

2008

Z107920



REGIONAL CANCER CENTRE
TRIVANDRUM-695 011, KERALA, INDIA

REPORT OF ACTIVITIES 1986-'87

Telephone Numbers : Admn. Office : 74546 Hospital : 76799, 71270-Ext. 32
Director's Office : 73128 Resi. : 62316
Telegram : CANCENT

CONTENTS



- I. Introduction
- II. Departmental Activities
 - 1) Division of Radiotherapy
 - 2) Division of Surgical Oncology
 - 3) Division of Paediatric Oncology
 - 4) Dental Wing
 - 5) Division of Imageology
 - 6) Division of Radiation Physics
 - 7) Division of Cytopathology
 - 8) Division of Research
 - 9) Division of Medical Records & Statistics and Hospital Cancer Registry
 - 10) Division of Community Oncology
- III. Training Programme
- IV. Oncology Seminars and Special Clinics
- V. Conferences/Seminars/Workshops etc.
- VI. Papers Presented/Published
- VII. Distinguished Visitors
- VIII. Administration
 - 1) Governing body members
 - 2) Executive Committee members
 - 3) Building Committee members
 - 4) Scientific Committee members
 - 5) Major recommendations of the Governing Body
 - 6) Major recommendations of the Executive Committee and Scientific Committee
- IX. Engineering Department - Report
- X. Accounts.
- XI. List of Staff
- XII. Acknowledgements

616.99400600483 (1) M7

Z07920

✓

INTRODUCTION

This year marked the completion of five years of meaningful existence of the Regional Cancer Centre, Trivandrum which was established with the objective of providing excellent clinical service to cancer patients and carrying out cancer control activities in the deep south of the country. True to its commitment this centre has achieved phenomenal improvement in cancer treatment results through augmentation of diagnostic and therapeutic facilities, advanced training of staff and emphasizing on appropriate therapeutic strategies. As can be seen from the content of this report quite a number of patients in the early stages of the disease are able to get complete cure and lead normal life. This amply justifies the establishment and existence of this centre.

There were also remarkable academic achievements during the past five years and the marked improvement in clinical service is an offshoot of this. In order to improve the quality of cancer care and training, some international courses were conducted in this centre in Radiobiology, Tumour registration, Cancer epidemiology, Radiotherapy, Gynaecologic oncology and Paediatric oncology. For this there was liberal and generous support of organizations like the British Council, Christie Hospital and Holt Radium Institute, Royal Marsden Hospital, University of California, Indian Council of Medical Research, U.I.C.C. and World Health Organization. We were able to give foreign training to some of our staff during this year.

Paediatric Oncology as a separate department was first started in India in this Centre. A paediatric Oncology course was conducted by us for which we had experts from Manchester University as faculty members. Candidates for this course were drawn on a national basis. This course highlighted the paramount significance of Paediatric Oncology in the context of increasing prevalence of childhood cancers in India.

As in the previous years, special clinics were held regularly in Head and Neck cancer, trophoblastic tumours, Paediatric Oncology and Cancer Pain Relief every week. Monthly Clinico pathological conferences were also held. Twelve Oncology seminars

were conducted during this year, with chief guets from outside the State. This centre hosted the annual review meeting of the National Registry Project and a workshop for Tumour Registry personnel and pathologists. In both these, experts from WHO, University of California, John Hopkins Oncology Centre, I.C.M.R. and such other National and International Academic Institutions participated.

In addition to the Centre's research programmes there are seven research projects aided by outside agencies and a few are supported by foreign agencies.

This Centre has the credit of having started a Community Oncology Division for the first time in India. This division has already played a very important role in creating public awareness about cancer and cancer control programmes. The services of the National Service Scheme volunteers of various colleges and multipurpose health workers were effectively utilised for cancer detection, organization of early cancer detection camps, and anti tobacco campaign.

The construction of the new building which commenced in 1985 has made rapid progress and is expected to be completed by the middle of 1988.

This report for the year 1986-87 contains details of activities of all divisions, administration, and statement of accounts.

DEPARTMENTAL ACTIVITIES

DIVISION OF RADIOTHERAPY

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

CLINICAL ACTIVITIES

No. of New Cases	—	4633
Total No. of patients seen in the Out Patient	—	31223
In-Patient Admissions	—	3053

No. of cases treated with teletherapy	—	3963
No. of cases treated with Brachytherapy	—	595
No. of Patients treated in Selectron	—	424
Intracavitary radium	—	68
Interstitial implants	—	99
Mould treatment	—	4
No. of patients treated with chemotherapy	—	6254

As in the previous years the Radiotherapy Department was involved in the total management of patients, and was responsible for the primary patient care. Cancer chemotherapy is also given under the supervision of Radiotherapist. The out patient clinics were conducted 6 days a week and a few speciality clinics were also held in collaboration with other departments of the Medical College.

ACADEMIC ACTIVITIES

Noon clinic was conducted on all working days to discuss interesting and problematic cases. Journal clubs and symposium were held regularly once a week. CPC was held once in a month.

ON-GOING TEACHING PROGRAMMES

M. D. Radiotherapy

Diploma in Medical Radiation Therapy

M. D. General Medicine

M. D. Obstrectics & Gynaecology

M. S. General Surgery,

M. S. E.N.T.

M. S. Orthopaedics.

D. G. O.

D. L. O.

M. B. B. S. third year clinics

M. B. B. S. Final Year lecture

B. Sc. Nursing

C. R. A. (Certified Radiological Assistant) course

Hospital Orientation for DRP Course of BARC.

A week long course on Paediatric Oncology was organised with the co-operation of British Council and the University of Manchester.

M.D. Radiotherapy of the University of Kerala was awarded to:

Dr. C. S. Madhu

Dr. A. Sudhakaran

Dr. C. S. Kuttappan

Dr. R. Gireesan

Dr. K. S. Thomas
and D. M. R. T. to

Dr. V. M. Dileep

Dr. K. S. Thomas

Dr. M. Krishnan Nair was appointed as an expert in the Panel on Cancer, by the W. H. O.

Dr. M. Krishnan Nair was appointed as a member of the seven member Executive of the National Cancer Control Board.

PAPERS PRESENTED / PUBLISHED AND CONFERENCE ATTENDED:

1. M. Krishnan Nair was the President of the 7th Congress of the Association of Radiation Oncologist of India (AROI) held in Bombay during December 1986.

2. V. N. Bhatathiri, and M. Krishnan Nair. Carcinoma oesophagus External radiotherapy and Intracavitary Co60 7th Congress AROI December 1986 Bombay.
3. M. Krishnan Nair, P.G. Jayaprakash, T.K. Paddmanabhan, V. N. Bhattathiri. Cs 137 treatment for Ca Cervix 7th Congress AROI during December 1986, Bombay.
4. C. S. Madhu, Jayaprakash Madhavan, P. Gangadaran, T. K. Padmanabhan, M. Krishnan Nair. Prognostic factors in locally advanced breast cancer. 7th Congress AROI, December 1986, Bombay.
5. P.R. Sasindran, T.K. Padmanabhan and M. Krishnan Nair. Role of Total Body irradiation in disseminated malignancy. 7th Congress, AROI, December 1986, Bombay
6. Muralidharan Nair, M. Krishnan Nair, T.K. Padmanabhan, P. Gangadharan, Malignant Neoplasms to skin seen at Trivandrum. 7th Congress, AROI, December 1987, Bombay.
7. Jayaprakash Madhavan, C.S. Madhu, T.K. Padmanabhan, T.P. Ramachandran, P.G.G. Kurup, M. Krishnan Nair. Hemi Body Irradiation in disseminated Malignancy. 7th Congress, AROI, December 1986, Bombay.
8. M. Krishnan Nair was the moderator in the Symposium on Carcinoma of the Pancreas held during the Annual Conference of Indian Society of Pancreatology, held in December 1986 at Trivandrum.
9. T.K. Padmanabhan, Experimental Protocols in the management of Cancer of Pancreas. Symposium on Carcinoma of the Pancreas held during Annual Conference of the Indian Society of Pancreatology, December 1986.
10. M.Krishnan Nair. Role of Radiotherapy in the Treatment of Hodgkin's disease. Indian Society of Haematology and Blood Transfusion. 27th National Conference. December 1986.
11. T.K.Padmanabhan, P.R.Sasindran, Role of T.B.I. In advanced Lymphoreticular malignancy. 27th National

Conference of Indian Society of Haematology and Blood Transfusion, December 1986, Trivandrum.

12. C.S. Madhu attended the International Symposium on Breast Cancer held in January 1987, New Delhi.
13. B.Rajan was selected for the Common Wealth Fellowship for Higher training in Royal Marsden Hospital, in U.K. for 1 year

TREATMENT RESULTS:

With the establishment of Hospital based Tumour Registry analysis of treatment and results of cancers in various parts of the body is now possible.

Cancer of the Oral Cavity

Total incident New Cases	:	617
No treatment	:	88
Treated cases	:	529
Died within one year	=	58/617 : 9.4%
Surgery	=	40/529 : 7.6%
Radiation (Ext.)	=	461/529 : 87.1%
Chemotherapy	=	87/529 : 16.4%
Brachy therapy	=	74/529 : 14.0%
Treated outside	:	26

Cancer of the Oropharynx

Total incident New case	:	115
No treatment	:	9
Treated cases	:	106
Died within one year	=	19/115 : 16.5%
Surgery	=	1/106 : 0.9%

Radiation (Ext.)	=	104/106	:	98.1%
Brachytherapy	=	1/106	:	0.9%
Treated outside			:	2

Cancer of the Oesophagus

Total incident New cases			:	142
No treatment			:	35
Treated cases			:	107 (75.4%)
Died within one year	=	49/142	:	34.5%
Surgery	=	12/107	:	11.2%
Radiation (Ext.)	=	94/107	:	87.9%
Chemotherapy	=	7/107	:	6.5%
Treated outside			:	6

Cancer Stomach

Total incident New cases			:	122
No treatment			:	47
Treated cases			:	75 (61.5%)
Died within one year	=	42/122	:	34.4%
Surgery	=	40/75	:	53.3%
Radiation	=	21/75	:	28.0%
Chemotherapy	=	29/75	:	25.3%
Treated outside			:	15

Cancer of the liver

Total incident New cases			:	74
No treatment			:	31

Treated cases			:	43 (58.1%)
Died within one year	=	30/74	:	40.5%
Surgery	=	5/43	:	11.6%
Radiation	=	31/43	:	72.1%
Chemotherapy	=	9/43	:	20.9%

Carcinoma of the Larynx

Total incidence New cases			:	81
No treatment			:	3
Treated cases			:	78 (96.3%)
Died within one year	=	12/18	:	15.38%
Surgery	=	16/78	:	20.5%
Radiation	=	76/78	:	97.4%
Chemotherapy	=	5/78	:	6.4%
Treated outside			:	2

Cancer of Lung

Total incident new cases			:	241
No treatment			:	69
Treated cases			:	172
Died within one year	=	99/241	:	41.1%
Surgery	=	6/172	:	3.5%
Radiation (Ext.)	=	160/172	:	93.0%
Chemotherapy	=	32/172	:	18.6%
Treated outside			:	6

Carcinoma of Breast

Total incident new cases	:	186
No treatment	:	14
Treated cases	:	172
Died within one year = 14/186	:	7.5%
Surgery = 135/172	:	78.5%
Radiation (Ext.) = 111/172	:	64.5%
Chemotherapy = 38/172	:	22.1%
Hormone = 48/172	:	27.9%
Treated outside	:	172

Cancer Cervix

Total incident New cases	:	446
No treatment	:	41
Treated cases	:	405 (90.8%)
Died within one year = 20/446	:	4.5%
Surgery = 11/405	:	2.7%
Radiation (Ext.) = 312/405	:	77.0%
Brachytherapy = 333/405	:	82.2%
Chemotherapy = 47/405	:	11.6%
Treated outside	:	4

DIVISION OF SURGICAL ONCOLOGY

Staff

Dr. Thomas Cheriyan	:	Asst. Professor
Dr. Gladys Jeevy	:	Anaesthetist
Dr. Paul Sebastian	:	Lecturer
Dr. Iqbal Ahmed	:	Lecturer
Dr. Sivaramakrishnan	:	I.C.M.R. Fellow
Dr. Jayakumar	:	I.C.M.R. Fellow

Clinical:

Despite several constraints, there has been a progressive increase in the number of cases operated. Nearly 376 cases were treated/managed this year, of which 195 were major extensive surgeries. In spite of the advanced nature of the disease, most of them extensive recurrences or residual lesions following radiotherapy, we were able to get microscopic clearance at the margins, in almost all cases. Local and regional recurrence rates were very low (less than 15%).

The procedure of immediate primary reconstruction in head and neck cancers is well rewarded. Primary reconstruction done even in cases where the clearance of the tumour was not obtained, had fully palliated and rehabilitated them to normal life. Eventhough a good percentage of the patients were in extreme old age, treatment was not denied to them.

This division has involved a few innovative surgical techniques which are very advantageous in cancer surgery. Despite, the inadequate set up, our post operative infection rate has been very low. Operative mortality was nil till date.

Split up of the Major operations done during 1986-1987

		<i>Recurrence local & Nodal</i>	
A.	Buccal Mucosa	-63	
	(i) Wide excision & primary repair	-30	
	ii) Wide excision hemimandibulectomy	28	9 1
	Supra omohyoid Radical neck dissection and Primary reconstruction	28	9 1
	iii) Buccal Mucosa commando with Primary reconstruction	5 3	
B.	Tongue	37	3 12
	i) Hemiglossectomy	23	
	ii) Subtotal glossectomy	4	
	iii) Hemiglossectomy & Radical neck dissection	6	
	iv) Tongue commando	4	
C.	Floor of Mouth	5	
	i) Wide excision & Repair	2	
	ii) Wide excision, Hemimandibulectomy Supramohyoid neck dissection	3	
D.	Lower alveolus	25	8 5
	i) Wide excision hemimandibulectomy & Supra omohyoid dissection	19	
	ii) Alveolus commando	6	
E.	Lower Lip	15	
	i) Wide excision & Primary repair	15	2

F.	Radical neck dissection	22
G.	Total thyroidectomy	2
H.	Total Parotidectomy	2
II.	BREAST	
	Total mastectomy & Total Axillary clearance	20
III.	Bone & Sift tissue	5
	Minor operation	181
	Lost to follow up	30

Pain Clinic:

A pain clinic is functioning since 18-4-1986. At present it is being held on every Thursday. An average of 8 cancer patients with intractable cancer pain are seen on each clinic. Step ladder pattern of oral drug therapy recommended by WHO is being followed with very good result. Fifty per cent of the patients got remarkable improvement on this regime. Twenty five per cent of the patients then pass on to the 2nd step drugs namely weak opioids. In selected cases neurolytic blocks are given with good relief. Dr. Gladys Jeevy the anaesthetist is in charge of the pain clinic assisted by Dr. Paul Sebastian, Lecturer in Cancer Surgery.

Academic Teaching

The division is the part of the teaching faculty of the medical college and has undertaken teaching for undergraduates and post graduates in General Surgery. The division takes active role in all academic activities of the Regional Cancer Centre like noon clinic, C.P.C., Journal Club, Oncology Seminars and Departmental Conferences.

Research Activities:

This division co-operates actively with the research division of the centre, supplying them with tissue samples, clinical information, lab data etc. Dr. Jayakumar, I. C. M. R. fellow is actively

involved in the research project "Role of Tumour Associated Antigens in the total management of Carcinoma of the tongue" since three years. Dr. Sivaramakrishnan I.C.M.R Research fellow is working on the Multi Centric ICMR Project "Taskforce Project on Clinical Trials for Buccal Mucosal Cancer; a clinical trial to compare the effectiveness of Radiotherapy with combination of surgery and radiotherapy on moderately advanced Buccal Mucosa Cancer.

Seminars, Conferences, Training Programme and Publications:

- I. Dr. Thomas Cherian attended the International Workshop on Cancer Breast held at AIMC, New Delhi, February 17 to 21, under T. T. P.

Dr. Thomas Cherian visited U. K. from August 1986 to Feb 1987, sponsored by the Cancer Research Foundation of U. K. and by the British Council. During this period he visited 1. The Royal Marsden Hospital, London, 2. Canniesburn Hospital, Glasgow, and 3. The Christie Hospital and Holt Radium Institute, Manchester.

He had wide exposure to the surgical management of advanced Head and Neck tumours, Microvascular free flap reconstruction of Head and Neck, Laster surgery etc.

- II. Dr. Paul Sebastian:

Attended T. T. P. Workshop on "Cancer Pain Relief" at Ahmedabad, February 1976.

Underwent a 6 months training programme in Surgical Oncology in Tata Memorial Hospital, Bombay from Sept. 1986 to February 1987.

Attended the National Conference of the Indian Association for study of Pain, at Bombay in February 1987. Attended the workshop on HOSPICE organised by Shanthy Avedna Ashram, Bombay in February 1987.

- III. Dr. Iqbal Ahmed

Attended the National Conference of ASI held at Agra from 27th to 30th Dec 1986 and the C.M.E. Attended

the 2nd Annual Conference of the Association of Head and Neck Oncology conducted along with ASI Conference from 31st December 1986 to 1st January 1987. Attended workshop on Ultrasound in Urology on 2nd and 3rd January 1987 held at Agra.

- IV. Dr. Gladys Jeevy – Conference of Indian Society for study of Pain – Bombay 86.

PAEDIATRIC ONCOLOGY DIVISION

Staff:

Dr. P. Kusuma Kumary, Lecturer

The Paediatric Oncology section was started on the basis of recommendations of the Scientific Committee of Regional Cancer Centre, in 1982.

