe : Head & Neck Cancer. Baltimore 1984.

10. Krishnan Nair, M., Cancer Control in Developing Countries U.I.C.C. Meeting - Kuwait 1984.
11. Kurup, P.G.G. and Davis C. A. "Beam directed Radiotherapy in head and neck cancer. VI Conf : AROI-Hubli-1984.
12. Gangadharan, P., Epidemiology of Lung Cancer. IV Natl : Congress in Respiratory Diseases-Trivandrum 1984.
13. Muraleedharan Nair, S. Malignant Neoplasms of Skin. XIIIth Annual Conference of Indian Association of Dermatologists, Venereologists and Leprologists-Ernakulam January 1985.



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

- Dr. Thomas Cheriyan : International workshop on Head and Neck Cancer New Delhi: 1984.
- Dr. Kusuma Kumari : Paediatrics Oncology Training Tata Memorial Hospital - Feb: 1985
- Dr. Kusuma Kumari : Seminar in Medical Oncology JIPMER. Pondicherry - 1985
- Dr. P. Ramachandran : III Asia and Oceania Congress of Nuclear Medicine - Seoul 1984.
- Dr. V. Padmanabhan & Mr. Raghu Ram K. Nair : Training in use of Gamma Camera at Holland and U.K. 1984.
- Mr. P.G.G. Kurup & C.A. Davis. : V Congress of ARO I Hubli - 1984
- Dr. T.P. Ramachandran : Workshop on Radium substitutes and Brachytherapy - T.M.H. Bombay 1985.
- Dr. N. Sreedevi Amma
Dr. M. Lalitha Bai
Dr. B. Chandralekha : Kerala Chapter of I.A.P.M. Trivandrum - 1984.
- Dr. Prabha B. & Mr. Thomas Abraham : Ind. Imm: Society. Conference Hyderabad - 1984.
- Dr. Bhattathiri N.
Dr. Prabha B. & Dr. M. Krishnan Nair : VI Conference of Assoc. of Radiation Oncologists of India. Madras 1984.
- Prabha B. : Workshop on Hybridoma Technology C. R. I. Bombay - 1984.

- Mr. P. Gangadharan : National Congress in Respiratory Disease - Trivandrum 1984.
- S. Muraleedharan Nair : Annual Conference of Indian Assoc: Dermatologists & Venereologists, Ernakulam 1985.
- Dr. M. Krishnan Nair & Dr. T.K. Padmanabhan : International Conference on Head & Neck Cancer. Baltimore - U.S.A. 1984.
- Dr. M. Krishnan Nair : U.I.C.C. Meeting Kuwait - 1984.

ONGOING AIDED RESEARCH PROJECTS

Title	Chief investigator with designation	Co-investigator with designation	Funding Agency
1. Role of tumour associated antigen in the total management of the cancer of the tongue.	Dr. M. Krishnan Nair Director	Dr. Prabha Balam Asst. Professor	ICMR
2. Quantitative estimation of serum and tissue immunoglobulin levels in the patients with Carcinoma of the Oral Cavity.	Mr. T. Vijayakumar Senior Research Officer	Dr. Prabha Balam Asst. Professor	ICMR
3. Association of <i>Herpes simplex</i> virus with Oral Cancer	Dr. D.M. Vasudevan Associate Professor	Nil	ICMR
4. Development of immuno-diagnostic method for the early detection of Oral Cancer	Dr. D.M. Vasudevan Associate Professor	Dr. Prabha Balam Asst. Professor	BARC Dept. of Atomic Energy.
5. Association of <i>Herpes simplex</i> virus with cancer of the uterine Cervix.	Mrs. V. Thankamoni Research fellow		DST Student fellowship

TEACHING PROGRAMMES

M.D. Radiotherapy	: 2 students per year.
D.M.R.T.	: -do-
CRA (Certified Radiological Assistants)	: 30 students per year
M.S. (General Surgery)	: 30 students - part-time.
M.D. (Gynaecology)	: -do-
M.B.B.S.	: 180 students-part-time
Cyrotechnologists' Course	: 5 students per batch
Cyrotechnicians Course	: 6 students per batch.
Tumour Registrars Training	: 20 students per batch

Academic Achievements:

1. Dr. C.S. Rafeeka Beegum MD (Radiotherapy) 1984, Kerala University.
2. Dr. F. Joseph MD (Radiotherapy) 1985, Kerala University.
3. Dr. P.R. Sasindran MD (Radiotherapy) 1985, Kerala University.
4. Dr. K.V. Madhu DMRT 1985, Kerala University.
5. Dr. K. Ramesan, DMRT 1985, Kerala University.
6. Dr. O.V. Abdulla, DMRT 1985, Kerala University.
7. Mr. T. Vijayakumar Chartered Chemist & Member of the Royal Society of Chemistry - Royal Society of Chemistry, London 1985 Chartered Biologist and Member Institute of Biology, London, 1984.