During the year under report about 186 cases were registered in this section under the following categories:-

Leukaemias	48	(25.8%)
Brain tumour	45	(24.8%)
Lymphoma	11	(5.9%)
Wilm's tumour	16	(8.6%)
Soft tissue Sarcoma	10	(5.3%)
Bone tumours	11	(5.9%)
Germ Cell tumours	5	(2.6%)
Histiocytosis	5	(2.6%)
Neuroblastoma	3	(1.81)
Miscellaneous	18	

Sex — M:F — 100:86

Out patient clinic in Paediatric Oncology is being held on all days except Sundays and a few other holidays declared in advance. Detailed diagnostic work up of all the patients is done as a routine. This includes complete haematology, bone marrow aspirations, C. S. F. studies ultrasound and CT Scans, X-rays and blood biochemistry. About 200 bone marrow aspirations and 400 lumbar punctures of diagnostic and therapeutic purposes were done last year.

Out of the 186 patients about 100 patients were getting regular chemotherapy. 120 patients were admitted to the

wards for chemotherapy and/ radiotherapy. Rest of the patients were given the treatment on out patient basis. Arrangement for blood transfusions is also done and about 350 transfusions were given to both inpatients and out patients.

Major management decision are made by the multidisciplinary team consisting of paediatric surgeon, paediatric pathologist, paediatric oncologist and radiation oncologist. This group meets every Monday at 12 Noon. Decisions on free treatment are taken by academic forum during this session.

Newer chemotherapy protocols used in other major centres are followed here without any deviation. This includes NWTS-III. (National Wilms Tumour Study III), regimen for treating Wilm's tumour, COMP regimen for treating non-Hodgkin's lymphomas and IRS-II (Intergroup Rhabdomyosarcoma study) protocols for treating Rhabdomyosarcoma.

National Wilm's Tumous Study - III:

Favourable Hostology:

Stage I (any age) Surgery + chemotherapy with Inj. Vincristine and Actinomycin D for 6 moths.

Stage II Surgery + Renal bed irradiation + Chemotherapy with Inj Vincristine, Actinomycin D and Adriamycin for 15 Months.

Stage III Surgery + Tumor bed irradiation + Chemotherapy with Inj. Vincristine. Actinomycin D and Adriamycin for 15 Months.

Unfavourable histology:

and all Stage IV.

All UH any stage
All stage IV FH

{ Surgery + Radiotherapy
and chemotherapy with Inj. VCR,
AMD and ADR for 15 months.

IRS II (Intergroup Rhabdomyosarcoma)

Surgery - The basic strategy - Wide excision of the primary tumour with an envelope of normal tissue. Re-operation for

selected patients if the area of residual disease is clearly identified and accessible. Ablative procedures such as amputation orbital or pelvic exenteration – rarely done.

Radiation therapy: used for primary tumour as well as metastasis. RT is omitted in patients with group I disease. Chemotherapy – is administered to all patients with Rhabdomyosarcoma.

For Group I — Pulse VAC therapy

Group II — Pulse VAC + XRT at week 6

Group III & IV. VADRC/VAC regimen + XRT

Pulse VAC regimen

Inj. Vincristine – 2 mg/m² I/V weekly x 12 weeks.

Then day 1 & 5 of each pulse VAC.

Inj. AMD-15/μg/Kg/day x 5 I/V initially the with each VAC course.

Inj. Endoxan – 10 mg/Kg/day x 3 days I/V initially then 20 mg/kg I/V single dose on day 21, 42, & 63 These after 10/kg/day x 3 with each VAC.

Pulse VAC is given initially and then every 4 week from Week 12 upto 2 years.

VADRC – VAC regimen:

Inj. Vincristine 2mg/m² I/V weekly x 12, then day 1 of each VADRC or VAC course.

Inj. AMD 15 μg/Kg/ day x 5 days along with each VAC

Inj. Adriamycin 30 mg/m² /day x 2 with VADRC initially then at week 3. Thereafter with each VADRC course. VADRC courses are given initially and at week 12.

Thereafter VADRC courses are alternate with pulse VAC course every 4 weeks for the first year followed by Pulse VAC alone for another year.

CDMP regimen for lymphomas:

Induction

1. Inj. Endoxan 1200 mg/m² I/V Day 1
2. Inj. Vincristine 2 mg/m² I/V Day 3, 10, 17, 24.
3. Inj. Methotrexate I/T 6.25 mg/m² Day 5, 31, & 34.
4. Inj. Methotrexate I/V 300 mg/m² on Day 12, (60% of dose I/V) Push 40% as 4 hr infusion
5. Tab prednisolone 60 mg/m² (maxi. 60 mg) P.O. daily in 4 – ded dose on day 3–30 with dose tapere to '0' on day 31–37.

Maintenance:

Inj. Endoxan 1000 mg/m² I/V day 1

Inj. Vincristine 1.5 mg/m² I/V day 1 & 14

Inj. Methotrexate 300 mg/m² I/V on day 14

Tab: Prednisolone – 60 mg/m² (Maxi 60 mg) P.O. daily day 1–5 (Excluded from first maintenance).

Clinical Research

1. A programme on EMG changes after vincristine therapy in children is being conducted in association with Paediatric neurology department of SATH.

This study is in progress

2. Evaluation of Cardiac toxicity of Adriamycin in children is being conducted in association with cardiology department of Medical College Hospital.

The staff of this section are involved in training the post graduate students in radiation oncology and paediatrics and under graduate students of Trivandrum Medical College.

Conferences attended/papers published:

Dr. Kusuma Kumary attended the following:

1. An advanced course in Paediatric Oncology was organised in Regional Cancer Centre, Trivandrum with the help of British Council during Nov. 11 – 14, 1986 Dr. Dorothy Pearson Consultant in Radiotherapy and Oncology, Christie

Hospital and Holt Radium Institute, Manchester and Dr. Patricia Morris Jones, Paediatric oncologist, Royal Manchester Children Hospital were the directors of the course. In addition to Regional Cancer Centre staff, the trainees were selected on a National Basis.

2. Asian Seminars in Paediatric oncology held at Bombay during January 23-31, 1987.
3. Dr. P. Kusumakumary presented a paper on "non Hodgkins lymphoma. Experience in the management" at the Annual Conference of Indian Association of Haematology and blood transfusion held at Trivandrum in December 1986.
4. Dr. P. Kusuma Kumary had undergone a training in Paediatric oncology at Manchester sponsored by British Council from February to May 1987. She had her training under the guidance of Dr. Dorothy Pearson on Christie Hospital, Manchester and Dr. Patricia Morris Jones in Royal Manchester Children's Hospital, Pendelbery. She attended a symposium International Haematology update held in Glasgow and a one day International research symposium "Chromosomes and genes in leukaemia" held in London during this period.

DENTAL WING

Dr. L. Sudha	— Tutor
Dr. K. R. Nalinakumari	— Lecturer

As in the previous years all the suspected Oral Cancer Cases registered in the Regional Cancer Centre were referred to this section. During the year under report the following services were rendered.

Number of cases referred	— 2159
Number of new cases	— 704
Biopsies	— 645
Bite Block	— 148
Extractions	— 1202
Miscellaneous	— 62

In addition to these, mould preparations were done, for all cases for radium implantation.

Patients with Leukoplakia, Lichenplanus, S.M.F. and other oral lesions were also attended in this division.

The staff of this division actively participated in the early cancer detection camps and other medical camps conducted in the rural areas, like Venjarumoodu, on August 1986, Kattakada, on September 1986.

Research Activities:

We are collaborating with the research activities of the research division of the centre, especially on 'Immunological studies in Oral cancer. The academic staff of the Dental wing are co-workers in the Research project jointly run by the British Columbia Cancer Centre and Cancer Centre, Trivandrum. Studies on Stomal changes in oral cancer and precancer lesions have already been completed. Biopsies have been taken from persons with oral leukoplakia prior to vitamin A administration and after. The findings of these work will be published at the earliest.

DIVISION OF IMAGEOLOGY

Staff:

Dr. P. Ramachandran	— Associate Professor
Dr. K. Sasidharan	— Associate Professor
Dr. V. Padmanabhan	— Asst. Professor
Dr. Pradeep V. M.	— Lecturer
Mr. Raghu Ram K. Nair	— Lecturer

Activities

17,855 new cases were registered in the department for various investigations during the year 1986-87.

Nuclear Medicine	.. 6,437
Ultrasound	.. 11,368
Mammography	.. 50
Total	17,855

This represents as an average 50 cases per day. Break-up of cases for the invivo studies is as follows (Nuclear Medicine).

Thyroid	.. 5063
Bone	.. 369
Kidney	.. 175
Liver	.. 234
Brain	.. 56
G.I. Blood	.. 11
Salivary	.. 3
Hysterosarppingography	.. 4
Cardiac	.. 5
	<hr style="width: 50%; margin: 0 auto;"/> 5920 <hr style="width: 50%; margin: 0 auto;"/>

The following Radioimmunoassays were performed.

Thyroid Hormones (T3, T4, TSH)	.. 5880
B HCG	.. 267
Prolactin	.. 150
Insulin	.. 100

The patients who turn up for ultrasonography are mostly for obstetric work-up. Other cases are for liver, biliary tree, spleen, kidneys and abdominal and pelvic masses.

The Philips Mammogram became operational in 1986. 50 cases have been examined during the current year.

112 cases of Thyrotoxicosis were treated with Radioiodine during this period. As part of the work-up for this and thyroiditis 143 thyroid uptake studies were performed.

Equipment of the Division

	Make
1. Computerised Y-Camera system	(Siemens)
2. Rectilinear Scanner	(Philips)
3. Thyroid uptake probe	(ECIL)
4. Renography Unit	(ECIL)
5. RIA counter - Automatic	(Packard)
6. RIA Counter - Manual	(ECIL)
7. Shadow shielded whole Body Counter	(BARC)
8. Isotope Calibrator	(BALRAD)
9. Contamination Monitor	(ECIL)
10. Survey meters	(ECIL)
11. Ultrasound Scanner - EUB - 26	(HITACHI)
12. Mammography system	(PHILIPS)

In the field of thyroidology the department caters to patients from all over the state and also District of Tamil Nadu such as Kanyakumari, Thirunelveli and Madurai. Two clinics exclusively devoted to thyroid examinations are conducted every week. Attendance in these clinics has climbed from less than 1000 in 1980 to more than 5000 currently.

Research Activities:

The real intellectual growth of any department is through the contribution it makes to research. One of the objectives set even as the division started functioning was to consider the importance of studies in the regional health problems, and much emphasis has been given to programmes incorporating broad-based studies on the various diseases common in our settings.

The following are the long term - On doing Research Programmes

1. Hormonal patterns in thyroid disorders
2. Iodine kinetics in adolescent goitres.
3. Functional status of solitary/multiple lesions of thyroid (high land region of Kerala).
4. Spatial distribution of Radiotracers and their Temporal sequence in various thyroid disorders
5. Thyroglobulin as a marker of thyroid malignancy
6. Head and neck irradiation and thyroid function.
7. Non-invasive screening for Osteoporosis in perimenopausal women.
8. Ultrasound characterisation of solitary thyroid nodules.
9. Ultrasound screening of extra cranial carotid arterial system in the elderly
10. 'Window Sonography in 'Highrisk' neonates
11. Ultrasound assessment of Feto-Placental unit.

12. Ultrasound profile of mass lesions of liver.
13. NSE as a marker of APUDOMAS
14. Scintigraphic Profile of Metastatic cancer.
15. Usefulness of serial estimation of BHCC in trophoblastic disease.

Future Programmes

1. Goitre survey in juvenile population of Kerala
2. B12 absorption studies during and after abdominal irradiation
3. Thermographic profile of solitary thyroid nodules VS ultrasound and scintigraphy
4. Insulin antibody studies in various types of DM.
5. Prolactin levels in Schizophrenia
6. Prolactin levels in Hansen's disease
7. Screening for neonatal chemical hypothyroidism.
8. ANP (Atrial natriuretic peptide) in different types of hypertension.
9. Thermomamography VS. Sonomammography.
10. Serial estimation of insulin levels along with G.T.T.
11. Hyperprolactinemia - Combination treatment using Bromocriptine and tamoxifen.
12. An Ayurvedic preparation as an alternative to propranolol in hyperthyroidism.
13. Pulm. circulation studies in cardiac patients and asthmatics.
14. C15-3-its role in management of breast cancer
15. Tumour marker RIA

16. Radionuclide hystero salpingography.
17. Computer analysis of echograms in Thyroiditis, C_a thyroid, breast cancer and C_a liver.
18. Non-cardiac chest sonography
19. Salivary dynamics using Nuclear Medicine procedures.
20. Pentoxifyllin and cerebral perfusion
21. Veterinary nuclear medicine – effect of viral disorders on animal endocrine system.

Conferences and Academic Activities:

1. Dr. P. Ramachandran Nair
 - (i) Training in PET, Japan, Nov. 1986. Sponsored by Govt. of Japan.
 - (ii) 3rd Asean Congress of Radiology, Singapore, Aug. 1986
 - (iii) 26th Annual Conference of Society fo Nuclear Medicine, Japan, Nov. 1986.
2. Dr. V. Padmanabhan
 - (i) 1st Asian Conference of AMPI, Dec. 1986.
 - (ii) ISNM Annual Conference, Madras, Dec. 1986.
3. Mr. Raghu Ram K. Nair
 - (i) S.N.M. Annual Conference, Madras, Dec. 1986.
 - (ii) Workshop on Nephrourology, Delhi, Feb. 1987.
 - (iii) Registered for Ph.D. 1987
4. Dr. V. M. Pradeep – was awarded D.R.M. (Bombay) with 1986–87 distinction.
5. Mr. T. Prasad – was awarded D.M.R.I.T. (Bombay) – 1986–87.

RADIATION PHYSICS DIVISION

Staff

1. Dr. T. P. Ramachandran : Associate Professor
2. Shri P. G. Gopalakrishna Kurup : Associate Professor
3. Shri. C. A. Davis : Assistant professor

PATIENT SERVICE:

Treatment planning and related dose computations were carried out routinely for patients undergoing teletherapy and brachytherapy. The preparation of plaster of paris shells for patients requiring external beam treatment for head and neck cancers and the preparation of moulds for brachytherapy were carried out in this Division. The newly installed mobile image intensifier-TV X-ray machine was routinely used for better accuracy in radium implants.

The number of cases planned are as follows:

External beam therapy	: 4438
Intracavitary treatment using Selectron Remote afterloading system	: 406
Intracavitary radium treatment	: 73
Intracavitary treatment using Co-60 tubes	: 34
Interstitial implants	: 114
Radium mould	: 6

Monitoring of dose delivered to patients under-going external beam therapy was carried out and this has resulted in ensuring the accuracy of dose delivery. Doses to critical organs like eye were also measured in some patients.

Quality assurance of Radiotherapy equipment:

Linear Accelerator – 4 MV	:	1
Cobalt-60 Teletherapy machines	:	3
Radiotherapy simulator	:	1
Selectron remote afterloading system	:	1
Radium sources	:	603 mg

Routine checking and maintenance of these machines were undertaken by the Physics Division. Tests were periodically carried out for ensuring the quality performance of all the equipment.

The newly purchased mobile IITV X-ray machine and the mammography X-ray machine were commissioned after the necessary acceptance tests performed by this department.

We are routinely participating in the postal dose intercomparison programme of the Radiation Standardisation Laboratory of the Bhabha Atomic Research Centre, Bombay. We have also participated in the patient dose monitoring study started by the above Laboratory this year.

Radiation Safety Activities:

About 90 personnel are monitored by using film badge. Radiation protection surveys are periodically conducted in teletherapy and brachytherapy section ensuring the safety of both radiation workers and the public.

The necessary physics support to the department of Radio-diagnosis of the Medical College Hospital, Trivandrum is also given by this division by way of acceptance tests on newly installed X-ray machines, periodic quality assurance tests, maintenance and possible repairs of these equipment etc.

Studies undertaken currently:

1. Dosimetry in Selectron treatments
2. Measurement of dose to critical organs outside radiotherapy fields in patients treated with external radiation.

Academic Programmes:

Physics teaching and training were imparted to the following categories of students:

M. D. students (Radiodiagnosis and Radiotherapy)

D.M.R. (D & T)

C.R.A. Students

Illrd year MBBS Students.

One month training to the students of the Diploma in Radiological Physics of the BARC, Bombay.

Conferences/Workshops attended:

1. Sri. P. G. Gopalakrishna Kurup participated in the International Workshop on "Quality Control in Diagnostic Radiology" held during April 1986 at All India Institute of Medical Sciences, New Delhi.
2. Dr. T. P. Ramachandran participated in the "Asian Regional Conference on Medical Physics" held during December 8-12, 1986 and presented a paper on "Standardisation of Cs-137 sources used in Selectron Remote Afterloading System".

Papers published:

1. 'Standardisation of Cs-137 sources used in Selectron Remote Afterloading system' T. P. Ramachandran, C. A. Davis and P. G. Gopalakrishna Kurup – AMPI Medical Physics Bulletin Vol. 11 No. 3 & 4 July – Dec. 1986.
2. 'Quality Assurance test procedures carried out on a newly installed 4 MV accelerator' P. G. Gopalakrishna Kurup, T. P. Ramachandran and C. A. Davis, – AMPI Medical Physics Bulletin Vol. 11, No. 3 & 4, July-Dec. 1986.

DIVISION OF CYTOPATHOLOGY

Staff

- | | |
|-------------------------------|------------------------------|
| 1. Dr. M. K. Lalitha Bai | .. Professor |
| 2. Dr. B. Chandralekha | .. Associate Professor |
| 3. Dr. Kumari B. Chandrika | .. Assistant Professor |
| 4. Dr. Elizabeth Abraham | .. Assistant Professor |
| 5. Dr. G. Rajasekharan Pillai | .. Assistant Professor |
| 6. Smt. J. Ambikakumari | .. Senior Scientific officer |
| 7. Sri. G. Reghunathan Nair | .. Cytologist |

Major Activities

1. Screening of Symptomatic women attending the Gynaecological out patient, SAT Hospital for detection of Cancer of uterine cervix.
2. Assessment of the hormonal status of patients attending the Obstetrics and Gynaecology Department, SAT Hospital.
3. Cytodiagnostic aspiration of cases from Regional Cancer Centre, Medical College Hospital, SAT Hospital, SCD Hospital, Ophthalmic Hospital, W&C Hospital and Outside Hospitals.
4. Peripheral smear and Bonemarrow examination of cases from Regional Cancer Centre.
5. Histopathological examination of surgical specimens and review of histopathology slides from R.C.C.
6. Population screening from Thrikkadavoor and from various medical camps.
7. Cytological interpretation of specimens sent to the lab., collection and interpretation of fine needle aspiration of cases referred to lab. etc. are also routine works.

8. Teaching and Training:

A total of 37114. slides were processed during the year 1986. Cytological service rendered to the various departments based on 1986 statistics are as follows:

Paediatrics	.. 1.03%
Gynaecology	.. 46.24%
Medical College Hospital	.. 15.93%
Regional Cancer Centre	.. 27.26%
S.C.D. Pulayanarkotta	.. 9.19%
Dental and others	.. 0.34%

The daily aerase of

Aspiration done in the lab	.. 12 Nos.
Cervical smear collected in lab	.. 10 Nos.
Cervical smear collected from OPD	.. 30 Nos.
Vaginal smear taken in the lab.	.. 15 Nos.
Histopathology	.. 10 Nos.
Bone marrow and peripheral smear	.. 2-4 Nos.

In addition we received specimens from other outside hospitals.

Population screening:

Utilising the paramedical staff of Thrikkadavoor and Trivandrum Corporation, a total number of 2572 smears were collected and screened during 1986 for detection of carcinoma of uterine cervix. 44.3% increase was noted in this category as compared to that of the previous year.

Specimens in this category were also being received from various medical camps conducted with the help of several voluntary organizations. Smears were also collected from women attending the Gynaecology O.P. of S.A.T. Hospital. Total

number of specimens collected during 1986 was 8418 of which 227 were found malignant, that is to say 2.7 percent.

Hormonal Cytology:

During 1986 a total number of 1549 smears were studied. Most of them were collected from cases having bad obstetric history, repeated abortions, a few smears from cases of primary or secondary amenorrhoea and cases of carcinoma breast.

Non- Gynaecological and Aspiration Cytology:

During the year 1986, a total number of 4397 specimens ((including buccal smear No. 255) were studied for cytodiagnosis. From each specimen a minimum of 3 slides were screened. These specimens were collected from:

<i>Site</i>	<i>Number of cases studied</i>
Body fluids	820
Breast	582
Bone and Joints	76
Bronchial Aspirate	84
Buccal smear	255
E.N.T.	118
Female Genital Tract	39
GIT	38
Liver	325
Lung	27
Lips and Oral Cavity	94
Lymphnodes	766
Mass abdomen	61
Male genital tract	21
Parotid	32
Skin & Subcutaneous tissue	51
Thyroid	605
Urine	63
Others	300

Sputum Examination:

During 1986 about 2200 samples from 550 symptomatic patients were screened. An average of 4 consecutive samples from each patient were examined. From each sample two slides were prepared and screened. Of the above 11.27 per cent were found to be malignant.

Bone Marrow and Peripheral smear.

366 cases of bone marrow and peripheral smear were examined during 1986. The total number of slides screened were 1464. From each case an average of 4 slides were screened.

Histopathology:

During the year 1986 specimen numbering 1840 have been handled in the laboratory mostly of patients admitted in the R. C. C. There were also cases referred to the laboratory from various places.

Teaching and training:

The division has undertaken teaching and training in Cytology to under graduates, pathology post graduates, M. L. T. students and B.Sc. Laboratory Technology students who were posted in the Laboratory at different periods of time. The post graduates of various other departments Obstetrics and Gynaecology, Surgery and Medicine are given guidance in their thesis work which involve Cytological aspects. ANMs and Asst. Surgeons are also being given training in early detection of Cancer. Regular Onco-cytopathology C. P. C. are being conducted.

Full time training courses for Cyto-Technologist and Cyto-technicians were also conducted by the Division based on set objectives and specified curriculum.

Research:

The studies on topics made during the previous years are being continued. They include (1) Role of aspiration Cytology in the diagnosis of thyroid tumours with histopathologic correlation. (2) Value of fine needle aspiration in the diagnosis of

hepatic malignancies. (3) Clinical and Cytological study of genital herpes (4) A detailed analysis of sputum cytology conducted during the three years commencing from 1984 is being attempted as part of research work.

Conference attended:

Dr. M. K. Lalithabai, Dr. B. Chandralekha, Dr. Elizabeth Abraham, Dr. Annie Belthazar attended, Indian Society of Haematology and blood transfusion - 27th National Conference - Medical College, Trivandrum December 12-14, 1986.

Dr. M. K. Lalitha Bai, Dr. B. Chandalekha and Dr. Elizabeth Abraham attended Indian Society of Pancreatology, Annual Conference, Trivandrum 16th and 17th December 1986.

Dr. Elizabeth Abraham and Dr. G. Rajasekharan Pillai, attended XXXV Annual Conference, Indian Association of Pathologists and Microbiologists 20-30 Dec. 1986, Bangalore.

Dr. M. K. Lalitha Bai, Dr. B. Chandralekha, Dr. Annie Belthazer, Dr. Elizabeth Abhram, Dr. G. Rajasekharam Pillai attended Indian Association of Pathologists and Microbiologists Kerala Chapter 25th- and 26th January 1987, Trivandrum.

Paper Presented / published:

Immunoblastic lymphoma breast IAPM. Bangalore 1986-by Dr. Elizabeth K. Abraham.

Paper on carcinoma of pancreas presented by Dr. Elizabeth K. Abraham at the Annual conference meeting of Indian Society of pancreatology held at Medical College, Trivandrum in Dec. 1986.

Third batch of Cytotechnicians, (2 candidates) have successfully completed their training. Training of 2nd batch of Cytotechnologists (3 candidates) is continuing.

This division helped and co-operated in the activities of the Early Cancer Detection Centres. Training in detection of Early cancer was given for Assistant surgeons, ANMS, and other field workers of Rural Cancer Detection Centre at Thrikkadavoor, Quilon District.

Staff members of this division also participated actively in the "Cancer awareness programmes" organised by PCC for NSS programme officers/volunteers.

DIVISION OF RESEARCH



Staff:

1. Dr. J. Stephen .. Associate Professor
2. Prof. A. Joseph .. Officer-in-Charge from Nov. 1986.
3. Dr. Prabha Balaram .. Asst. Professor
4. Mr. T. Vijayakumar .. Senior Research Officer
5. Dr. K. K. Vijayan .. Lecturer
6. Mr. Thomas Abraham .. Scientific Officer
7. Mr. Ravindran Anakathil .. Scientific Officer
8. Mrs. B. Padmavathy Amma .. Technical Officer
9. Mrs. P. Remani .. Senior Research Fellow
10. Mr. M. Radhakrishna Pillai .. Senior Research Fellow
11. Miss Hazeena Beevi .. Senior Research Fellow
12. Mr. N. K. Hareendran .. Research Assistant

The work of the Research Division was mainly clinically oriented applied research on human cancers as in the previous years in the fields of Biochemistry, Immuno-chemistry, cytogenetics and Immunology.

In Biochemistry, the major work carried out was on screening, isolation purification and characterisation of lectins, from plant seeds. Of the 20 seed extracts screened, 8 had lectins with erythrocyte agglutinating activity. Jackfruit lection (JFL) from *Atrocarpus integrifolia*, winged bean lectin (WBL) isolated from *Psophocarpus tetragynolobous*, peanut lectin (PNL) from *Aractis hypogaea* and Soyabean lectin from Soyabean which were found to have tissue specificity were purified further by affinity chromatography, conjugated with Horse Radish Peroxidase and tested for specific histological staining. JFL was found to bind

to both normal and cancer cells. Cancer cells could be identified by the difference in the staining pattern. The staining pattern was intense and irregular cytoplasmic in the case of squamous cell and verrucous carcinoma of the oral cavity while it was diffuse and uniform in sections of normal buccal mucosa. Sections of leukoplakia lesions from 3/12 patients showed a staining pattern similar to that of oral cancer. Potential of jack fruit lectin in discriminating lymphocyte subtypes is being worked upon.

DTG analysis of normal oral tissue DNA and Oral Cancer tissue DNA exhibited considerable differences in the fusion temperature. Effect of different radiation doses in rat liver DNA was also studied by DTG analysis.

In a series of other studies, immunological alterations in patients with solid tumours, mainly those of oral cavity, breast, cervix and lung and pre-cancerous lesions of the oral cavity, mainly comprising of leukoplakia and submucous fibrosis were investigated. This was in continuation with the work of the previous years. The overall results pointed towards an imbalance of the lymphocyte populations, functional impairment of some of the effector cell populations such as NK-cells and mediators such as the leukocyte adherence inhibition factor. The following main observations were made: A stage related increase in the levels of serum I_gD , A and E in solid tumours, Stage and histology related imbalance of T-cell subpopulations TRFC, ARFC, HRFC, CD_3 , CD_4 and CD_8 with an alteration of the CD_4/CD_8 ratio, increase in circulating immune complexes in patients with cancer, premalignant lesions of the oral cavity and betel quid chewing controls, stage related depression of antitumour immune response as assessed by leucocyte adherence inhibition, NK cell cytotoxicity and blast transformation to Con A and PHA, PWM, TT and crude tumour extracts. No correlation was found on comparison of the clinical status of each patient with his immune parameters and hence none of these parameters was useful as a clinical marker. However, in our study, the autologous serum was found to have inhibitory effect on the expression of lymphocyte surface markers and effector cell functions. The nature of the serum blocking factor is being investigated and might be useful at a later phase in enhancing the immune response.

Assessment of the effect of radiotherapy on the immune status of patients with cancer of the uterine cervix and lung revealed a higher degree of impairment among the T-cell population when compared to the B-cells. The NK cell activity was also depressed in these patients and the response could be enhanced by MLA derived T-cell growth factor.

Immunotherapy using tumour extract of cancer of the anterior two thirds of the tongue in patients with cancer at the same site resulted in a prolonged recurrence free interval (37%) in comparison to the placebo group (32%).

In a field survey, it was found that chashew workers had higher incidence of submucous fibrosis in comparison to the control population. In another study, the immune status of people residing in areas of high background radiation as assessed by the NK cell activity showed no alternation.

Isolation and characterisation of antitumour antibodies and circulating immune complexes using staphylococcus Aureus Cowan-1 strain, affinity chromatography using Jackfruit and Winged bean lectin, adsorption techniques are in progress. Effect of using radio-sensitizers such as lagadryl and related drugs on tumour growth in mice is another field of work in progress.

In the field of cytogenetics, detection of chromosomal abnormalities in various types of leukemias, lymphomas, multiple myelomas and in patients with genetic disorders was carried out. Non random chromosomal abnormalities were encountered in most of the lymphoma and leukemia cases and the karyotypic pattern in these patients correlated well with the survival period.

Academic Achievements:

The Research Division has been recognised as a Centre for Ph.D. Degree in Biomedical Sciences by the Kerala University.

(a) *Ph.D. Degree*

Mr. K. K. Vijayan, Lecturer was awarded Ph.D. by University of Calicut for his research work on "Synthetic studies in Oxygen Heterocyclics".

- (b) The Research Article "Serum Immunoglobulins in patients with Carcinoma of the Oral Cavity, Uterine cervix and breast cancer Immunology. Immunotherapy 22: 76-79, 1986 by T. Vijayakumar et al has been selected by M.D. Anderson Hospital, U.S.A. as one of the best five papers by Indian Authors in the year 1985-86 and will be abstracted in the year book of Cancer 1986.

Teaching

M.D. Thesis — 4

Research training — 4

Lectures and practicals (Cytotechnologists and Cytotechnicians course)

Papers Published/Presented

1. Nair, MPN, Prabha B, Schwartz SH., Radhakrishna Pillai, M. and M.K. Nair. Natural Killer cell activity of lymphocytes in a population living in an area of high background radiation in coastal Kerala, India. Clin. Res: 34:920-A, 1986.
2. Vijayakumar T., Remani P., Ravindran Ankathil, Sasidharan V.K., Vijayan, K.K. and Vasudevan D.M. Circulating immune complexes as a biological marker in solid tumours. J. Clin Exptl Cancer Res. 5 : 257, 1986.
3. Vijayakumar T. and Forrester J.A.: Isolation, Purification and Physicochemical properties of lectins from jackfruit (*Artocarpus integrifolia*) Biol. Plant. 28:370; 1976.
4. Vijayakumar T. and Forrester JA. Isolation, purification and some properties of lectin from winged bean (*Phopocarpus tetragonolobus*) Plant cell reports 5: 475, 1986.
5. Vijayakumar T., Ravindran Ankathil, Remani P., Sasidharan, V.K., Vijayan K.K., and Vasudevan D.M. Serum Immunoglobulins in patients with Carcinoma of the Oral Cavity, Uterine cervix and Breast. Year book of Cancer, 1986.

6. Rajendran R., Sugathan C. K., Remani P., Ravindran Ankathil and T. Vijayakumar. Cell radiated and humoral immune responses in Oral submucous fibrosis. Cancer 58: 2628-26 31, 1986.
7. Ipe Varghese, Rajendran R, Sugathan C. K. and Vijayakumar T. Prevalence of oral submucous fibrosis among cashew workders of Kerala -South India, Ind. J. Cancer 23:101, 1986.
8. Ravindran Ankathil, Remani P, Vasudevan D.M. and Vijayakumar T. Quantitation of tissue immunoglobulins in malignant and premalignant lesions of the oral cavity. The cancer J 1: 135, 1986.
9. M.P.N. Nair, B. Prabha, M. Radhakrishna Pillai S.A. Schwartz, and M. Krishnan Nair, Immunological studies on populations residing in high background radiation areas of coastal Kerala, India. I. Preliminary evaluation of natural cytotoxicity. Ann Conf Ind Immunol Soc N.Delhi, 1986.
10. Prabha Balaram, Radhakrishna Pillai, M., Thomas Abraham, Padmanabhan T.K. and M. Krishnan Nair. Anti tumour immunity in cancer of the uterine cervix. Ann. Conf. Ind. Immunol Soc New Delhi, 1986.
11. Vijayakumar T., Ravindran Ankathil, Remani P., Haseena Beevi V.M., Vijayan K.K. and Panicker C.K.J. Serum complements and its fractions in cancer of oral cavity, uterine cervix and breast. 20th Annual Convention Ind College of Allergy and Applied Immunol, 1986.
12. Sivasankaran S, Mathew Thomas, Prabha Balaram, Aleykutty, Krishnadas K.V., Radhakrishna Pillai M. and Joy Augustine. Adrenal carcinoma with reactive plasmacytosis. National Conf. Hematol and Blood Transfusion, Trivandrum, 1986.
13. Kumari T.V., Ravindran Ankathil, Vasudevan D.M. and Vijayakumar T. Demonstration of HSV-1 in Oral Cancer by Immunofluorescence and Immunoperoxidase techniques. VII. Ann. Conf. AROI, 1986.

14. Vijayan K.K., Remani P., Ravindran Ankathil, Vijayakumar T., Rajendran R. and Joy Augustine. Tissue binding pattern in premalignant lesions of the oral cavity. Proc. Indo US Workshop on Viruses and Human Cancer 1986.
15. Remani P., Vijayan K.K., Ravindran Ankathil, Vijayakumar T. and Joy Augustin. Lectin binding pattern in lymphoreticular malignancies. National Conf Haematol and Blood Transfusion, 1986.
16. Ravindran Ankathil, Vijayakumar T., Remani P., Vasudevan D.M. and Stephen J. Cytogenetic studies in Acute Myeloid Leukemia National Con. Haematol Blood Transfusion, 1986.
17. Prabha B., Radhakrishna Pillai, M. and Thomas Abraham. Immunology of Breast Cancer. New Delhi, 1987.

Workshops attended

1986-87

- Mr. K. K. Vijayan : Workshop on Immunocytochemistry and its applications in Clinical Science.
Dr. Prabha B,
- Mr. Radhakrishna Pillai M. : King George Medical College, October, 1986.
- Mr. T. Vijayakumar : Indo-US Workshop on Viruses and human cancers. Amala Cancer Research Centre, Trichur, 1986.
Mr. K. K. Vijayan
Mr. Ravindran Ankathil
Mrs. Remani P.
- Mr. Radhakrishna Pillai M. : Workshop on Immunochemistry Department of Biochemistry, University of Kerala, 1986.
- Dr. K. K. Vijayan : U.G.C. Short term course on Chromatographic techniques. University of Cochin-1987.
- Dr. K. K. Vijayan : Winter School on Mass Spectrometry IIT, Madras, 1987.

Mr. Radhakrishna Pillai M. : DST Workshop on Monoclonal Antibody production. All India Institute of Medical Sciences, New Delhi, 1987.

Externally funded Research Projects:

Project	Agency	Investigators
1. Major Blood Groups in human malignancies	Dept. of Science, Technology and Environment, Kerala 1986-89	Dr. M. Krishnan Nair Dr. B. Prabha.
2. Isolation, Purification and physico-chemical properties of plant lectins and their clinical use in the diagnosis and for treatment of cancer	I.C.M.R. 1986-'89	Dr. M. Balaraman Nair Dr. M. Krishnan Nair, Mr. T. Vijayakumar Dr. K. K. Vijayan.
3. Serum and tissue immunoglobulins levels as biological markers in solid tumours	Dept. of Science, Technology and Environment, Kerala, 1985-88	Dr. M. Krishnan Nair, Mr. T. Vijayakumar Mr. Ravindran Ankathil
4. Isolation of circulating immune complexes and characterisation of their constituent antigens and antibodies in the sera of cancer patients.	Dept of Science, Technology and Environment, Kerala 1986-89	Mr. T. Vijayakumar Dr. K. K. Vijayan
5. Role of tumour associated antigen in the total management of the cancer of the tongue.	I.C.M.R. 1983-87	Dr. M. Krishnan Nair Dr. B. Prabha

6. Immunodiagnosis of oral cancer using antitumour antibodies Dept. of Science, Technology and Environment Kerala 1987-1990 Dr. Prabha Balaram
Dr. Thomas Cherian
Dr. Lalitha Bai
Dr. K. T. Sreelatha.
7. Cytogenetic studies in Haematological malignancies Dept. of Science, Technology and Environment Kerala, 1987-89 Mr. Ravindran Ankathil
Dr. M. Krishnan Nair
Dr. Joy Augustin
8. Cytogenetic studies in patients with congenital disorders In Collaboration with Pediatric Dept. SATH, SAT Endowment Fund 1987-88 Mr. Ravindran Ankathil

Services 1986-87

1. Routine Investigations	1,20,283
Haematology	71,248
Biochemistry	30,186
Urine, CSF and others	18,849
2. Tumour Markers	
AFP	30
CEA	10
ER	30
Serum Electrophoresis	20
Serum Immunoglobuline	60
Cytogenetics	10 (in patients from SAT)
Lymphocyte enumeration	22 (T & B)
Antinuclear antibodies, cryoglobulins, complement levels etc.	18

DIVISION OF MEDICAL RECORDS & STATISTICS AND HOSPITAL CANCER REGISTRY - (N.C.R.P)

Mr. P. Gangadharan	.. Associate Professor
Dr. R. Sankara Narayanan	.. Assistant Professor
Mr. S. Muraleedharan Nair	.. Medical Statistician
Mr. R. Raveendran Nair	.. Medical Records Officer
Ms. G. Padmakumari Amma	.. Senior Research Fellow

The major activities of the department are concerned with patient services and research.