DISTINGUISHED VISITORS

1. Dr. Joy Paul
Consultant Urologist
University of California Los Angeles
CALIFORNIA.
2. Dr. Elizabeth Paul
Rehabilitation and Physical Medicine
U.C.L.A.
CALIFORNIA.
3. Dr. N.K. Gupta
Consultant Radiotherapist
Christie Hospital & Holt Radium Institute
Manchester
UNITED KINGDOM
4. Shri. Khet Singh Rathore
Hon. Minister of Health
RAJASTHAN.
5. Dr. Toshiro Yamasaki
National Institute of Radiological Sciences
JAPAN.
6. Dr. T.M.R. Panicker
Professor Radiological Physics
Stanley Medical College
MADRAS.
7. Prof. V. Balasundaram
Professor & Head of Radiotherapy
Kasthurba Hospital
Manipal
KARNATAKA.
8. Prof. R.C.S. Pointon
Director
Christie Hospital & Holt Radium Institute
Manchester
UNITED KINGDOM.
9. Dr. M.L. Sutton
Consultant
Christie Hospital & Holt Radium Institute
Manchester
UNITED KINGDOM.



Dr. R. C. S. Pointon addressing the Staff.



Dr. Pointon and Dr. Sutton of Christie Hospital, Manchester, with R.C.C. Staff.

ADMINISTRATION

GOVERNING BODY MEMBERS OF THE REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM.

- | | |
|---|---------------|
| Shri K.P. Ramachandran Nair
Minister for Health
Government of Kerala | Chairman |
| Shri M.G.K. Murthy, I.A.S.
Secretary to Government
Health Department
Government of Kerala | Vice-Chairman |
| Shri V. Ramachandran, I.A.S.
Commissioner for Economic Development
& Secretary to Government (Planning)
Government of Kerala | Member |

And

- | | |
|---|--------|
| Shri K.V. Rabindran Nair, I.A.S.
Commissioner for Economic Development
& Secretary to Government (Planning)
Government of Kerala | |
| Shri K.V. Rabindran Nair, I.A.S.
Commissioner & Secretary to Government
Department of Finance
Government of Kerala | Member |
| Dr. D.B. Bisht, Ph.D./Dr. A.K. Bhattacharya MD
Directorate-General of Health Services
Nirman Bhavan, New Delhi | Member |
| Dr. V.R. Gowariker, Ph.D., Director
Vikram Sarabhai Space Centre,
Trivandrum | Member |
| Dr. C.V. Korah, MD,
Director of Medical Education,
Kerala. | Member |

Dr. M.S. Valiathan, FRCS, Mch., Director, Sree Chitra Tirunal Institute of Medical Sciences and Technology, Trivandrum	Member
Dr. M. Balaraman Nair, MD, Principal Medical College, Trivandrum	Member
Deputy Secretary, (Finance Desk) Ministry of Health & Family Welfare Nirman Bhavan, New Delhi.	Member
Deputy Secretary (Research Desk) Ministry of Health & Family Welfare Nirman Bhavan, New Delhi	Member
Senior most Pathologist in the Medical College Services, Kerala	Member
Dr. M. Krishnan Nair, MD, FRCR, Director, Regional Cancer Centre, Trivandrum.	Convener

EXECUTIVE COMMITTEE MEMBERS OF THE REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM

Shri M.G.K. Murthy, I.A.S. Secretary to Government Department of Health Government of Kerala.	Chairman
Shri V. Ramachandran, I.A.S. Commissioner for Economic Development & Secretary to Government (Planning) Government of Kerala.	Member
And	
Shri K.V. Rabindran Nair, I.A.S. Commissioner for Economic Development & Secretary to Government (Planning) Government of Kerala.	
Shri K.V. Rabindran Nair, I.A.S. Commissioner & Secretary to Government, Department of Finance, Government of Kerala.	Member
Dr. M. Balaraman Nair, MD, Principal Medical College, Trivandrum.	Member
Dr. M. Krishnan Nair, MD, FRCR, Director, Regional Cancer Centre Trivandrum.	Convener

SCIENTIFIC COMMITTEE OF R.C.C.

1. Dr. K. Sundaram, MD : Chairman
Head, Biomedical Division,
BARC, Bombay
2. Dr. M. Balaraman Nair, MD : Vice-Chairman
Principal, Medical College,
Trivandrum
3. Dr. M.S. Valiathan, MS, FRCS, FAMS : Alternate
Director, SCTIMST, Trivandrum : Vice-Chairman
4. Dr. N. Lakshmiopathy, MD : Member
Director,
Institute of Nuclear Medicine &
Allied Sciences, Delhi.
5. Dr. (Mrs.) G. Sudha Gangal, Ph.D. : Member
Head, Division of Immunology,
Tata Memorial Hospital, Bombay
6. Dr. Renadev, Ph.D. : Member
Retd. Director,
Cancer Research Institute,
Tata Memorial Centre,
Bombay.
7. Dr. Jayaram Panicker, MD : Member
Principal, Medical College,
Calicut
8. Dr. Yagnanarayana Iyer, Ph.D. : Member
Prof. of Biochemistry,
St. John's Medical College,
Bangalore.
9. Dr. J. Stephen, Ph.D. : Member
Head, Research Division,
Regional Cancer Centre,
Trivandrum.

10. Dr. N. Sreedevi Amma, MD : Member
Prof. of Cytology,
Regional Cancer Centre,
Trivandrum.
11. Dr. T.P. Ramachandran, Ph.D. : Member
Asso. Prof. of Radiation Physics,
Regional Cancer Centre,
Trivandrum.
12. Dr. P. Ramachandran Nair, MNAMS : Member
Head, Nuclear Medicine Division,
Regional Cancer Centre,
Trivandrum.
13. Dr. M. Krishnan Nair, MD., FRCR : Member
Director, Regional Cancer Centre,
Trivandrum.
14. Dr. T.K. Padmanabhan, MD : Convener
Superintendent,
Regional Cancer Centre,
Trivandrum.

**REGIONAL CANCER CENTRE
BUILDING COMMITTEE MEMBERS**

Dr. C.V. Korah
Director of Medical Education
Trivandrum.

Shri. Titty George
Chief Engineer
P.W.D., (Building and Roads)
Trivandrum.

Sri. M. Ramaswamy Iyer
Chief Architect
P.W.D., Trivandrum

Dr. M. Balaraman Nair
Principal
Medical College
Trivandrum.

Dr. M. Krishnan Nair
Director
Regional Cancer Centre
Trivandrum.

Sri. Joseph Stephen
Accounts Officer
Regional Cancer Centre
Trivandrum.

Sri. G. Gopalakrishnan Nair
Chief Construction Engineer
Regional Cancer Centre
Trivandrum.

**MAJOR DECISIONS OF THE GOVERNING BODY IN
THE YEAR 1984-85**

Scientific Programmes

The Governing Body which was held on 29-3-1985 resolved to implement the following recommendations of the Scientific Committee:

1. Manpower generation programme
2. Building Plan
3. Training Programme in Cytology
4. Tumour Registration
5. Advance Course in Radiotherapy
6. B.Sc. Course in Laboratory Technology
7. Organisation of Clinical Dosimetry
8. Organisation of Composite Imaging Department
9. Organisation of Paediatric Oncology Department.

These items have already been implemented.

The Scientific Committee was reconstituted, during the year.

The Governing Body resolved to approve the General Scheme for construction of the additional building of the Regional Cancer Centre Society as per details given below:

Total Plinth area	: 24300 M ²
Total sanctioned expenditure	: Rs. 950 lakhs

Budget Estimates for Rs. 340 lakhs as proposed were approved. An amount of Rs. 210 lakhs was earmarked for building and purchase of equipments.

MAJOR DECISIONS OF THE EXECUTIVE COMMITTEE IN THE YEAR 1984-85

Administration:

The Executive Committee approved the organisational chart and staff of the Regional Cancer Centre Society. The Committee also approved staff scheme as recommended for creation by the Scientific Committee for the period from 1984-'88 subject to the condition that these posts were to be filled in only with the prior clearance of the Executive Committee.

The Committee created posts in the Radiation Physics Department, Nuclear Medicine Department, Research Division and the Clinical Laboratory taking into consideration of the increase in the workload.

The Committee approved the Society joining the Employees Provident Fund and Family Benefit Scheme as per the statutory requirements. The Committee also approved the Society joining the Group Gratuity Life Assurance Scheme of the LIC of India.

The Committee permitted Dr. M. Krishnan Nair, Director to accept the assignment and to serve as a member of the Advisory Committee on Radiological Protection of the Atomic Energy Regulatory Board.