During the year 1986, the new case registrations (4633 cases) in the Outpatient Department recorded a 10.5 % increase over 1985 registrations. Over the past 5 years (i.e. between 1982 & 1986) there has been a 28% increase in new case registrations. The numbers for the respective years were:

Year	New Patients:
1982	3,626
1983	3,788
1984	4,060
1985	4,182
1986	4,633

The increase of 1,000 new patients during a short span of 5 years has increased the work load of all departments and in particular the OP services have been under enormous pressure.

The percentage of cases with microscopic verification (86%) continues to be in a satisfactory high level.

The site distribution of cases is shown elsewhere in this report. The salient features of patient attendance at the hospital are shown in Tables - I - V.

Table - 1 Patient Statistics - 1986

Total new patient registration	..	4,633
Males	..	2,349 (50.7%)
Females	..	2,284 (49.3%)
Sex ratio	..	1.03:1
Number of cancer patients	..	4,097-88% of Total new registrations.
Males	..	2,167 (52.9%)
Females	..	1,930 (47.1%)
Number of cancer cases (including 14 double primaries)	..	4,111
Males	..	2,176
Females	..	1,935
Number of benign tumours	..	48
All other & non cancer cases	..	488
Inpatient admissions	..	3,053
Average daily attendance	..	117
Deaths in Hospital	..	167

Table - II Cancer pattern seen in 1986

Leading Cancer Groups:

Males

Mouth and Throat Cancer	..	33% of all cancer in males
Respiratory Cancer		18% ..
Digestive Organ cancer		16% ..
Total	..	67% ..

Females

Genital Organ cancer	..	34% of all cancer in females
Breast Cancer		20% ..
Mouth and Throat Cancer	..	18% ..
Total		72% ..

Table - III 10 Leading Sites of Cancer-Males and Females-1986.

	<i>Males</i>		<i>Females</i>		
	No.	%	No.	%	
Lung	252	11.6	Cervix	486	25.1
Buccal Mucosa and Palate	237	10.9	Breast	388	20.1
Tongue	172	7.9	Buccal Mucosa and Palate	147	7.6
Oesophagus	122	5.6	Ovary	114	5.9
Brain	103	4.7	Tongue	77	3.9
Larynx	100	4.6	Thyroid	62	3.2
Stomach	95	4.4	Brain	60	3.1
Lymphoma	87	4.0	Alveoli	36	1.9
Oropharynx	74	3.4	Lymphoma	31	1.6
Hypopharynx	74	3.4	Leukaemia	31	1.6
Total	1,316	61.0	1,432	74.0%	

Paediatric (0-14years) Cancer patients were 173 ie. 4.2% of all Cancer patients.

The Hospital attendance of patients is influenced by a variety of factors, known and unknown. However, it was

noted that almost 50% of all cancers seen in men in the Regional Cancer Centre are tobacco related. The preponderance of Lung cancer in men, similar to that seen in western world is a pointer towards the urgency of the need for a community oriented antitobacco action.

In females, the high frequency of cervical cancer and breast cancer underscores the importance of propagating pap smear testing methods and popularising Breast Self Examination techniques. The availability of an opportunity for cancer prevention in the community is highlighted by the data available.

Follow up of cancer patients is an important activity and during the year under report, 4,648 reply paid post cards were mailed for follow-up purposes. Other patient services include issuing railway concession forms, certifying reimbursement claims etc. Several case papers were issued for research purposes, mainly for thesis purposes.

Even though there was a male preponderance in the total cancer group, females predominated in certain cancer sites. Table IV gives some interesting sex ratios:

**Table - IV Sex ratios of some sites
(For Base Numbers see Table VI)**

	<i>M/F</i>
Lip	0.6:1
Connective tissue	0.7:1
Thyroid	0.4:1
Buccal Mucosa	1.6:1
Tongue	2.2:1
Lung	12.6:1
Larynx	20.0:1

The reasons for the female preponderance in certain types are not known, however, the excessive male preponderance seen in cancers of Lung and Larynx is attributed mainly to tobacco habits.

The distribution of cancer cases according to ten year age groups are shown in Table V inclusive of 9 male and 5 female double primary cases.

Table - V Age distribution of cancer cases in males and females

<i>Age group</i>	<i>male</i>	<i>female</i>
0 - 9	56	59
10 - 19	72	55
20 - 29	81	88
30 - 39	168	209
40 - 49	335	419
50 - 59	589	531
60 - 69	580	381
70 +	295	193
	2,176	1,935

The overall male preponderance is not reflected in all the separate age groups. In the age group of 20-49 the female cancer cases outnumbered male cancer cases, this was because of the preponderance of gynaecological cancers

THE HOSPITAL CANCER REGISTRY: ICMR PROJECT

The Hospital Cancer Registry, Medical College Hospital Trivandrum, was established in 1982. The Cancer Registry project is supported by the Indian Council of Medical Research and forms part of the network of cancer registries in India.

The Hospital Cancer Registry registers the cancer cases diagnosed in the Medical College Hospital, Sree Avittom Thirunal Hospital for Women and Children, the Dental College Clinics and

the Regional Cancer Centre. The information required as per the ICMR scheme is collected from patients by the Social Investigators specially deputed for the purpose.

For completeness of Cancer Case Registration, the Medical College Hospital Inpatient records and the Pathology records are scanned and relevant information transferred to the Registry records.

In the Hospital Cancer Registry reports, cases are considered with reference to the date of first diagnosis of cancer. Thus, only the cases diagnosed first in 1984 will be included in the 1984 report, whereas in the Regional Cancer Centre annual report, all cases attending the cancer centre for the first time in 1984 will be included, irrespective of the year of 1st diagnosis. All Cancer cases seen in Medical College Hospitals do not attend the Regional Cancer Centre. In 1984, the Hospital Cancer Registry recorded 3,852 cancer cases whereas the Regional Cancer Centre has recorded 3705 cancer cases.

In the hospital, information regarding a cancer patient will be obtained from many sources like outpatient clinics, inpatient wards, medical records, pathology records etc. and very often from more than one source.

Eliminating duplicate entries and information merging are done through the name index and disease index, which are maintained by the department.

During the year 1984, patient registrations according to the sources were as follow:

Medical College, OP & IP	:	800
Dental College Clinic	:	53
Sree Avittom Thirunal Hospital	:	261
Regional Cancer Centre	:	4,060
Medical College Hospital Records (Inpatient)	:	1,656
Pathology Records	:	2,112
Total identified	:	8,942

Elimination of duplicate records and merging of information resulted in identifying 3,852 cancer cases which were diagnosed for the first time in 1984.

There has been a constant improvement in patient registrations over the years. During the three year period 1982-1984, cases registered by the hospital cancer registry were as follows:

Table - VI Cancer Cases Registered During 1982-1984 and percentage Microscopically verified cases:

	1982	1983	1984
No. of cases	3,493	3,715	3,852
Male	1,890	2,024	2,097
Female	1,603	1,691	1,755
Microscopically verified	74.5%	80.9%	85.5%

The recent annual report of the National Cancer Registry Project relates to the data of the year 1984. The salient features of the data from the Hospital Cancer Registry, Trivandrum are presented in the following table:

Table - VII 10 Leading Cancer Sites, Hospital Cancer Registry, 1984:

	Male	%	Female	%
Buccal mucosa & Palate	254	12.1	Cervix	457 26.0
Lung	209	10.0	Breast	286 16.3
Tongue	143	6.8	Buccal Mucosa and palate	122 7.0
Oesophagus	120	5.7	Thyroid	92 5.2
Larynx	105	5.0	Ovary	79 4.5
Stomach	103	4.9	Leukaemia	67 3.8
Lymphoma	98	4.7	Tongue	60 3.4
Hypopharynx	85	4.1	Stomach	48 2.7
Brain	85	4.1	Brain	43 2.5
Leukaemia	78	3.7	Oesophagus	36 2.1
		61.1		73.5

Cancer of the Buccal Mucosa alone accounted for 10.3% of all cancers in men and 6.0% of all cancers in women.

The high preponderance of thyroid, brain and ovary cancers is an important feature in this hospital registry data.

Paediatric Cancers:

In 1984, the Paediatric Cancer cases; (0-14 years) formed 80/2097 = 3.8% of all male cancers and 76/1755, 4.3% of all female cancers (Total 156/3852, 4.0%). In this age group, Kidney, Brain and Leukaemias together formed 96/156 = 62% of all paediatric cancers.

Cancer in 35 - 64 age group:

In the males of 35-64 age group - the most productive years of life, buccal mucosa was the commonest cancer site (160 cases), very closely followed by lung cancer (158 cases).

Among women of the same age group, cervix cancer was the leading cancer followed by breast cancer.

Several important facets of the disease have been identified from the registry data. These information are used for indepth studies in the etiology of the disease. Some of the other features of the data are indicated below.

Marital Status:

Marital Status is found to be associated with certain adult cancer types in females. The maximum of 11.7% unmarried was observed in Breast Cancer, which was quite in conformity with established data. Unmarried women in cervix cancer group was 3% which might indicate that this is on the higher side, considering the factors known to be associated with the disease. Among patients with cancer of the body of uterus, the percentage unmarried was only 1.8%.

Extent of Disease:

Only 19% of males and 20% of females presented with localised disease ie, almost 80% of cases presented with difficult to cure stage of disease.

Treatment:

Of the total male cancer cases, 79% received radiotherapy, 24% received chemotherapy, 19% surgery and 3% received hormonal treatment. Of the female cancer cases, radiotherapy was the treatment in 67%, surgery in 21%, chemotherapy in 18% and hormone treatment was given to 5%.

Other Scientific Activities:

As a member of the committee on population based cancer registry at Bhopal, Mr. P. Gangadharan attended the meeting of the Programme Advisory Committee of the Bhopal gas disaster research centre (ICMR) - May 1986.

Mr. P. Gangadharan was a faculty member of the Tumour Registry Workers Training Programme at Institute Rotary Cancer Hospital, New Delhi for the Population Based Cancer Registry Workers of New Delhi and Bhopal - Aug. 1986.

On invitation Mr. P. Gangadharan visited the Kasturba Hospital, Manipal to suggest an appropriate methodology for organising a hospital cancer registry in Kasturba Hospital and a report for the same was submitted to them - January 1987.

M.D. Thesis work - Guidance:

Mr. P. Gangadharan was a co-guide of Dr. V. Kamakshi M.D. student of Preventive and Social Medicine department of Medical College, Trivandrum for her thesis work on Epidemiology of Cancer Cervix. Dr. Kamakshi was awarded M. D. Degree for her above work during the year.

Fifth Annual Review Meeting of National Cancer Registry Project:

The Regional Cancer Centre hosted the fifth Annual Review Meeting of the National Cancer Registry Project from 13th to 15th November 1986. The three day workshop for Tumour Registry Personnel was held from 10th to 12th and the pannel of Pathologists meeting was held on 11th and 12th November 1986. These two above meetings were held in the Sree Chitra Thirunal Institute of Medical Sciences and Technology by the kind

courtesy of Dr. M. S. Valiathan, Director, SCTIMST. The main review meeting was held at Kanakakkunnu Palace and was inaugurated by Sri. V. Krishnamurthy, Secretary, Health, Kerala. Dr. Santhakumary, DME and Dr. Elsie Philip, Principal were among the dignitaries who attended the meeting. The meeting was well represented by all registries.

Dr. Jan Strenjnsward, Chief, WHO Cancer Unit, specially attended the Tumour Registry meeting and conducted a session on cancer pain control.

Dr. Matti Hakama, Professor of Epidemiology, University of Tampere, Finland and Dr. John Young, Chief, Demographic Analysis Division, Biometry Branch, National Cancer Institute, United States, were present as consultants of the National Cancer Registry Project.

Seminars, Workshop and Training Programmes attended by Staff

Mr. S. Muraleedharan Nair attended a workshop on "Statistical Methods in Genetics and Medicine" Conducted by Osmania University, Hyderabad.

Mr. P. Gangadharan attended the following:

1. Seminar on "Computers in Medicine" held at Tata Memorial Hospital, Bombay Feb. 1987. He also chaired one of the sessions during the seminar.
2. A one week training programme "First Course in Computing" Conducted by the Computer Maintenance Corporation at Ernakulam, Feb. 1987.

Publications:

1. Hospital Cancer Registry 1984 – Reported in the "Annual Report 1984" of the National Cancer Registry, Indian Council of Medical Research, February 1987.
2. Krishnan Nair M., Padmanabhan T.K., Sankara Narayanan R. and Gangadharan P.



Fifth Annual Review Meeting of National Cancer Registry.

L-R : Dr. M. Krishnan Nair, Mr. V. Krishna Murthy (Secretary), Dr. Jan Stjernsward (WHO),
Dr. Usha Luthra (ICMR)

Report of Cancer cases recorded by the Hospital Registry, Trivandrum 1982 in: Ed. Parkin D. M. Cancer Occurrence in Developing Countries, IARC Scientific Publication No. 75, 1986.

3. Krishnan Nair M., Gangadharan P. and Padmanabhan T.K. Cancer in Kerala—in: Eds. Khogali M, Omar Y.T., Gjorgov A., Ismail A. S., Cancer prevention in Developing Countries. Proceedings of the 2nd UICC Conference in Cancer Prevention (Kuwait) Page 65–67, Pregamon Press, 1986.
4. P. Gangadharan: Epidemiology of Cancer of Pancreas, in Eds. Balakrishnan V., Thankappan K.R. Proceedings of the 1st Annual Conference of the Indian Society of Pancreatology, Page 48 – 56, Trivandrum 1986.

Staff Training 1982–86:

- 1983 Mr. R. Raveendran Nair Visited Tata Memorial Hospital, Ms. G. Padmakumari Amma and Bombay Cancer Registry, Ms. Anita Nayar to observe the working of the Mr. S. Muraleedharan Nair Bombay Cancer Registry.
- 1983 Ms. G. Padmakumari Amma Attended a Computer programming course (COBOL) conducted by the Directorate of Technical Education, Trivandrum.
- 1983 Mr. P. Gangadharan Attended the Tumour Registrars Training Programme at San Francisco, U.S.A.-ICRETT (UICC) Fellowship.
- 1984 Mr. S. Muraleedharan Nair Attended the 1st Tumour Registrars Training Course
Mr. R. Raveendran Nair Trivandrum.
Ms. G. Padmakumari Amma
- 1984 Dr. R. Sankara Narayanan Attended a two week Cancer Epid. training course conducted by International Agency for Research on Cancer, Lyon, at Bangkok.

1985 Ms. Anita Nayar
Ms. P. T. Latha
Ms. Jalajakumari

Attended 2nd Tumour
Registrars Training Course,
Trivandrum.

1985 Mr. R. Raveendran Nair

Visited the Medical Record
Department and Tumour
Registries at Medical Centre
San Francisco, Rosewell Park
Memorial Institute Buffalo,
New York,
Memorial Sloan Kettering
Cancer Centre, New York –
USA WHO Fellowship.

1986 Dr. R. Sankaranarayanan

Visited the Tumour Registries
at Birmingham (U.K) and San
Francisco (USA) under Fellow-
ships from British Council and
ICRETT (UICC)

1986 Ms. G. Padmakumari Amma, Attended the Technology
Mr. S. Muraleedharan Nair Transfer Programme of Indian
Society of Oncology on Cancer
Prevention and Epidemiology,
Trivandrum.