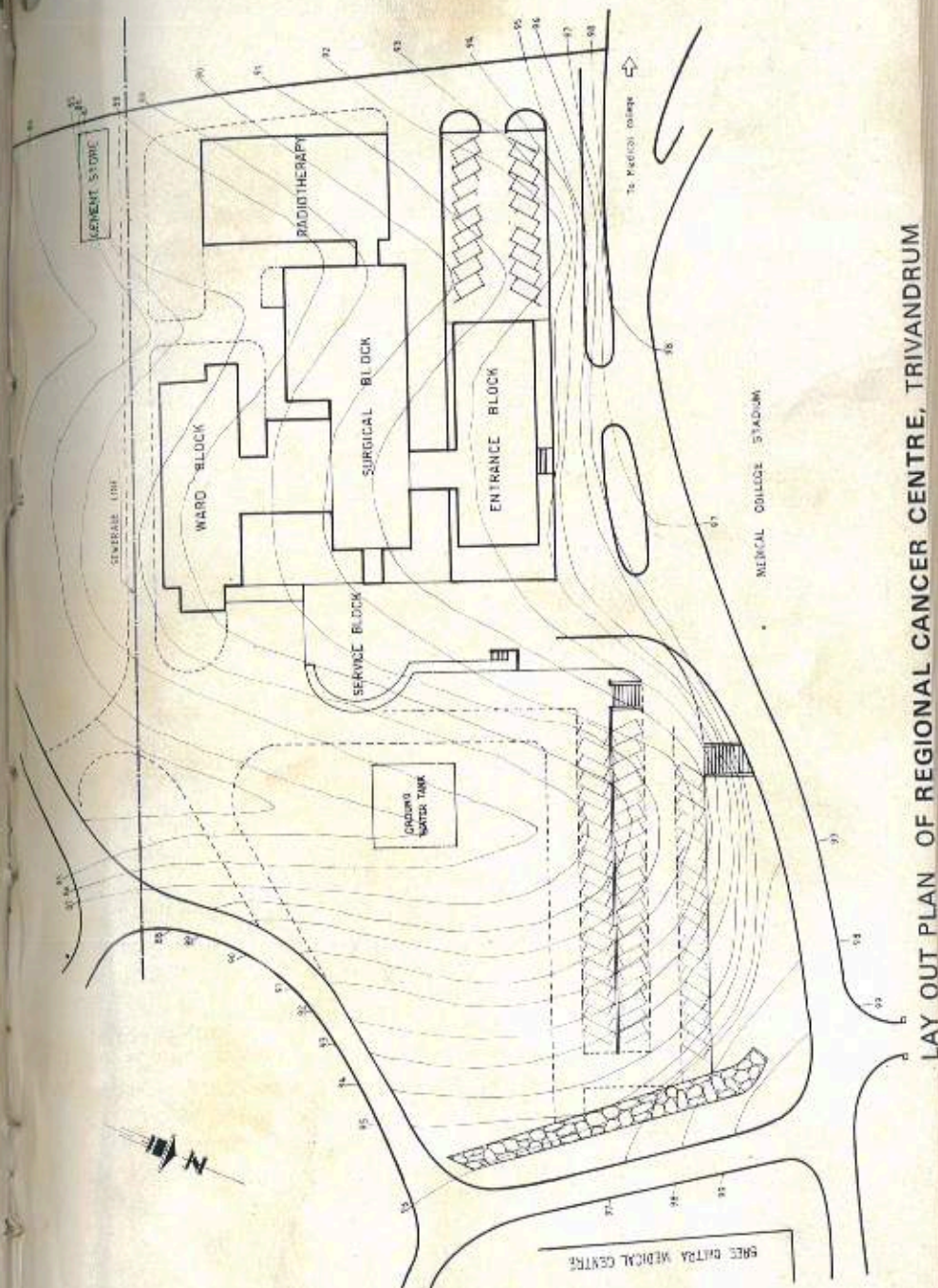
Scientific Activities:

The proposal to conduct the Second Tumour Registrar's Training Programme in this Centre was approved.

The proposal of the Indian Council of Medical Research to undertake the Clinical Trials on Cancer of the Buccal Mucosa in collaboration with the Regional Cancer Centre, Trivandrum was approved.

The Committee approved the take over of the Early Cancer Detection Centres at Ernakulam and Palghat as per the orders issued by Government in the matter.

The Committee decided to develop the necessary infrastructure to take up a Regional Cancer Control Programme. For this purpose a post of Associate Professor of Community Medicine was created and he was made responsible for the preparation of health education materials, legal documents to make cancer a notifiable disease and for training the multipurpose workers for augmenting cancer detection work etc.



LAY OUT PLAN OF REGIONAL CANCER CENTRE, TRIVANDRUM

1) ENGINEERING DEPARTMENT

The Engineering Department was constituted with the appointment of Shri. G. Gopalakrishnan Nair, Executive Engineer of P.W.D. on 1-10-1983 as Project Administrator of the Regional Cancer Centre on deputation basis. The Project Administrator is also the Convener of the Building Committee which was constituted by the Governing Body for the specific purposes of controlling, planning and administering the construction activities of the Regional Cancer Centre. The first meeting of the Building Committee was on 18-10-1983 and later they met at least once a month.

The Building Committee selected the present site for the Regional Cancer Centre Building and appointed M/s. K. G. Sukumaran and Associates, Cochin as the Consultant Architect for the project. The Architects signed the contract for the first phase of the building on 15-6-1984. The Chief Minister of Kerala laid the foundation stone on 11-9-1984.

The Building Committee decided to take up the entire project simultaneously and the conceptual plan and rough cost estimate for Rs. 950 lakhs has been prepared by the Architect. In November 1984, an application was submitted to the Trivandrum Development Authority and Trivandrum Municipal Corporation for sanction of the above scheme.

However, since there were constraints in funds the Building Committee decided at their meeting on 10-1-1985 to construct only the Entrance Block meant to accommodate the diagnostic and imaging equipments and O.P. cubicles. The tenders for the 1st phase consisting of Entrance Block, Utility Block and Site Development works costing about Rs. 113 lakhs were invited by the end of March 1985.

The designation of the Project Administrator has since been changed to Chief Construction Engineer. One Assistant Executive Engineer and two Assistant Engineers from P.W.D. were appointed on deputation as Project Engineer and Assistant Project Engineers to assist the Chief Construction Engineer in construction activities.

ACCOUNTS

The Accounts for the year 1984-85 duly audited and certified by the Chartered Accountant, together with the utilization certificates are appended below.

REGIONAL CANCER CENTRE SOCIETY,
Income and Expenditure Account

Expenditure	Rs.		P.	
	Rs.	P.	Rs.	P.
To Opening Stock of Chemicals, Films etc.			32,277	00
" Purchase of Chemicals, Films etc.			1,98,751	97
" Salaries and Allowances			6,50,113	28
" Printing and Stationery			39,751	62
" Purchase of Medicines			1,65,460	32
" Travelling Expenses			1,39,859	90
" Postage, Telegram and Telephone			84,863	03
" Advertisement			70,692	50
" Repairs and Maintenance: Equipment	1,59,996	89		
Vehicles	32,152	60		
			1,92,149	49
" Rent			21,419	25
" Bank charges and Interest			10,217	15
" Audit Fees			4,000	00
" Newspapers & Periodicals			595	05
" Electricity charges			624	00
" Miscellaneous Expenses			22,473	35
" Conferences, Seminar & Workshop expenses			62,648	70
" Early Cancer Detection Centre Expenses			5,677	30
" Depreciation			11,36,791	80
TOTAL			28,38,365	71

AUDITORS

We have verified the above Income and Expenditure year ended 31st March, 1985 and the annexed Balance Sheet and other records produced before us and we certify the same.

Trivandrum
23-9-1985

TRIVANDRUM (REGN. NO. 567/81)
For the Year Ended 31-3-1985

Income	Rs.		P.	
	Rs.	P.	Rs.	P.
BY GRANT FROM GOVERNMENT OF KERALA HEALTH (J) DEPARTMENT RECEIVED DURING THE YEAR				
1st Instalment as per letter No. G.O. Rt. 2248/84/HD dt. 9-7-84	11,30,000	00		
Final Instalment as per letter No. G.O. Rt. 3643/84/HD dt. 16-11-84	8,70,000	00		
Special Grant for Early Cancer Detection Centres as per G.O. Rt. 641/85/H.D.dt.23-2-1985	2,51,200	00		
	22,51,200	00		
Less: Part of the grant capitalised and transferred to Balance Sheet	5,85,406	49		
			16,65,793	51
" Investigation fee received			72,531	80
" Interest from Banks			24,626	35
" Miscellaneous Receipts			30,094	70
" Closing Stock of Chemicals, Films & Sundry medical items etc.			35,780	40
" Excess of Expenditure Over Income			10,09,538	95
TOTAL			28,38,365	71

REPORT

Account of Regional Cancer Centre Society, Trivandrum for the as at 31st March, 1985 with the books of account, vouchers and to be correct as disclosed by the said records.

Sd/-
POTTI & RAO
Chartered Accountant

REGIONAL CANCER CENTRE SOCIETY,
Balance Sheet as at

Liabilities	Rs.	P.	Rs.	P.
CAPITAL FUND				
As per last Balance Sheet	105,25,104	14		
Add: Transfer of Capital Grant: Central Government Grant	10,23,281	69		
State Government Grant	5,85,406	49		
			1,21,33,792	32
CAPITAL GRANT				
Unspent balance of grant received from Government of India as per last balance sheet.	25,00,000	00		
Less: Amount utilised for purchase of Equipments during 1983-84 as per approval of Government of India vide letter No. V 22015/2/85-R dt. 11-9-85 transferred to Income and Expenditure Account.	20,33,508	22		
	4,66,491	78		
Less: Amount utilised for purchase of Equipments during 1984-85 transferred to Capital Fund.	4,66,491	78		

TRIVANDRUM (REGN. No. 567/81)
31st March 1985

Assets	Rs.	P.	Rs.	P.
FIXED ASSETS				
As per Schedule			1,01,47,268	73
CURRENT ASSETS				
Closing Stock of Chemicals, Sundry Medical Items etc.	35,780	40		
Advances	1,02,712	08		
Prepaid Expenses	16,875	00		
Deposit for O.Y.T. Scheme	7,000	00		
Cash in hand	193	71		
Stamps in hand	285	50		
Balance with State Bank of Travancore in S.B. A/c. No. 9610	4,73,586	51		
Balance with Government Treasury S.B. A/c. No. T.P.A. 675 (A)	10,58,824	70		
Imprest	1,150	00		
			16,96,407	90
INCOME AND EXPENDITURE ACCOUNT				
Balance as per last Balance Sheet	28,52,849	88		
Less: Transfer of Central Government Grant of 1983-84 as value of capital assets acquired has been charged to Income and Expenditure Account	20,33,508	22		
	8,19,341	66		

Capital grant received from Government of India, Ministry of Health & Family Welfare, New Delhi. 1st Instalment as per letter No. V 22015/2/84-R dt. 4-6-1984	3,30,000	00
2nd Instalment as per letter No. V 22015/2/84-R dt. 11-1-1985	16,70,000	00
	<u>20,00,000</u>	00
Less: Amount utilised for purchase of Equipment transferred to Capital Fund	5,56,789	91
Unspent balance grant		14,43,210 09
Part of State Government Grant Capitalised	5,85,406	49
Less: Amount utilised for purchase of Capital Assets transferred to Capital Fund	5,85,406	49
		<u>1,35,77,002 41</u>
		71,728 00
SUNDRY CREDITORS		
		23,826 83
RESEARCH SCHEMES		
Unspent balance of grant		
TOTAL	1,36,72,557	24

- Notes: 1. Central Government grant received during 1983-84 and utilised for purchase of Equipments during 1983-84 Rs. 20,83,508 22 has been transferred to Income and Expenditure Account and shown as a deduction from the balance in that Account on 1-4-1984 since Equipments purchased have already been charged to Income & Expenditure Account of 1983-84.
2. Central Government grant received during 1983-84 and utilised for purchase of Equipments in 1984-85 Rs. 4,66,491 78 has been transferred to Capital Fund.