V National Cancer Registry Meeting,

L-R : Dr. Elsie Philip (Principal, Medical College, Trivandrum), Dr. G. Santha Kumari (Director of
Medical Education), Dr. John Young, NCI, USA, Dr. Mati Hakama, Finnish Cancer Registry

REGIONAL CANCER CENTRE, SITE DISTRIBUTION OF CANCER CASES - 1986

ICD 9	Mal. Neoplasm of	Male		Female		Total	
		No.	%	No.	%	No.	%
140	Lip	16	0.7	26	1.3	42	1.0
141	Tongue	172	7.9	77	3.9	249	6.1
142	Major salivary glands	21	1.0	11	0.6	32	0.8
143	Alveoli	71	3.3	36	1.9	107	2.6
144	Floor of mouth	20	0.9	6	0.3	26	0.6
145	Buccal Mucosa	237	10.9	147	7.6	384	9.4
146	Oropharynx	74	3.4	8	0.4	82	2.0
147	Nasopharynx	29	1.3	10	0.5	39	0.9
148	Hypopharynx	74	3.4	30	1.6	104	2.5
149	Other and ill-defined sites	5	0.2	—	—	5	0.1
150	Oesophagus	122	5.6	29	1.5	151	3.7
151	Stomach	95	4.4	24	1.2	119	2.9
152	Small Intestine	3	0.1	2	0.1	5	0.1
153	Colon	25	1.1	9	0.5	34	0.8
154	Rectum, rectosigmoid junction and anus	32	1.5	16	0.8	48	1.2
155	Liver	58	2.7	18	0.9	76	1.8
156	Gall.Bladder etc	4	0.2	—	—	4	0.1

ICD 9	Mal. Neoplasm of	Male		Female		Total	
		No.	%	No.	%	No.	%
157	Pancreas	10	0.5	2	0.1	12	0.3
158	Retroperitoneum	5	0.2	8	0.4	13	0.3
160	Nasal cavity etc	26	1.2	16	0.8	42	1.0
161	Larynx	100	4.6	5	0.3	105	2.6
162	Lung	252	11.6	20	1.0	272	6.6
163	Pleura	2	0.1	—	—	2	0.1
164	Mediastinum etc.	2	0.1	1	0.1	3	0.1
170	Bone	29	1.3	17	0.9	46	1.1
171	Connective and other soft tissue	16	0.7	24	1.2	40	1.0
172	Mal. Melanoma	19	0.9	4	0.2	23	0.6
173	Skin	35	1.6	20	1.0	55	1.3
174	Breast (F)	—	—	388	20.1	388	9.4
175	Breast (M)	4	0.2	—	—	4	0.1
179	Uterus nos	—	—	11	0.6	11	0.3
180	Cervix	—	—	486	25.1	486	11.8
181	Placenta	—	—	4	0.2	4	0.1
182	Body Uterus	—	—	22	1.1	22	0.5
183	Ovary	—	—	114	5.9	114	2.8
184	Vagina, Vulva	—	—	21	1.1	21	0.5

185	Prostate	26	1.2	—	—	26	0.6
186	Testis	22	1.0	—	—	22	0.5
187	Penis	27	1.2	—	—	27	0.7
188	Urinary Bladder	25	1.1	6	0.3	31	0.8
189	Kidney	30	1.4	16	0.8	46	1.1
190	Eye	3	0.1	8	0.4	11	0.3
191	Brain	103	4.7	60	3.1	163	4.0
192	Nervous system nos	7	0.3	4	0.2	11	0.3
193	Thyroid	22	1.0	62	3.2	84	2.0
194	Other Endocrine	7	0.3	2	0.1	9	0.2
195	Other ill defined sites	4	0.2	5	0.3	9	0.2
196	Lymphnodes	69	3.2	30	1.6	99	2.4
197	Sec. Resp. & Digestive	28	1.3	12	0.6	40	1.0
198	Sec. Other specified	49	2.3	32	1.7	81	2.0
199	Unknown primary	12	0.6	3	0.2	15	0.4
200	Lymphosarcoma etc	37	1.7	18	0.9	55	1.3
201	Hodgkins disease	32	1.5	13	0.7	45	1.1
202	Other Lymphoid & Histiocytic tissue	50	2.3	13	0.7	63	1.5
203	Multiple Myeloma	20	0.9	8	0.4	28	0.7
204	Lymphoid Leukemia	30	1.4	21	1.1	51	1.2
205	Myeloid Leukemia	15	0.7	10	0.5	25	0.6

140-208	All Sites	2176	100	1935	100	4111	100
---------	-----------	------	-----	------	-----	------	-----

DIVISION OF COMMUNITY ONCOLOGY

Staff:

1. Dr. Babu Mathew — Associate Professor

2. Objective of the Division:

It is two years since the Community Oncology Division has been set up; and this year also the main objectives of the Division were almost the same as those of the previous year. Health Education of Public and Technical personnel, generation of manpower for early detection cancer, organization of peripheral cancer detection camps, starting of research projects in the community level and reorientation training for Medical Officers and Dental Surgeons, were the main activities.

3. Main Activities:

Seven articles were published in leading dailies and weeklies of Kerala during the period under report.

1. Role of social Organizations in the prevention and control of cancer	MES Bulletin	April 1986
2. 'Self Examination of Breast for Early detection of Breast Changes	Mathrubhumi	May 1986
3. Early preventable Cancers	Kerala Kaumudi	Nov. 1986
4. Exfoliative Cytology for Prevention of Cervical cancer	Vignana Kairali	Nov.Dec. 1986
5. Cancer Care For Life	Hindu	1986
6. Cancer Related Health Education what and how	Vignana Kairali	March 1987
7. Cancer Treatment Facilities in Kerala	Janapatham	March 1987

Through All India Radio three Programmes were broadcast during 1986-87.

Topic	Participants	Date of Broad cast
1. Easily Preventable Cancers	Dr. Babu Mathew	23-6-1986
2. Prevention of Oral Cancer	Dr. Babu Mathew	8-12-1986
3. Cancer Related Health Education	Dr. Ramakrishna and Dr. Babu Mathew	27-12-1986

In addition to these, warning signs of cancer and antitobacco slogans were broadcast as fillers between programmes by All India Radio.

Through Door Darshan a programme on 'Cancer Care for Life' was telecast. Warning signs of Cancer was telecast as fillers by Door Darshan at our request.

Preparation of Health Education Material:

A book in Malayalam "A Functional Guide for National Service Scheme Volunteers for Prevention and Control of Cancer" was published in Aug. 1986, and distributed to all N.S.S. Units through Programme Co-ordinators of Calicut, Gandhiji and Kerala Universities. This book is being followed during the training of the National Service Scheme Volunteers in prevention and Control of Cancers.

Four posters and a flash card was developed for the use of health workers when they are trained to take up Early Cancer Detection Activities.

Training of Paramedical Health Workers:

A second group Para medical Health Workers were given training at Pandanthalumood on Cancer related Health Education and method of identification of Oral Cancer and Pre-cancer, to pre test the training material developed for the project "Feasibility of using multipurpose health workers to identify oral cancer", in July 1986.

Cancer Related Health Education through National Service Scheme Volunteers in Colleges:

This was the most important activity of the Community Oncology Division during 1986-87. Two phases of activities were planned for each National Service Scheme Unit.

In the first Phase all units were requested to arrange a meeting on 2nd October 1986 to discuss the ill effects of tobacco. One or two resource persons were to speak on the harmful effects of smoking based on the book supplied to the N.S.S. Units. At the end of the meeting the volunteers were to take an Oath to abstain from tobacco and alcohol. Out of 350 units in Kerala 291 have communicated to the centre that they held the meeting on the Gandhi Jayanthi Day. Thirty seven colleges participated in the poster and slogan competitions on "Harmful effects of tobacco."

The second Phase of activity was carried out during the 10 day special camp in the adopted village area by those units of N.S.S., who had health education as one of their major programmes. Resource Persons from Regional Cancer Centre Early Cancer Detection Centres of Palghat, and Ernakulam, the Medical Colleges of the State and Amala Cancer Centre Trichur participated in giving the training at various N.S.S. units in the State. These trained students organized Public meetings in their adopted villages involving local school teachers, youth club and womens' Club members and health workers of the area in the evenings. The public were educated on warning signs of cancer, methods of self examination to detect early oral cancer, importance of pap smear test for early detection of uterine cervical cancer and harmful effects of tobacco. Bit notices on various aspects of cancer were distributed among the villagers. Eighteen colleges participated in the Phase II activity.

N.S.S. Volunteers were also used to propagate the theme of "Cancer Care for Life" and motivate affluent persons to sponsor poor to this scheme. Four Colleges in the state were engaged in this activity during 86-87 and they gathered 189 entries for the Cancer Care for Life Scheme.



Dr. Sydney D. Krieder, Dr. J. Owens (John Hopkins U.S.A.) and Dr. Jan Stjernsward (Chief, Cancer Unit, W.H.O.), with the Staff of Primary Health Centre, Thrikkadavoor.

It is planned to include more health education activities in the colleges and conduct cancer detection camps in the villages using N.S.S. volunteers in the coming academic year also.

Cancer Awareness Programmes to Voluntary and Social Organizations

During this year 14 cancer awareness programmes were given to various agencies other than the N.S.S. Units, the details of which are shown below:

<i>Name of the organization</i>	<i>Venue</i>	<i>No. attended</i>
1. Govt. School, Thrikkadavoor	Thrikkadavoor	200
2. Rotary Club, Trivandrum South	Mascot, Trivandrum	30
3. Y's Mens Club, Trivandrum	YMCA Hall, Trivandrum	75
4. Indian Dental Association Goa Branch	Panaji	100
5. Y's Mens Club Cannanore	Cannanore	300
6. Nazarath Ashram	Othera	80
7. Friends Circle, Trivandrum	Trivandrum	45
8. University Campus Assn.	Kariyavattom	60
9. Sree Narayana Samskara Samithi	Sreekaryam	50
10. "	Ulloor	60
11. "	Kumarapuram	75
12. State Bank Staff Training College Association	Poojappura	75
13. Anganwadi workers	Poonthura	30
14. Rotary Club Quilon	Quilon	60
		59

Preparation of soft-ware for Audio Visual Education :

A set of 50 projection slides with an audiotaped commentary for 40 mts was prepared for training N.S.S. volunteers in Cancer Prevention. This is available for sale to the N.S.S. Units on payment of Rs. 250. Early Cancer Detection Centre of Palghat and Ernakulam are given this set for health education purpose. This set may also be given to the N.S.S. Units of Medical Colleges to conduct cancer awareness programme in the arts and science colleges.

Cancer Detection Camps:

Twelve Cancer Detection Camps were conducted in 1986-87 as detailed below.

	<i>Date:</i>	<i>No. of cases detected</i>
Olassery	15-6-86	4
Padanthalumood	16-7-86	1
Othara	15-8-86	7
Venjaramood	23-8-86	—
Choozampala	30-8-86	1
Harveepuram	31-8-86	2
Kattakada	10-10-86	6
Sasthamkottah	22-12-86	3
Poovathur	13-1-87	1
Puthussery	10-1-87	4
Adimalathura	23-1-87	2
West Kulathoor	20-3-87	1

Out of these five camps were exclusively for cancer detection and seven were along with general camps. Camps conducted after health education on cancer and its control had better

responses and more than two hundred persons with precancerous lesions were given instructions and local treatment in the camps.

Visit by W.H.O. Experts:

An expert from W.H.O. Dr. V. Ramakrishna was on a short assignment of about 2 weeks in December 1986. He has evaluated the work done by the Division and held discussion with various departmental heads to plan strategies of cancer control for the state. He submitted a report to extend the activities of the Community Oncology Division.

RESEARCH ACTIVITIES:

1. Collaborative studies with University of British Columbia

The collaborative study with Environmental carcinogenesis Unit, University of British Columbia, Vancouver, Canada continued for the second year. The ongoing projects are:—

- Chemoprophylaxis of Oral Leukoplakias using β carotene—
- H. S. V. and HPV in tissues of Oral carcinoma
- Nitrosamin content of saliva, urine and blood of panchewers Vs Non chewers.
- Reuction of Micronucleated epithelial cells with administration of/carotene, β carotene and Vit. A, Vs. Placebo.
- Dietary difference as a possible etiological factor for the difference in the incidence of oral leukoplakias in this ethnic groups.

2. Collaborate studies on Oral Submucous fibrosis with British Common Wealth Foundation:—

A new protocol was finalised for studies on etiology natural history of development of the disease, intermediate and points, logical profile and histochemistry of submucous fibrosis to be taken up in 1987-88.

3. Feasibility of utilising health workers for primary and Secondary prevention of Oral cancer:

A proposal was submitted to I.C.M.R. to train all health workers in the northern half of Trivandrum District to see whether they are able to detect oral cancer early to produce downstaging of the patterns of disease in this half of the District Vs the Southern half which will form the control area, ICMR has sanctioned the project and the work will start only in 1987-88.

Conferences attended, Papers Presented and other academic activities:

1. Dr. Babu Mathew. Importance of Intermediate endpoints in the evaluations and treatment of Oral Pre-cancer. Paper presented in the 1st National Conference of the Indian Academy of Oral Medicine, Bangalore, Feb. 1987.
2. Dr. Babu Mathew. Intervention studies of Tobacco Behaviour modification in Kerala. Paper presented in International Workshop on Tobacco or Health Bombay, 1987.
3. Dr. Babu Mathew. The role of National Service Scheme Volunteers in tobacco Control - Experience in Kerala. Paper presented in the International Workshop on Tobacco or Health, Bombay, Both these papers were subsequently published in the Proceeding of the Work shop on Tobacco or Health.

Dr. Babu Mathew was invited as Visiting Professor in Oral Medicine and Oral Pathology to Government Dental College, Goa. He was elected as the Vice President of the Indian Academy of Oral Medicine. Dr. Babu Mathew was invited as a member of the Faculty for the International Workshop on Tobacco or Health at Bombay

Dr. Thankam, S, a candidate for M. D. in Community Medicine has done her dissertation on Epidemiology of Oral Cancer under the guidance of Dr. Babu Mathew.

ROTARY EARLY CANCER DETECTION CENTRE, ERNAKULAM.

Cytopathologist: — Dr. B. Syamalakumari

During the period under report the centre has expanded its spectrum of activities and cancer awareness programmes were conducted to Voluntary and Social organizations. A preliminary enquiry was conducted on the reported high incidence of cancer of stomach in a village "Edakunni" near Angamali. Findings corroborated the high incidence of stomach cancer and plans are made for a detailed study. The management committee of the centre, has decided to start histopathology service in the centre. Dr. Syamalakumari has undergone special training in Colposcopy at New Delhi, from 22-9-86 to 4-10-86. Plans include to start a monthly follow up clinic managed by specialists from Regional Cancer Centre.

The details of the work done are shown below:

Total cancer Detection Camps	:	14
Total persons examined	:	3075

Gynaecological:

Normal	:	524
Inflammation	:	1873
Inflammation with moderate dysplasia	:	12
Inflammation with mild dysplasia	:	172
Inflammation with severe dysplasia	:	7
Inflammation with reserve cell hyperplasia	:	57
Inflammation with a typical metaplasia	:	3
Inflammation with mild dysplasia and a typical squamous metaplasia	:	1
TV	:	120

TV with mild dysplasia	:	32
TV with moderate dysplasia	:	3
TV with severe dysplasia	:	2
TV with reserve cell hyperplasia	:	1
Tungue	:	13
Fungus with mild dysplasia	:	3
Fungus with TV and mild dysplasia	:	1
Reserve cell hyperplasia with mild dysplasia	:	12
Reserve cell hyperplasia with severe dysplasia	:	1
Reserve cell Hyperplasia with a typical metaplasia	:	1
Herpes simplex virus infection	:	1
Herpes simplex with mild dysplasia	:	1
HSV with moderate dysplasia	:	1
HSV with severe dysplasia	:	1
Leukoplakia in vulva	:	1
Radiation changes	:	1
Ca-recurrence	:	2
Ca-in-situ	:	6
Ca-invasive	:	12
Ca Adenocarcinoma	:	5

Buccal

Normal	:	8
Inflammation	:	12
Leukoplakia	:	43

Leukoplakia with a typical changes	:	28
Leukoplakia with submucous fibrosis with a typical features	:	1
Erythroplakia	:	1
Fungus	:	2
Malignancy	:	10
Ca-Reccurrence	:	1

Aspirations:

Other sights — NMC	:	37
Ca	:	1
Breast — NMC	:	22
Ca	:	5
Sputum — NMC	:	19
Malignancy	:	4
Fungus	:	1

Fluids

Ovarian Cystic fluid —NMC	:	1
Bronchial Washings —NMC	:	2
Malignancy	:	2
NMC	:	1
Pleural fluid — NMC	:	1
Malignancy	:	4

Thanks are due to Shri V. Rajagopal I.A.S., Dist. Collector of Ernakulam, Shri Elias George, I.A.S., Commissioner, Corporation of Cochin, Dr. Vijayalekshmi Menon Dist. Medical Officer and the Office bearers of the Rotary Club of Cochin for their whole hearted co-operation in all activities of the centre.

EARLY CANCER DETECTION CENTRE, PALGHAT

Medical Officer in Charge : Dr. Ananda Kamath

Though the centre was formally inaugurated on 2nd October 1985, it started functioning only from the month of May 1986. From the very beginning this centre is actively engaged in cancer awareness programmes in the villages with the help of social and voluntary organizations. Cancer Detection camps are held after such awareness programmes. As the rented building is slightly away from the Palghat town, arrangements had been made to collect smears from patients attending the Dist. Hospital. One training was given to ANM students on the importance of early cancer detection.

Construction of the building donated by M/s. Instrumentation Limited is steadily progressing and it will be possible to move over to the new site during next year. In addition to early cancer detection follow up of treated cases are also being done regularly in the centre. Chemotherapy of a few persons were also completed here as per the direction from Regional Cancer Centre, Trivandrum Dr. Indira Raja Gopal, Asst. Surgeon, Dist Hospital, Palghat is helping the centre during detection camps.