Add: Excess of Expenditure over Income for the year	<u>10,09,538 95</u>	18,28,880 61
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TOTAL	1,36,72,557	24
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3. Central Government grant received during 1984-85 and utilised for purchase of Equipments in 1984-85 Rs. 5,56,789 91 has been transferred to Capital Fund.
4. Part of State Government grant received during 1984-85 and utilised for purchase of Capital Assets in 1984-85 Rs. 5,85,406 49 has been transferred to Capital Fund.

As per our report of even date

Trivandrum
23-9-1985

Sd/-
POTTI & RAO
Chartered Accountants

REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM (REGN. No. 567/81)
Schedule of Fixed Assets as on 31st March 1985

	W.D.V. as on 1-4-1984	Additions during the year	Deduction during the year	Balance as on 31-3-85	Rate	Depreciation for the year	W.D.V. as on 31-3-1985
1. Building (Under Construction)	20,340.00	2,64,027.10	..	2,84,367.10	..	..	2,84,367.10
2. Furniture & Fixtures	1,19,904.00	1,56,235.60	..	2,76,139.60	10	27,613.60	2,48,526.00
3. Office Equipments	36,884.00	87,997.77	..	1,24,881.77	15	18,732.77	1,06,149.00
4. Vehicles	45,486.00	..	..	45,486.00	20	9,097.00	36,389.00
5. Library Book	52,617.00	79,660.69	..	1,32,277.69	10	13,227.69	1,19,050.00
6. Hospital & Laboratory Equipments (Installed)	28,17,576.00	43,03,226.74	..	71,20,802.74	15	10,68,120.74	60,52,682.00
7. Hospital & Laboratory Equipments (Not Installed)	57,28,190.43	..	32,79,945.05	24,48,245.38	..	..	24,48,245.38
8. Capital Work-in- progress	7,16,378.00	1,35,482.25	..	8,51,860.25	..	..	8,51,860.25
TOTAL	95,37,375.43	50,26,630.15	32,79,945.05	1,12,84,060.53	..	11,36,791.80	1,01,47,268.73

NOTES: 1. No depreciation has been provided on Building under construction, capital work in progress and uninstalled equipments.
2. The deduction of Rs. 32,79,945.05 under Hospital & Laboratory Equipments Uninstalled represents equipments installed during the year & transferred to Installed Account.
3. Equipments transferred from uninstalled Account Rs. 32,79,945.05
Equipments Purchased & Installed during the year Rs. 10,23,281.69

Sd/-
POTTI & RAO
CHARTERED ACCOUNTANTS

POTTI & RAO
Chartered Accountants

Phone : Office : 2197
: Res. V.K. Potti : 60778
: R.S. Rao : 61549

Partners : V. Krishnan Potti
B.Sc., F.C.A.
R. Sanjeeva Rao
B.Sc., F.C.A.

"S. R. Buildings"
Aryasala Jn., Trivandrum
Pincode 695036

26-9-1985

UTILISATION CERTIFICATE

Certified that the total grant of Rs. 22,51,200/- (Rupees Twenty-two lakhs fifty-one thousand two hundred only) received by the Regional Cancer Centre Society, Trivandrum (Regn. No. 567/81) during the year 1984-85 from the Health (J) Department, Government of Kerala as per G.O. Rt. No. 2248/84/HD dated 9-7-1984, G.O. Rt. No.3643/84/HD dated 16-11-1984 and G.O. Rt. 641/85/HD dated 23-2-1985 has been utilised by the Society during 1984-85 for the purpose of Chemotherapy and nuclear medicine etc. services and for the purpose of maintenance of institution and other working expenses, implementation of projects, construction of buildings etc. and in connection with the functioning of the Early Cancer Detection Centres.

Sd/-
POTTI & RAO
Chartered Accountants

POTTI & RAO
Chartered Accountants

Phone : Office : 2197
: Res: V.K. Potti : 60778
R.S. Rao : 61549
"S. R. Buildings"
Aryasala Jn., Trivandrum
Pincode 695036

Partners : V. Krishnan Potti
B.Sc., F.C.A.
R. Sanjeeva Rao
B.Sc., F.C.A.

26-9-1985

UTILISATION CERTIFICATE

Certified that out of the total grant of Rs. 25,00,000/- (Rupees Twenty five lakhs only) received by the Regional Cancer Centre Society, Trivandrum (Regn. No. 567/81) during the year 1983-84 from the Ministry of Health and Family Welfare, Government of India as per letters No. V-22015/1/83-R dated 1-8-1983 and 13-12-1983 the Society has utilised Rs. 20,33,508 22 (Rupees Twenty lakhs thirty three thousand five hundred and eight & paise Twenty two only) for purchase of equipments during the year 1983-84 and balance Rs. 4,66,491 78 (Rupees Four lakhs sixty six thousand four hundred and ninety one & paise seventy eight only) for purchase of equipments during the year 1984-85 as approved by letter No. V-22015/2/84-R dated 11-9-1985.

Sd/-
POTTI & RAO
Chartered Accountants

POTTI & RAO
Chartered Accountants

Phone : Office : 2197
: Res: V.K. Potti : 60778
R. S. Rao : 61549
"S. R. Buildings"

Partners : V. Krishnan Potti
B. Sc., F.C.A.
R. Sanjeeva Rao
B.Sc., F.C.A.

Aryasala Jn., Trivandrum
Pincode 695036

26-9-1985

UTILISATION CERTIFICATE

Certified that out of the total grant of Rs. 20,00,000/- (Rupees Twenty lakhs only) received by the Regional Cancer Centre Society, Trivandrum (Regn. No. 567/81) during the year 1984-85 from the Ministry of Health and Family Welfare, Government of India as per letters No. V-22015/2/84-R dated 4-6-1984 and 11-1-1985, the Society has utilised Rs. 5,56,789 91 (Rupees Five lakhs fifty-six thousand seven hundred and eighty-nine and paise ninety-one only) for purchase of equipments during the year 1984-85 as approved by letter No. V-22015/2/84 dated 11-9-1985 and the balance of Rs. 14,43,210 09 (Rupees Fourteen lakhs forty-three thousand two hundred and ten & paise nine only) is remaining as unspent grant as on 31-3-1985. The Society has reserved this amount for purchase of equipments in the year 1985-86.

Out of the total grant Rs. 30,00,000/- (Rupees Thirty lakhs only) sanctioned to the Society for the year 1984-85 as per letter No. T-20011/12/84-R (VII) dated 13-2-1985 of Ministry of Health & Family Welfare, Government of India only Rs. 20,00,000/- (Rupees Twenty lakhs) has been received during the year 1984-85.

Sd/-
POTTI & RAO
Chartered Accountants

No. 62138/PU. C1/85/Fin.

Comments of Commissioner & Finance Secretary on the Audited Accounts of the Regional Cancer Centre, Trivandrum For the Year Ended 31-3-1985.

"No Comments"

Sd/-
K. V. RABINDRAN NAIR
Commissioner & Finance Secretary

Trivandrum
5-11-1985

To
The Director,
Regional Cancer Centre,
Medical College, Trivandrum

STAFF

Director

— Dr. M. Krishnan Nair

Superintendent

— Dr. T.K. Padmanabhan

Radiotherapy

Dr. M. Krishnan Nair

— Professor

Dr. T.K. Padmanabhan

— Professor

Dr. F. Joseph

— Associate Professor

Dr. B. Rajan

— Associate Professor

Dr. T. Ganga Devi

— Assistant Professor

Dr. C.S. Kuttappan

— Assistant Professor

Dr. G. Sureshchandra Dutt

— Assistant Professor

Dr. P.G. Jayaprakash

— Assistant Professor

Dr. S. Parameswaran

— Assistant Professor

Dr. C.S. Rafeeka Beegum

— Tutor

Dr. Jayaprakash Madhavan

— Tutor

Dr. C.S. Madhu

— Tutor

Dr. A. Sudhakaran

— Tutor

Dr. V. Narayana Bhattathiri

— Tutor

Dr. P.R. Sasindran

— Tutor

Dental Section

Dr. L. Sudha

— Tutor

Dr. K.R. Nalinakumari

— Tutor

Smt. M. Krishnambal

— Dental Hygienist

Sri P.R. Chandrasekharan Nair

— Dental Hygienist

Nuclear Medicine:

Dr. P. Ramachandran Nair

— Associate Professor

Dr. V. Padmanabhan

— Senior Scientific Officer

Dr. V.M. Pradeep

— Tutor in Non-Invasive
Imaging

Sri. Reghu Ram K. Nair

— Lecturer in Nuclear
Medicine Technology

Radiation Physics

Dr. T.P. Ramachandran

— Associate Professor

Sri. P.G. Gopalakrishna Kurup

— Assistant Professor

Sri C.A. Davis

— Lecturer

Smt. B. Vimala	— Radiographer
Sri N. Sadasivan Nair	— "
Smt. S. Suseelamma	— "
Sri V. Gangadharan Nair	— "
Smt. P. Seetha	— "
Sri C. Viswanathan	— "
Smt. K.M. Saramma	— "
Smt. M. Leela	— "
Sri. Georgey Mathews	— "
Smt. Raheena Beegum	— "
Smt. V. Sheela	— "
Sri. S. Sreenivasan	— Radium Technician