Details of the work done:

1. Total number of patients screened	: 4015
2. Total number of free early cancer detection camps conducted	: 14
3. No. of patients undergone cytological screening	: 1404
(a) Gynaecological screening	: 947
(b) Non-gynaecological screening	: 457
4. Cytologically detected cancer cases	: 23
5. Histopathologically detected cancer cases	: 16
6. Clinically suspected cancer cases referred to Regional Cancer Centre and other institutions for further management	: 58

7. Clinically known cancer cases attended for further advice and check up	: 108
8. Number of biopsy specimens taken at the centre, camps and dist. hospital, Palghat as per our advice (All the histopathology examinations were done at the Dept. of Cytopathology Regional Cancer Centre, Trivandrum.	: 74
9. Follow up attendance	: 77

Report in Detail:

I. Free Early Cancer Detection Camp Report

1. Total camps conducted under the auspices of voluntary organisations	: 14
2. Patients screened	: 3735
3. Patients undergone cytological screening	: 1230
(a) Gynaecological smears	: 861
(b) Non-gynaecological smears	: 369
4. Cytologically detected cancer cases	: 12
(a) Gynaecological	: 9
(b) Non-gynaecological	: 3
5. Clinically known cases attended	: 83
6. Clinically suspected cases referred to other institutions	: 55

II. Routine work Report:

1. Total patients undergone clinical examination	: 280
2. Patients undergone cytological screening	: 174
(a) Gynaecological smears	: 86
(b) Non-gynaecological smears	: 88

3. Cytologically detected cancer cases	:	11
(a) Gynaecological cases	:	9
(b) Non-gynaecological cases	:	2
4. Suspected cancer cases referred	:	3
5. Clinically known cancer cases attended for check up and further advise	:	25

Follow up actions:

1. Follow up attendants	:	77
2. Cytological screening	:	14

Break up of Lesion:

I. Gynaecological

1. Normal	:	300
2. Atrophic smears (Normal)	:	72
3. Hyperkeratotic Cervix	:	3
4. Inflammation	:	251
5. Endocervicitis	:	27
6. Fungal infection	:	6
7. Trichomonas infection	:	53
8. Inflammation with reserve cell Hyperplasia	:	3
9. Mild dysplasia	:	15
10. Inflammation with mild dysplasia	:	83
11. Inflammation with squamous metaplasia and mild dysplasia	:	35
12. Trichomonas infection with mild dysplasia	:	20
13. Fungal infection with mild dysplasia	:	3

68

14. Moderate dysplasia	:	2
15. Inflammation with moderate dysplasia	:	10
16. Trichomonas infection with moderate dysplasia	:	3
17. Severe dysplasia	:	1
18. Inflammation with severe dysplasia	:	8
19. Trichomonas infection with severe dysplasia	:	1
20. Herpes simplex infection with severe dysplasia	:	1
21. Inflammation with a typical glandular cell hyperplasia	:	7
22. Carcinoma in situ	:	3
23. Poorly differentiated squamous cell carcinoma	:	6
24. Moderately differentiated squamous cell carcinoma	:	2
25. Well differentiated squamous cell carcinoma	:	6
26. Adeno carcinoma	:	1
27. Suspicious of malignancy	:	3
28. Radiation changes	:	2
29. Miscellaneous	:	20

II. Non-Gynaecological

(i) Buccal and skin

(1) Normal	:	396
(2) Dysplasia	:	24
(3) Viral infection	:	1
(4) Suspicious of malignancy	:	10
(5) Malignancy	:	5

69

(ii) <i>Nipple Discharge</i>	:	
Normal	:	5
Inflammation	:	3
Suspicious of malignancy	:	1
(iii) <i>Aspiration – Breast</i>		
Normal	:	7

Histopathology Report:

1. No. of biopsy specimens taken at the centre, camps and district hospital, Palghat as per our advice	:	74
2. Malignant cases	:	16
(a) Carcinoma in situ	:	4
(b) Poorly differentiated squamous cell carcinoma cervix	:	7
(c) Moderately differentiated squamous cell carcinoma cervix	:	2
(d) Well differentiated squamous cell carcinoma cervix	:	1
(e) Adeno carcinoma	:	2
3. Severe dysplasia	:	4
4. Moderate dysplasia	:	7
5. Mild dysplasia	:	8
6. Others	:	39

Thanks are due to Shri. A. K. K. Nair and Shri R. G. Kini General Managers M/s. Instrumentation Limited Dr., Ramesh Hebbar, Chief Medical Officer, M/s. Instrumentation Limited, Dr. Ramaswamy D.M.O., Palghat, Dr. Indira Rajagopal, Assistant Surgeon, Dist. Hospital, Palghat and all the Programme officers of N. S. S. especially Shri. Suresh Babu and Shri. Premkumaran for their kind co-operation and whole hearted support in all the activities of the centre.



Dr. R. Raman Nair, Former Director and Professor, Paediatric Surgery inaugurating the Paediatric Oncology Course – November 1986.

SPECIAL TRAINING PROGRAMME

I. Paediatric Oncology Course:

The Regional Cancer Centre had the unique privilege of having conducted, for the first time in this country a Paediatric Oncology Course in November 1986 in collaboration with the British Council. This course has great significance in the context of the increasing prevalence of paediatric oncology cases in our country.

Dr. Dorothy Pearson and Dr. Patricia Morris Jones of the University of Manchester U. K. were the faculty members. In addition to the Regional Cancer Centre Staff, we had trainees from Cuttack, Coimbatore, New Delhi, Manipal, Vellore, Ahamedabad, Hyderabad.

The contents of the course were:

1. Incidence data of childhood cancer in the West
2. General principles of management and diagnostic approaches
3. Special principles of Radiotherapy in childhood including interstitial therapy.
4. Management of Wilm's tumour
5. Management of brain tumours in childhood – Benign, Medulloblastoma and Ependymomas, Malignant gliomas, Pineal tumours, Craniopharyngiomas using surgery, Radiotherapy and chemotherapy.
6. Leukaemia in childhood – Management, diagnosis, treatment of all types of leukaemia including AML
7. Management of bone tumours.
8. Neuroblastomas
9. Management of Germ cell tumours and teratomas
10. Management of Rhabdomyosarcoma and role of multi-disciplinary approach.

11. Non Hodgkin's disease in childhood
12. Hodgkins
13. Epithelial nasopharyngeal carcinoma, Adrenocortical and rare tumours.
14. Late effects of radiation therapy
15. Second primaries in children with cancer
16. Endocrine replacement therapy
17. Management of infections
18. Psychosocial effects of childhood cancer
19. General Discussion



Dr. Dorothy Pearson and Dr. Patricia Morris Jones (University of Manchester) conducting the Paediatric Oncology Course in Nov. 1986.

ONCOLOGY SEMINARS

<i>Date</i>	<i>Name</i>	<i>Topics</i>
23-5-1986	Dr. Sasidharan Radiologist Riyadh Central Hospital Riyadh.	Interventional Management of Obstructive Jaundice"
26-6-86	Dr. P. K. Mohan Prof. of Neurology Sree Chitra I. M. S. T., Trivandrum.	"Pain" Management
31-7-86	Dr. Ramadasan Kuttan Reader in Pharmacology Amla Cancer Research Centre, Trichur.	"New Investigational anti-cancer Drug. Tiazofurin"
24-9-86	Dr. P. K. Mohan Prof. of Neurology Sree Chitra I. M. S. T. Trivandrum	"Management of pain in Cancer patients."
30-9-1986	Dr. B.K. Hareendran Nair Head of the Dept. of Dermatology, Medical College, Trivandrum.	"Cutaneous Tumours"
17-11-1986	Dr. Dorothy Pearson Christie Hospital, Manchester, U. K. Dr. Morris Jones Christie Hospital Manchester, U. K.	"Overview on Pediatric - Oncology".
11-12-86	Dr. V. Ramakrishna (W.H.O. Consultant) Regional Director Health Edn. Bangalore.	'Recent Trends in Health Education."

13-12-1986	Dr. A. Kaul, Inst. Radiation Protection and Hygiene, Neurherberg, F. R. G.	"Internal Dosimetry"
15-12-1986	Dr. E. Werner Inst. of Biophysics Frankfurt. F. R. G.	Iron Absorption"
17-12-1986	Dr. L. J. de Souza Surgeon Tata M. H. Bombay.	"The Gun for Carcinoma Rectum".
6-1-1987	Dr. S. J. Supe Scientist, Dn. of Radiation. Biol, Protection, BARC, Bombay.	"Radiobiological basis of Radiotherapy".
10-1-1987	Dr. Kersheed F. Moos Consultant Oral Max. Fac. Surgeon. Manchester. U. K.	"Maxillofacial Trauma"

SPECIAL CLINICS

(multi disciplinary)

In addition to the routine clinics and noon clinics, the following special clinics with the active participation of faculty members from other departments were conducted regularly.

- I. Paediatric Oncology – on all Mondays at 12 noon. Resource persons from other departments are Dr. V. G. Chellam, Prof. of Pediatric Pathology. Dr. Mani Ninan, Director & Prof. of Paediatric Surgery, Dr. N. Surendran, Prof. of Paediatric Surgery and Dr. Alphonsa J. Erinjeri, Holy Cross Hospital, Kottiam.
- II. Head and Neck Clinic – All Tuesdays 12 noon. Resource person – Dr. S. Krishnamoorthy, Prof. of E. N. T.
- III. Trophoblastic tumour clinic – All Wednesdays 12 noon. Resource person – Dr. Thomas Chandy, Director and Prof. of Obst. & Gynaecology.
- IV. Clinico Pathological Conference – on 1st Saturday of every month at 11.30 A.M. Resource persons Dr. M. A. Aleykutty, Prof. of Pathology & Other staff of Department of Pathology.
- V. Pain clinic — on Thursday at 1 P.M.
Conveners — Dr. Gladys Jeevy and Dr. Paul Sebastian

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

P.Gangadharan Assoc. Prof. of Epidemiology	Meeting on "National Cancer Control Programme Bangalore, April 1986.
Do	Karnataka State Cancer Advisory Board Inauguration, Bangalore April 1986
Do	I.C.M.R. Meeting – Annual and Coding the manual – Stomach Cancer etc. Bombay – July 1986
Do	Faculty Member – Training Cancer Registry Workers. New Delhi – September 1986.
Do	Kasturba Medical College, Manipal, Cancer Registry Manipal – January 1987
Dr. Jayaprakash Madhavan	Training in Brachytherapy, Bombay.
Do	Association of Radiation Oncolo- gist of India – Annual Conference, VIII Congress AROI Bombay – December 1986.
Dr. V.N. Narayana Bhattathiri Asst. Prof., Radiotherapy	Training in Brachytherapy Bombay – June 1986.
Do	Association of Radiation Oncologist of India – Annual Conference VIII Congress AROI. Bombay – December 1986.
Dr. R. Sankaranarayanan Asst. Professor (Epidemiology)	Fellowship Project Training at CRI, UCSF. California – June 1986.

Dr. P. Ramachandran Nair, Assoc. Prof. Nuclear Medicine	National Seminar on Recent Advances in Thyroidology. Srinagar – July 1986.
Dr. Thomas Cheriyan Asst. Prof. of Cancer Surgery.	U.K., Manchester etc. August 1986
Dr. Babu Mathew, Assoc. Prof. (Community Oncology)	Visiting Professor, Government Dental College, Goa. Pre-cancer and Oral Cancer talk. August 1986.
Do	1st National Conference of Indian Acad. Oral Medicine. Bangalore – February 1987.
Dr. B. Syamalakumari Cytopathologist, Ernakulam	Cytology R.E.S. Course New Delhi – September 1986.
Dr. K. K. Vijayan Lecturer	Work shop on Immunocyto- chemistry, K. G. Medical College Lucknow – October 1986
Do	Indo US: Workshop on Virus and Human Cancer. Amala Cancer Res. Centre, Trichur December 1986
Do	XXVII Annual conference of Ind: Soc. of Hematology and Blood Transfusion, Trivandrum December 1986.
Do	U.G.C. Short term Inst. in Chromo- graphic Technique. Cochin University of Science and Technology, Cochin January 1987
Do	Winter School on Mass Spectro- metry. I.I.T. Madras February 1987.

- Dr. B. Prabha
Assoc. Professor
- Workshop on Immunocytochemistry
K.G. Medical College.
Lucknow – October 1986.
- Do
- Symposium on Immunodiagnostic
and National Conference of Indian
Immunology Society.
Delhi – December 1986.
- Do
- International Symposium on
Breast Cancer – January 1987.
- Dr. T. K. Padmanabhan
Supdt. & Prof. of
Radiotherapy
- Assoc. of Radiation Oncologist of
India – Annual Conference
VIII Congress AROI.
Bombay – December 1986.
- Mr. S. Muraleedharan
Medical Statistician
- Assoc. of Radiation Oncologist of
India – Annual Conference
VIII Congress – AROI.
Bombay – December 1986.
- Mr. T. Vijayakumar
Senior Research Officer
- Assoc. of Radiation Oncologist of
India – Annual Conference
VIII Congress AROI.
Bombay – December 1986.
- Do
- XX Annual Convention "Indian
College of Allergy and Applied
Immunology, Patna
December 1986.
- Dr. P. R. Sasidharan
Tutor
- Assoc. of Radiation Oncologist of
India – Annual Conference
VIII Congress AROI. Bombay
December 1986.
- Do
- XXVII Annual Conference of Ind.
Soc. of Hamatology and Blood
Transfusion Trivandrum
December 1986.
- Dr. A. Sudhakaran
Tutor
- Assoc. of Radiation Oncologist
India – Annual Conference
VIII Congres, AROI, Bombay
December 1986.
- Dr. C. S. Madhu
- Assoc. of Radiation Oncologist of
India Annual Conference.
VIII Congress AROI, Bombay
December 1986
- Do
- International Symposium on
Breast Cancer, New Delhi
January 1987.
- Dr. R. Gireesan
Tutor
- Assoc. of Radiation Oncologist of
India – Annual Conference
VIII Congress AROI, Bombay
December 1986.
- Dr. C. S. Kuttappan
Assoc. Professor
- Association of Radiation Oncologist
of India – Annual Conference
VIII Congress AROI, Bombay–1986
- Dr. T. P. Ramachandran
Assoc. Professor
- Asian Regional Conference on
Medical Physics, BARC, Bombay
December 1986.
- Mr. Ravindran Ankathil
Scientific Officer
- XXVII– Haematology and Blood
Transfusion, Trivandrum
December 1986.
- Do
- Indo–US Workshop of Viruses and
Human Cancers Amala Cancer
Research Centre, Trichur – 1986.
- Dr. Elizabeth K. Abraham
Asst. Professor of
Cytopathology
- 35th Annual Conference of
Pathologist and Microbiologist.
Kidwai Memo. Inst. of Oncology.
Bangalore – December 1986.
- Do
- Asian Seminar on Paediatric
Oncology, Bombay – January 1987.

Do	Training in Tumour Histopathology/ Cytology. Tata Memorial Hospital, Bombay - March 1987.
Dr. V. Padmanabhan Asst. Prof. Physics	Annual Conference of the Society of Nuclear Medicine, Madras Dec. 1986.
Mr. Raghuram K. Nair Lecturer	Annual Conference of the Society of Nuclear Medicine, Madras December 1986.
Do	National Symposium on Nuclear Nephrology, New Delhi February 1987.
Dr. C. S. Rafeeka Begum	Asian Seminar on Paediatric Oncology, Bombay - January 1987.
Dr. P. Kusumakumari Lecturer	Asian Seminar on Pediatric Oncology, Bombay - January 1987.
Do	Training, Christie Hospital and Hold Radium Institute, Manchester - February 1987.
Dr. B. Chandralekha	Asian Seminar on Paediatric Oncology, Bombay January 1987.
Dr. G. Rajasekharan Nair	Do
Dr. M. K. Lalitha Bai	Do
Dr. Anni Belthazar	Do
P. G. Gopalakrishna Kurup Assoc. Professor.	Tata Memorial Hospital Bombay Computer Bombay - February 1987
P. Gangadharan Assoc. Professor	Do
Dr. Gladys Jeevy	Conference of Indian Society for Study of Pain at Bombay.- February 1986 and Seminar on Hospice Care - T.M.H. Bombay.

PAPERS PRESENTED/PUBLISHED

1. Dr. P. Kusumakumary. 'Non Hodgkins Lymphoma' Experience in the Management" Annual Conference on Indian Association of Haematology and Blood Transfusion, Trivandrum, December 1986.
2. Dr. T. P. Ramachandran, 'Standardization of Cs137 sources used in Selectron Remote Afterloading System" Asian Regional Conference on Medical Physics December 8-12, 1986.
3. T. P. Ramachandran, C. A. Davis and P. G. Gopalakrishna Kurup. Cs137 sources used in Selectron Remote Afterloading system. AMPI Medical Physics Bulletin Vol. II No.3, & 4, July -Dec. 1986.
4. P. G. Goplakrishna Kurup, T. P. Ramachandran and C. A. Davis, 'Quality assurance test procedures carried out on a newly installed 4 MV accelerator' AMPI Medical Physics Bulletin Vol II, No. 3 & 4, July, Dec. 1986.
5. Dr. Elizabeth K. Abraham. Immunoblastic lymphoma breast IAPM. Bangalore 1986.
6. Elizabeth K. Abraham. Carcinoma of Pancreas. Annual Conference meeting of Indian Society of Pancreatology, Medical College, Trivandrum, Dec. 1986.
7. Nair MPN, Prabha, B., Schwartz SH, Radhakrishna Pillai, M. and M. K. Nair, Natural Killer cell activity of Lymphocytes in a population living in an area of high background radiation in coastal Kerala, India. Clin. Res: 34: 920-A, 1986.
8. Vijayakumar T., Remani P., Ravindran Ankathil, Sasidharan, V. K. Vijayan, K. K., and Vasudevan, D. M. Circulating Immune complexes as a biological marker in solid tumours. J. Clin Exptl. Cancer Res. 5: 257, 1986.
9. Vijayakumar, T. and Forrester, J.A.,: Isolation, Purification and Physiochemical properties of lectins from Jack-fruit (*Artocarpus integrifolia*) Biol. Plant. 28: 370, 1986.

10. Vijayakumar, T. and Forrester, J.A. Isolation, Purification and some properties of lectin from winged bean. (*Psophocarpus tetra gona lobus*) Plant cell Reports, 5: 475, 1986.
11. Vijayakumar, T., Ravindran Ankathil, Remani, P., Sasidharan, V. K. Vijayan, K. K. and Vasudevan, D. M. Serum Immunoglobulins in patients with carcinoma of the Oral cavity, uterine cervix and breast. Year Book of Cancer 1986.
12. Rajendran, R., Sugatha, C. K., Remani, P., Ravindran Ankathil, and Vijayakumar, T. Cell mediated and humoral immune responses in Oral submucous fibrosis. Cancer 58: 2628-2631, 1986.
13. Ipe Varghese, Rajendran, R., Sugathan, C. K. and Vijayakumar, T. Prevalence of Oral submucous fibrosis among cashew workers of Kerala South India. Ind. J.Cancer 23: 101, 1986.
14. Ravindran Ankathil, Remani, P., Vasudevan, D. M. and Vijayakumar, T. Quantitation of tissue immunoglobulins in malignant and premalignant lesions of the oral cavity. The Cancer J 1: 135, 1986.
15. M. P. N. Nair, B. Prabha, M. Radhakrishna Pillai, S. A. Schwartz and M. Krishnan Nair. Immunological studies on populations residing in high background radiation areas of coastal Kerala, India. In Preliminary evaluation of natural cytotoxicity. Ann Conf. Ind. Immunol. Soc. New Delhi 1986.
16. Prabha Balaram, Radhakrishna Pillai, M., Thomas Abraham, Padmanabhan, T., and M. Krishnan Nair. Anti tumour immunity in cancer of the uterine cervix. Ann Conf. Ind. Immunol. Soc. New Delhi, 1986.
17. Vijayakumar, T., Ravindran Ankathil, Remani, P., Haseena Beevi, V. M., Vijayan, K. K. and Pacnicker C. K. J. Serum complements and its fractions in cancer of Oral Cavity, Uterine Cervix and Breast. 20th Annual Convention. Ind. College of Allergy, and Applied Immuno., 1986.