Cytology

Dr. N. Sreedevi Amma	— Professor
Dr. M.K. Lalitha Bai	— Associate Professor
Dr. B. Chandralekha	— Assistant Professor
Dr. B. Kumari Chandrika	— Assistant Professor
Dr. Elizabeth K. Abraham	— Assistant Professor
Smt. J. Ambikakumari	— Senior Scientific Officer
Sri. G. Reghunathan Nair	— Cytologist
Sri. K. Vijayagopal	— Junior Research Officer
Sri. P. Gopalakrishnan	— Research Assistant
Smt. K.S. Ponnamma	— Laboratory Technician Gr. I
Sri. R. Muraleedharan	— Laboratory Technician Gr. II
Smt. Anandavally	— Laboratory Technician Gr. II
Smt. S. Najeeya	— Laboratory Technician Gr. II
Smt. Sathy Ammal	— U.D. Typist

Cancer Surgery

Dr. Thomas Cherian	— Assistant Professor
Smt. S. Geetha	— Staff Nurse
Smt. P.A. Baby	— "

Paediatric Oncology

Dr. P. Kusuma Kumari	— Tutor
Smt. P.M. Aleykutty	— Nurse

Cancer Research

Dr. J. Stephen	— Associate Professor
Dr. B. Prabha	— Assistant Professor
Mr. T. Vijayakumar	— Senior Research Officer
Mr. K.K. Vijayan	— Lecturer
Mr. Ravindran Ankathil	— Scientific Officer
Mr. Thomas Abraham	— Scientific Officer
Smt. B. Padmavathy Amma	— Laboratory Technician Gr. I
Sri. P. Robinson	— Laboratory Technician Gr. II
Smt. C. Ganga Devi	— Laboratory Technician Gr. II
Smt. A. Leela	— Animal House Keeper- cum-Attender
Sri. K. Vikraman Nair	— do—

Hospital Cancer Registry and Medical Record:

Sri. P. Gangadharan	— Biostatistician
Dr. R. Sankaranarayanan	— Senior Research Officer
Sri. S. Muraleedharan Nair	— Medical Statistician
Sri. R. Ravindran Nair	— Medical Records Officer
Smt. G. Padmakumari Amma	— Senior Research Fellow
Smt. P.T. Latha	— Social Investigator
Smt. Anita Nayar	— Social Investigator
Smt. Jalajakumari V.	— Clerk
Sri. L.G. Amaldas	— Clerk
Sri. Rajasekharan Nair	— Clerk
Smt. Kumari Jaya	— Coding Clerk
Smt. C. Sreedevikutty	— Typist
Sri. K. Shibu Kumar	— Clerk-Typist
Smt. S. Ponnammal	— Receptionist
Sri. S. Vijayan Nair	— Sergeant
Sri. S. Rajayyan	— Technical Helper

Administrative Office:

Sri. R. Ramachandran	— Registrar
" E.U. Aravindakshan	— Administrative Officer
" Joseph Stephen	— Accounts Officer
" K. Ramakishnan Potti	— Financial Assistant

Sri K. Parameswaran	— Secretary & Confidential Asst.
.. P.K. Viswanatha Menon	— Cashier-cum-Accountant
.. A. Radhakrishnan	— Confidential Assistant
Miss. C.G. Thankamoni	— -do-
Smt. J. Ragini Amma	— Clerk-Typist
Sri. P. Krishnan Nair	— Driver
Sri M. Subair	— Peon
Sri. R. Sasikumaran Nair	— Watcher

Engineering Wing

Sri. G. Gopalakrishnan Nair	— Chief Construction Engineer
.. R. Ravindranathan Nair	— Project Engineer
.. V. Subramonian Potti	— Asst. Project Engineer
.. N. Velayudhan	— Asst. Project Engineer
.. P. Krishna Pillai	— U.D. Typist

Early Cancer Detection Centre, Ernakulam

Dr. B. Syamalakumari	— Cytopathologist
Smt. C. Radha	— Cytotechnologist
Smt. L. Madhavikutty Amma	— Staff Nurse
Smt. T.P. Ramani	— L.D. Typist
Sri K.N. Viswambharan	— Jr. Lab. Assistant
Sri V. Kumaran	— Jr. Lab. Assistant
Sri N.A. Abdul Khader	— Hospital Attendant Gr. I

ACKNOWLEDGEMENTS

Government of India, Ministry of Health & Family Welfare.
 Government of India, Department of Science & Technology.
 Government of Kerala, Department of Health.
 Indian Council of Medical Research, New Delhi.
 World Health Organisation, New Delhi.
 International Union Against Cancer (UICC) Geneva, Switzerland.
 British Council, Madras.
 American Cancer Society, New York.
 Cancer Registry, Cancer Research Institute, San Francisco.
 Allegheny General Hospital, Pittsburg, U.S.A.
 Christie Hospital & Holt Radium Institute, Manchester.
 Chester Beatty Research Institute, London.
 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 for Medical Sciences & Technology, 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 Avittom Thirunal Hospital for Women & Children, Trivandrum.