18. Sivasankaran S. Mathew Thomas, Prabha Balaram, Aley Aleykutty, Krishnadas, K. V., Radhakrishna Pillai, M., and Joy Augustine. Adrenal carcinoma with reactive plasmacytosis. National Conf. Haematol and Blood Transfusion, Trivandrum, 1986.
19. Kumari, T.V., Ravindran Ankathil, Vasudevan, D.M. and Vijayakumar, T. Demonstration of HSV-1 in Oral Cancer by Immunofluorescence and Immunoperoxidase techniques. VII Ann. Conf. AROI, 1986.
20. Vijayan, K. K., Remani, P., Ravindran Ankathil, Vijayakumar, T., Rajendran, R. and Joy Augustine. Tissue binding patterns of lectins in premalignant lesions of the Oral cavity. Proc. Indo US Workshop on Viruses and Human Cancer 1986.
21. Remani, P., Vijayan, K. K., Ravindran Ankathil, Vijayakumar, T. and Joy Augustine. Lectin binding pattern in lympho reticular malignancies. National Conf. Haematol and Blood Transfusion, 1986.
22. Ravindran Ankathil, Vijayakumar, T., Remani, P., Vasudevan, D.M. and Stephen, J. Cytogenetic studies in Acute Myeloid Leukaemia National Con. Haematol Blood Transfusion, 1986.
23. Lilarani, Ravindran Ankathil, George Thomas, Remadevi, Basanthi Nair and Aleykutty. Myelodysplastic syndrome - A case report" 27th - National Conference of India, Indian Society of Haematology and Blood Transfusion. Trivandrum 1986.
24. Prabha B., Radhakrishna Pillai, M., and Thomas Abraham. Immunology of Breast Cancer, New Delhi, 1987.
25. Hospital Cancer Registry 1984. Reported in the "Annual Report 1984" of the National Cancer Registry, Indian Council of Medical Research, February, 1987.
26. Krishnan Nair M., Padmanabhan T.K, Sankaranarayanan R. and Gangadharan, P. Report of Cancer Cases recorded

by the Hospital Cancer Registry, Trivandrum 1982, Cancer Occurrence in Developing Countries. Ed. Parkin D. M. IARC Scientific Publication No. 75, 1986.

27. Krishnan Nair M., Gangadharan P. and Padmanabhan T. K. Cancer in Kerala. Eds. Khogali, M., Omar, Y. T., Gjorgov A, Ismail A. S. Cancer Prevention in Developing Countries. Proceedings of the 2nd UICC Conference in Cancer Prevention (Kuwait) Page 65-67, Pregamon Press, 1986,
28. P.Gangadharan: Epidemiology of Cancer of Pancreas, in Eds. Balakrishnan, V., Thankappan, K.R. Proceedings of the 1st Annual Conference of the Indian Society of Pancreatology, Page 48-56, Trivandrum, 1986.
29. Dr. Babu Mathew, Importance of Intermediate endpoints in the evaluations and treatment of Oral pre cancer. 1st National Conference of the Indian Academy of Oral Medicine, Bangalore, Feb. 1987.
30. Dr. Babu Mathew, Intervention studies of Tobacco Behaviour Modification in Kerala. International Workshop on Tobacco or Health. Bombay, 1987.
31. Dr. Babu Mathew. The role of National Service Scheme volunteers in tobacco control. Experience in Kerala. International Workshop on Tobacco or Health, Bombay.

DISTINGUISHED VISITORS

1. Shri. S. S. Dhanoa
Secretary
Ministry of Health & Family Welfare
Govt. of India.
2. Dr. A. Yamamoto
Deputy General Manager
Mitsubishi Corporation
New Delhi.
3. Dr. Jan Stjernsward
Chief, Cancer Unit
World Health Organisation
Geneva.
4. Dr. Dorothy Pearson
Radiotherapist & Oncologist
Christie Hospital & Holt Radium Institute
Manchester, England.
5. Dr. Pat. Moris Jones
Royal Marsden Hospital & Christie Hospital
Manchester, England.
6. Dr. Albert H. Owans, Jr
Johns Hopkins Oncology Centre
Baltimore
U. S.
7. Dr. Sidney D. Kreider
Johns Hopkins Oncology Centre
Baltimore
U. S.
8. Dr. I. K. Dhawan
All India Institute of Medical Sciences
New Delhi.
9. Dr. L. J. de Souza
Tata Memorial Hospital
Bombay.

10. Dr. S. J. Supe
Division of Radiological Protection
BARC, Trombay, Bombay.
11. Dr. Nicholas Hammersley
Glasgow, Scotland
U. K.
12. Dr. Khursheed F. Moos
Cannies Burg Hospital
Glasgow,
U. K.
13. Dr. R. Sri Padmanathan
Consultant
Oral and Maxillofacial Surgeon
University of Glasgow,
U. K.
14. Dr. J. A. Forrester
Institute of Cancer Research
Royal Marsden Hospital
London.

ADMINISTRATION

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

1. Shri. K. Karunakaran,
Chief Minister of Kerala &
Minister for Health (in charge) : Chairman
2. Shri. V. Krishnamurthy,
Secretary to Government,
Department of Health,
Government of Kerala. : Vice – Chairman
3. Shri. R. Narayanan,
Commissioner and Secretary to
Government,
Department of Finance,
Government of Kerala. : Member
4. Shri. S. Varadachari,
Secretary to Government,
Department of Planning,
Government of Kerala. : Member
5. Dr. M. S. Valiathan,
Director of Sree Chitra Tirunal,
Institute of Medical Science &
Technology,
Trivandrum. : Member
6. Dr. S. C. Gupta,
Director,
V.S.S.C.,
Trivandrum. : Member
7. Dr. A. K. Bhattacharya,
Director – General of Health
Services, Nirman Bhavan,
New Delhi. : Member

8. Mrs. Suma Subanna,
Deputy Secretary,
Ministry of Health & Family
Welfare Department,
Government of India,
Nirman Bhavan,
New Delhi. : Member
9. Dr. M. Balaraman Nair,
Director of Medical Education,
Trivandrum. : Member
10. Dr. Elsie Philip,
Principal, Medical College,
Trivandrum. : Member
11. Seniormost Pathologist in the
Medical College Services,
Kerala. : Member
12. Dr. M. Krishnan Nair,
Director, Regional Cancer Centre,
Trivandrum. : Convener

EXECUTIVE COMMITTEE MEMBERS OF THE REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM

1. Shri. V. Krishnamurthy,
Secretary to Government,
Department of Health,
Government of Kerala. : Chairman
2. Shri. R. Narayanan,
Commissioner and Secretary to
Government,
Department of Finance,
Government of Kerala. : Member
3. Shri. S. Varadachary,
Secretary to Government,
Department of Planning,
Government of Kerala. : Member
4. Dr. M. Balaraman Nair,
Director of Medical Education
Trivandrum. : Member
5. Dr. Elsie Philip,
Principal, -
Medical College,
Trivandrum. : Member
6. Dr. M. Krishnan Nair,
Director,
Regional Cancer Centre,
Trivandrum. : Convener

BUILDING COMMITTEE MEMBERS OF THE REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM

1. Dr. M. Balaraman Nair,
Director of Medical Education,
Trivandrum. : Chairman
2. Shri. E. Kurian,
Chief Engineer,
P.W.D.,
Trivandrum. : Member
3. Shri. M. Ramaswamy Iyer,
Chief Architect,
P.W.D.,
Trivandrum. : Member
4. Dr. Elsie Philip,
Principal,
Medical College,
Trivandrum. : Member
5. Dr. M. Krishnan Nair,
Director,
Regional Cancer Centre,
Trivandrum. : Member
6. Shri. Joseph Stephen,
Finance and Accounts Officer,
Regional Cancer Centre,
Trivandrum. : Member
7. Shri. G. Gopalakrishnan Nair,
Chief Construction Engineer,
Regional Cancer Centre,
Trivandrum. : Convener

SCIENTIFIC COMMITTEE MEMBERS OF THE REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM

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

9. Dr. M. K. Lalitha Bai. M.D.,
Prof. of Cytology,
Regional Cancer Centre,
Trivandrum. : Member
10. Dr. T. P. Ramachandran Ph.D.,
Associate Professor of Radiation,
Physics, Regional Cancer Centre,
Trivandrum. : Member
11. Dr. P. Ramachandran Nair, MNAMS,
Head, Nuclear Medicine Division,
Regional Cancer Centre,
Trivandrum. : Member
12. Dr. M. Krishnan Nair, MD, FRCR,
Director, Regional Cancer Centre,
Trivandrum. : Member
13. Dr. M. Thangavelu MD.,
Dean, P. S. G. Institute of Medical
Sciences, Coimbatore. : Member
14. Dr. T. K. Padmanabhan M.D.,
Superintendent,
Regional Cancer Centre,
Trivandrum. : Convener

MAJOR DECISIONS OF THE GOVERNING BODY IN THE YEAR 1986-87

The Governing Body resolved to recommend to Government to incorporate certain modifications to the order issued in the G. O. Rt. No. 7264/86/H & FWD dated 26-12-1986 to the effect that the appointing authority of the Regional Cancer Centre Society shall appoint a Registrar in the rank of Deputy Secretary to Government on deputation from Administrative Secretariat or a person possessing qualifications and eligibility as prescribed by the Executive Committee of the Society on direct recruitment. As regards the filling up of the post of Finance and Accounts Officer, it was recommended that the appointing authority shall appoint Finance and Accounts Officer in the rank of Deputy Secretary to Government, finance department on deputation or an officer from the Accountant General's Office on deputation or a senior person possessing the qualifications prescribed by the Executive Committee on direct recruitment. It was also resolved to modify rule 16 sub rule (a) of memorandum of association and the rules relating to the Regional Cancer Centre Society, Trivandrum to the effect that prior sanction of the Government shall be obtained for the creation of and appointment to the post of Director and any post carrying a salary of Rs.3200/- per month.

It was also resolved to place a detailed project proposal on the constitution of Cancer Control Board highlighting the operational methods of co-ordination for consideration of Government.

It was also resolved to approve a "Regional Cancer Centre Society Poor Patients Welfare Fund Scheme". This Scheme envisages to mobilize a fund through donational Philanthropists, persons, organizations and Government for meeting the basic requirements of the poor patients for their travel, burial etc. and also for organizing Hospice and terminal care centres at a later stage, for purchasing Vans, ambulances etc. for the use of the poor patients.

It was also resolved to recommend a proposal for establishment of a National Cancer Institute through up-gradation of the Regional Cancer Centre Society in Trivandrum on the basis of the feasibility report already forwarded to Government of India.

MAJOR DECISIONS OF THE EXECUTIVE COMMITTEE

Academic

The Executive Committee resolved to appoint the following persons as Consultants of the Regional Cancer Centre on payment of honorarium of Rs.300/- p.m. to each of them.

1. Dr. M. Sathiavathy,
Director and Prof. of
Obstetrics and Gynaecology,
S.A.T. Hospital,
Trivandrum. — Trophoblastic Tumour Clinic
2. Dr. M. A. Alikutty,
Prof. of Pathology,
Medical College,
Trivandrum. — Clinico Pathology Conference
Meeting.
3. Dr. Mani Ninan,
Professor and Head of the Dept.,
Paediatric Surgery,
S.A.T. Hospital,
Trivandrum. — Paediatric Oncology Clinic.
4. Dr. N. Surendran,
Prof. of Paediatric Surgery,
S.A.T. Hospital,
Trivandrum. — Paediatric Oncology Clinic.

The Committee resolved to continue the post of Associate Prof. of Community Medicine in Preventive Oncology one more year and to allow Dr. Babu Mathew to continue in that post on deputation.

The Committee resolved to permit Dr. M. Krishnan Nair Director to accept his nomination as member of the Executive Committee of the National Cancer Advisory Board.

The Committee resolved to permit Dr. M. Krishnan Nair Director to participate in the International Symposium of Radio Therapy in Vienna, Austria to be held from 1 to 5 September 1986 and

also resolved that no expenditure on this account will be met by the Regional Cancer Centre, Trivandrum. But due to personal inconvenience Dr. M. Krishnan Nair could not attend the meeting.

The Committee resolved to ratify the action of the Director in having relieved Dr. B. Rajan, Associate Prof. of Radio Therapy in the light of the Government Orders in the matter for undergoing training in U.K. for a period of one year under Common-Wealth Fellowship Scheme and to pay his salary during that period of training from the Regional Cancer Centre Funds as stipulated in the Government Order.

The Committee resolved to treat the period of training in respect of the following persons as on deputation.

1. Dr. Paul Sebastian, Lecturer in Cancer Surgery – specialized training in Cancer Research Tata Memorial Centre, Bombay for a period of 6 months from 1-9-1986.
2. Dr. V. M. Pradeep, Lecturer in Nuclear Medicine – DRM Course, Radiation Medicine Centre, Tata Memorial Centre, Bombay for a period of one year from 25-8-1986.
3. Shri. T. Prasad, Radiographer Grade II – DMRIT course at the radiation medicine Centre, Tata Memorial Centre Bombay for a period of one year from 25-8-1986.

The Committee resolved to fill up the post Prof. of Cancer Research, Associate Prof. of Cancer Research and the Scientist Grade II Cancer Research by open recruitment. The Committee also resolved to constitute a selection Committee for selecting suitable candidates for appointment to these post.

The Committee resolved to extend the term of the post Secretary (Academic) and allow Prof. A. Joseph to continue by one more year.

The Committee resolved to permit Dr. P. Ramachandran Nair, Associate Prof. of Nuclear Medicine, who was invited by the Science and Technology Office of the Japanese Prime Minister Tokyo to undergo training in the National Institute of Radiological Science, Tokyo from 10-11-1986 to 7-2-1987 at the expense of the organizers.

The Committee resolved to permit Dr. M. Krishnan Nair Director to accept the appointment as member of the WHO expert advisory panel on Cancer.

The Committee resolved to permit Dr. M. Krishnan Nair Director to attend the 5th Varian European Users meeting to be held from 11 to 15th February 1987 in Films, Switzerland and to meet the travel expenditure in this case from the funds of the Regional Cancer Centre. He could not attend the meeting due to certain personal inconvenience.

The Committee resolved to create one post of Associate Prof. of Imageology (Radiology) and to appoint Dr. K. Sasidharan Nair, formerly Associate Prof. of Radiology Sree Chitra Institute for Medical Science and Technology on contract basis for a period of 2 years.

The Committee resolved to create one post of Assistant Prof. of Radiotherapy for the peripheral Cancer Detection Centre.

The Committee resolved to appoint Dr. Krishna Murthy Prof. of ENT as Consultant in the Head and Neck Clinic on a monthly honorarium of Rs. 300/- with the approval of Government.

The Committee resolved to permit the Director to avail of the expert services of Dr. K. V. Krishnadas Director and Prof. of medicine as honorary consultant in Haematology and Blood Transfusion services on consolidated honorarium of Rs.1,200/- p.m.

The Committee resolved to conduct Tumour Registrars Training Programme from 27th April to 8th May 1987 with the Financial support of WHO and ICMR and to grant an amount of Rs. 7000/- if funds sanctioned by the ICMR are inadequate.

Non-academic

The Committee resolved to create 2 posts of Cytotechnologists in the Cytology Division.

The Committee resolved to appoint Shri. Joseph Stephen Accounts Officer against the post of Finance and Accounts Officer on deputation basis without any additional Financial benefit.

The Committee through a resolution fixed recruitment age as that prevailing in State Government.

The Committee resolved to open a current account under the style Regional Cancer Centre – "Cancer Care for Life Account" with link branches of all banks participating in the Cancer care for life scheme & deposit the funds in the current account in term deposit in the name of Director, Regional Cancer Centre Trivandrum for a period of 5 years and to authorise the Finance and Accounts Officer to open the current account and operate the said account singly on behalf of Director, Regional Cancer Centre, Trivandrum.

The Committee resolved to sanction New Telephones without STD facilities in the Early Cancer Detection Centres Ernakulam and Palghat under the OYT Scheme.

The Committee resolved to appoint Dr. (Mrs) Indira Rajgopal as part-time Gynaecologist, Early Cancer Detection Centre, Palghat on a monthly honorarium of Rs. 200/- with the approval of the Government. But due to certain administrative problem it could not be done.

The Committee resolved to purchase a new cobalt 60 unit utilising the amount of 12 lakhs sanctioned by the Government of India.

The Committee resolved to create one post of Laboratory Technician Grade II in the Research Division.

The Committee resolved to ratify the action of the Director in having re-employed Shri. G. Gopalakrishnan Nair as Chief Construction Engineer for a period from 1-8-1986 to 31-3-1987 as per the orders issued by Government in the matter.

The Committee resolved to appoint Shri. Sasikumaran Nair, sponsored by Zilla Sainik Board as Helper-cum-Watchman on a regular basis with effect from 1-1-87.

The Committee resolved to merge the staff Scheme of the National Cancer Registry Project with that of the Regional Cancer Centre with effect from 1-4-1987. It was resolved that this

registry will function as a separate unit in this Centre. It was also resolved that the expenditure for the Tumour Registry will be shared on 975:25 basis by the ICMR & RCC.

The Committee resolved to create 12 posts of Helpers and to fill up these posts with the daily wage employees of the Regional Cancer Centre and Employment Exchange nominees after an interview.

The Committee resolved to sanction 30 days compulsory leave every calendar year to all radiation workers as designated by the Director from time to time. Of these 15 days will be granted as special leave with salary and 15 days from employees leave account with or without salary.

The Committee resolved to create 2 posts of Office Assistant for a period of 2 years and to fill up these posts on deputation basis.

The Committee resolved to approve the "Death Relief-cum-Retirement Assistance Fund Scheme and implement the same with effect from 1-4-1987.

Report of the Scientific Committee

During the year under report the Scientific Committee was reconstituted and the new committee with Dr. K. Sundaram as Chairman had the first meeting on 12-9-1986.

Dr. Krishnan Nair, Director, gave an account of the functions and objectives of the Scientific Committee. He also explained the actions taken on the basis of Technical Development Committee recommendations. Dr. M. Thangavelu was entrusted with the task of drafting the terms of reference of the Committee. The members demanded a detailed report of the activities of each of the departments for perusal before the next meeting.

The Committee pointed out that research work should be given paramount importance and recommend the re-organisation of the Research Division.

In addition to the existing courses the members recommended the starting of new courses like DRM. Diploma in

Radiation Physics B.Sc and M.Sc Radiation Physics and B.Sc Course in Radiotherapy. The Centre should also start training courses for medical and Paramedical personnel for "early detection of cancer". The Committee appreciated the importance given by the Centre on Community Oncology and Paediatric Oncology:

The Committee endorsed the proposal for Computerisation Programme of various activities of the Regional Cancer Centre, and the purchase of P.E.T. Unit and C.T. Scanner.

ENGINEERING DEPARTMENT

Shri. G. Gopalakrishnan Nair, Chief Construction Engineer retired from service on 31-3-1987 and Shri. G. Ravindranathan Nair, Project Engineer has given the charges of Chief Construction Engineer from 1-4-1987. He is assisted by Sri. P. Rajagopal, Assistant Project Engineer and Sri. R. Asokan Nair, 1st Grade Overseer.

The structure for the 1st Phase of the Construction is complete and the finishing works are nearing completion. The main Electrification Work was entrusted with M/s. Harrisons Malayalam Limited and the same is progressing satisfactorily.

For the Electrical Equipments such as 1250 kVA indoor Cast Resin Dry Type Transformer, 250 kVA & 60 kVA Generator Sets, Main M.V. Switch Board, 11 kVA Switch Board, 300 kVAR, 415V Automatic Power Factor Capacitor Bank, Light Fittings etc. work orders have been placed with different firms.

Action has also been taken to get power allocation of 1500 kVA and electric connection at Site, and the formal orders are being awaited from the Kerala State Electricity Board.

M/s. Blue Star Limited is executing the Airconditioning works from 26-11-1986.

For Supervision of Electrical Works and Airconditioning works Mr. N. K. Radhakrishnan Nair, Assistant Professor for Engineering College was appointed on part-time basis from 9-4-1987.

M/s. Madras Engineering Concerns are doing the Plumbing and Sanitary Works from 5-3-1987. Action has also been taken for laying a separate drinking Water Pipeline to the Centre.

The erection of Lift by M/s. Best & Crompton is in progress. Other allied works such as Ceiling Works, Fire Fighting and Fire Protection, Communication System, Interior Design, Public Health System are also arranged.

Due to the re-arrangements and modifications in plans and due to the decision to Aircondition the Entrance Block and a Portion of the Utility Block and to provide adequate provision for Electric Works etc., the estimate for Phase-I had to be revised upwards to Rs. 301 lakhs from Rs. 217 lakhs. It is expected to occupy the building in early 1988. and we have so far spent about Rs. 143 lakhs towards Civil, Electrical, Airconditioning, Water Supply & Plumbing, Lift and for other building work.

ACCOUNTS

**REGIONAL CANCER CENTRE SOCIETY,
BALANCE SHEET AS AT**

LIABILITIES	Rs.	P.	Rs.	P.
CAPITAL FUND				
As per last Balance Sheet	2,63,09,409.	33		
Add: Tranfer of Capital				
Grant: Central Government	25,00,000.	00		
State Government Grant	22,49,636.	80	3,10,59,046.	13

CAPITAL GRANT

Capital Grant received from Government of India, Ministry of Health & Family Welfare, New Delhi 1st Instalment of grant for 1986-87 as per letter No. V-22015/3/86-R dt. 11-4-1986.	4,16,000.00
IInd Instalment of grant as per letter No. V-22015/3/86-R dt. 21-10-1986.	10,84,000.00
IIIrd Instalment of grant as per letter No. V-22015/3/86-R dt. 5-1-1987	10,00,000.00
	25,00,000.00
Less: Amount utilised for purchase of Equipment and construction of building transferred to Capital Fund.	25,00,000.00

TOTAL

**TRIVANDRUM (REGN. No. 567/81)
31ST MARCH, 1987**

ASSETS	Rs.	P.	Rs.	P.
FIXED ASSETS				
As per Schedule			2,71,97,499.	01
INVESTMENTS				
Earmarked for Cancer Care for Life Scheme. In Fixed Deposit with Banks.	40,92,480.	00		
In Non-Operational Account with Banks.	6,07,487.	00	46,99,967.	00
CURRENT ASSETS, LOANS & ADVANCES				
Closing Stock of Chemicals, Films, Sundry Medical items etc.	2,29,696.	07		
Advances	11,64,787.	00		
Deposits	15,115.	00		
Stamps in hand	916.	05		
Cash in hand	3,732.	05		
Balance with State Bank of Travancore in S.B. A/c. No. 9610	1,15,812.	48		
Balance with Government Treasury S.B. A/c. No. TPA 675 (A)	11,30,113.	92		
Imprest	3,050.	00	26,63,222.	57
TOTAL				

**REGIONAL CANCER CENTRE SOCIETY,
BALANCE SHEET AS AT**

LIABILITIES	Rs.	P.	Rs.	P.
UNUTILISED GRANT				
Grant for setting up Cobalt Thirapy Unit with rotational Head & Collimation facilities as per letter No. T-20013/13/86-R dt. 20-5-1986.			12,00,000.00	
Part of State Government Grant Capitalised.	22,49,636.80			
Less: Amount Utilised for construction of building transferred to Capital Fund.	22,49,636.80			
			Nil	
Cance Carer For Life Fund Account			46,99,967.00	
CURRENT LIABILITIES & PROVISIONS				
Sundry Creditors	8,52,500.49			
Research Schemes: Unspent balance of Grant.	69,845.81		9,22,346.30	
TOTAL			3,78,81,359.43	

Trivandrum,
12-8-1987.

TRIVANDRUM (REGN. No. 567/81)

31ST MARCH, 1987

ASSETS	Rs.	P.	Rs.	P.
INCOME AND EXPENDITURE ACCOUNT				
<i>Cancer Centre:</i> Balance as per last Balance Sheet.			40,99,873.54	
Less: Excess of Income over Expenditure			7,93,741.44	
				33,06,132.10
<i>Cancer Care for Life Scheme:</i>				
Excess of Expenditure over Income.				14,538.75
TOTAL			3,78,81,359.43	

As per our report of even date

Sd/-

POTTI & RAO,
Chartered Accountants.

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

EXPENDITURE	Rs.	P.	Rs.	P.
To Opening Stock of Chemicals, Films and other Sundry Medical items.			69,171.	18
" Purchase of Chemicals, Films etc.			4,46,336.	06
" Salaries, Allowance & Wages			15,70,654.	43
" Printing & Stationery			56,305.	90
" Purchase of Medicines			4,16,788.	69
" Nuclear & Radiotherapy Isotope purchases.			2,79,194.	65
" Travelling Expenses	1,24,270.	40		
Less: Travel grant from Govt. of Kerala	3,000.	00		
			1,21,270.	40
" Advertisement			26,730.	00
" Repairs & Maintenance:				
Equipments	2,65,432.	75		
Buildings	19,008.	75		
Vehicles	37,421.	40		
			3,21,862.	90
" Rent			36,750.	00
" Postage, Telegram & Telephones			56,473.	10
" Uniforms			16,313.	10
" Audit Fee			5,500.	00
" Conference, Seminars & Workshops			28,086.	95
" Consultation Service fee			15,774.	20
" Books & Periodicals			11,533.	00
" Early Cancer Detection Centre Exp. Ernakulam Palaghat	2,01,161.	70		
	94,742.	21		
			2,95,903.	91
" Workshop on Paediatric Oncology Expenses.	28,191.	01		
Less: Fees realised from delegates	2,200.	00		
			26,991.	01
" Miscellaneous Expenses			20,984.	90
" Excess of Income over Expenditure			7,93,741.	44
TOTAL			46,15,275.	82

**TRIVANDRUM (REGN. No. 567/81)
FOR THE YEAR ENDED 31ST MARCH, 1987.**

INCOME	Rs.	P.	Rs.	P.
By Grant from Government of Kerala Health Department received during the year.				
Ist Instalment as per letter No.G.O. Rt-2028/86	15,00,000.	00		
H&FWD dt. 25-4-1986.				
IInd Instalment as per letter No. G.O. Rt 2987/86/HD dt. 2-8-86.	15,00,000.	00		
IIIrd Instalment as per letter No. G.O. Rt 4499/86	15,00,000.	00		
H& FWD dt. 26-12-1986.				
IVth Instalment as per letter No. G.O. Rt 1103/86	15,00,000.	00		
H&FWD dt. 31-3-1987			60,00,000.	00
Less: Part of the grant Capitalised and transferred to Balance Sheet.	22,49,636.	80		
			37,50,363.	20
" Investigation fee received			5,71,793.	50
" Interest received			53,537.	20
" Grant from Govt. of Kerala for Conducting International Course on Radio Biology for Indian Scientist as per G.O. Rt. No. 344/86/Plg dt. 2-4-1986.			2,000.	00
" Miscellaneous Receipts			6,760.	85
" Cytotechnician Course fees realised.			1,125.	00
" Closing stock of chemicals, films & Sundry medicals items etc.			2,26,696.	07
TOTAL			46,15,275.	82

**REGIONAL CANCER CENTRE SOCIETY,
CANCER CARE FOR
INCOME AND EXPENDITURE ACCOUNT FOR**

EXPENDITURE	Rs.	P.	Rs.	P.
To Advertisement & Publicity			3,02,361.	45
.. Printing & Stationery			33,108.	10
.. Travelling Expenses			577.	00
.. Processing and mailing charges of application forms & membership card.			70,315.	00
.. Miscellaneous Expenses			634.	50
.. Postage Expenses			582.	00
.. Expenditure in connection with Inauguration.			2,497.	00
TOTAL			4,10,075.	05

**TRIVANDRUM. (REGN. NO. 567/81)
LIFE SCHEME
THE PERIOD ENDED 31ST MARCH, 1987**

INCOME	Rs.	P.	Rs.	P.
By Sale of Application Forms			2,61,968.	00
.. Interest on Fixed Deposits			1,06,809.	30
.. Donations			26,759.	00
.. Excess of Expenditure over Income.			14,538.	75
TOTAL			4,10,075.	05

AUDITORS' REPORT

We have verified the above Income & Expenditure Account of the Regional Cancer Centre Society, Trivandrum (Cancer Centre and Cancer care for Life Scheme) for the year ended 31st March, 1987 and the Annexed Balance Sheet as at 31st March, 1987 with the Books of Account, Vouchers and other records produced before us and we certify the same to be correct as disclosed by the above records and subject to the following comments:-

1. Fixed Assets Register showing description of the asset, classification, location, cost etc. has not been maintained.
2. Stock Records for purchase and consumption of chemicals, films and other medical items have not been properly maintained. The closing stock of Rs. 2,29,696.07 on 31-3-1987 is based on Inventories furnished by different departments.
3. Advances include Rs. 21,940/- being travelling staff and other advances outstanding for more than one year.

Trivandrum,
12-8-1987.

Sd/-
POTTI & RAO
Chartered Accountants.

POTTI & RAO
Chartered Accountants

S. R. Buildings,
Aryasala Jn.,
Trivandrum-695 036

12-8-1987.

UTILISATION CERTIFICATE

Certified that the grant of Rs. 25,00,000 (Rupees Twenty-five lakhs only) received by the Regional Cancer Society, Trivandrum (Reg. No. 567/81) during the year 1986-87 from Ministry of Health and Family Welfare, Government of India, as per letters No. V- 22015/31/86-R dated 11-4-1986, 21-10-1986 and 5-1-1987 has been utilised for purchase of equipments and construction of building during the year 1986-87 in connection with the development of the Institute as Regional Cancer Centre for Research & Treatment.

Sd/-
POTTI & RAO
Chartered Accountants

POTTI & RAO
Chartered Accountants

S. R. Buildings,
Aryasala Jn.,
Trivandrum-695 036

12-8-1987.

UTILISATION CERTIFICATE

Certified that the total grant of Rs. 60,00,000/- (Rupees Sixty lakhs only) received by the Regional Cancer Centre Society, Trivandrum (Regn. No. 567/81) from Health (J) Department, Government of Kerala as per G. O. Rt. 2028/86/H & FWD dated 25-4-1986, G. O. Rt. No. 2987/86/HD dated 2-8-1986, G. O. Rt. No. 4499/86/H&FWD dated 26-12-1986 and G. O. Rt. 1103/87/H&FWD dated 31-3-1987 has been utilised by the Society during the year 1986-87 for the purpose of Chemotherapy and Nuclear medicine and allied services and for the purpose of maintainance of the Institution and other working expenses, implementation of projects, construction of buildings etc. and in connection with the functioning of Early Cancer Detection Centres.

Sd/-
POTTI & RAO
Chartered Accountants

REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM (REGN. NO. 567/81)
Schedule of Fixed Assets as on 31st March, 1987.

<i>PARTICULARS</i>	<i>W. D. V. as on 1-4-1986</i>	<i>Additions during the year</i>	<i>Deductions during the year</i>	<i>Balance as on 31-3-1987</i>	<i>Depreciation for the year</i>	<i>W.D.V. as on 31-3-1987</i>
Building (Under Construction)	44,47,909.28	38,63,817.84	—	83,11,727.12	—	83,11,727.12
Furniture & Fixtures	3,29,788.00	95,084.80	—	4,24,872.80	—	4,24,872.80
Office Equipments	98,257.00	231.50	—	98,488.50	—	98,488.50
Vehicles	1,01,346.00	907.95	—	1,02,253.95	—	1,02,253.95
Library Books	1,69,188.00	27,152.55	—	1,96,340.55	—	1,96,340.55
Hospital & Lab Equipments (Installed) (15116413.00)	1,51,16,413.00	8,40,105.94	—	1,59,56,518.94	—	1,59,56,518.94
Hospital & Lab Equipments (Uninstalled)	4,98,285.40	—	4,98,285.40	—	—	—
Lift/Elevators (Under Installation)	—	4,39,433.00	—	4,39,433.00	—	4,39,433.00
Electrical Installation & Fittings (Under Installation)	—	6,11,346.90	—	6,11,346.90	—	6,11,346.90
Air Conditioning (Under Installation)	—	1,96,407.00	—	1,96,407.00	—	1,96,407.00
Capital Work-in-progress	8,60,110.25	—	—	8,60,110.25	—	8,60,110.25
TOTAL	2,16,21,296.93	60,74,487.48	4,98,285.40	2,71,97,499.01		2,71,97,499.01

- Notes:*
- The deduction of Rs. 4,98,285.40 under Hospital Laboratory Equipments uninstalled represents equipment installed during the year & transferred to Installed Account.
 - Equipments Transferred from Uninstalled Account Equipments purchased & installed during the year

	4,98,285.40
	3,41,820.54
Total Equipments installed during the year	8,40,105.94
 - Capital Work-in-progress has not been transferred to Building Account, since completion certificates etc. have not been received from Public Works Department.
 - No depreciation has been provided on Fixed Assets as advised in letter No. 1771/J2/86/H&FWD dt. 31-1-1987 of Government of Kerala.

Trivandrum
12-8-1987

Sd/-
POTTI & RAO
CHARTERED ACCOUNTANTS

LIST OF STAFF

<i>Director</i>	—	Dr. M. Krishnan Nair
<i>Superintendent</i>	—	Dr. T. K. Padmanabhan
<i>Secretary (Academic)</i>	—	Prof. A. Joseph
RADIO THERAPY		
Dr. M. Krishnan Nair	—	Professor
Dr. T. K. Padmanabhan	—	Professor
Dr. F. Joseph	—	Associate Professor
Dr. C. S. Kuttappan	—	"
Dr. B. Rajan	—	"
Dr. T. Gangadevi	—	"
Dr. P. C. Jayaprakash	—	Assistant Professor
Dr. C. S. Rafeeka Beegum	—	"
Dr. V. Narayana Bhattathiri	—	"
Dr. Jayaprakash Madhavan	—	"
Dr. C. S. Madhu	—	Tutor
Dr. A. Sudhakaran	—	"
Dr. P. R. Sasindran	—	"
Dr. K. Ratheesan	—	Lecturer
DENTAL SECTION		
Dr. L. Sudha	—	Tutor
Dr. K. R. Nalina Kumari	—	Lecturer
Smt. Krishnambal	—	Dental Hygienist
Sri. P. R. Chandrasekharan Nair	—	Dental Hygienist
NUCLEAR MEDICINE		
Dr. P. Ramachandran Nair	—	Associate Professor
Dr. V. Padmanabhan	—	Assistant Professor
Dr. V. M. Pradeep	—	Lecturer
Sri. Raghuram K. Nair	—	Lecturer
RADIATION PHYSICS		
Dr. T. P. Ramachandran	—	Associate Professor
Sri. P. G. Gopalakrishna Kurup	—	Associate Professor

Sri. C. A. Davis	—	Assistant Professor
Sri. Thayal Singh Elias	—	Lecturer
Smt. B. Vimala	—	Radiographer
Sri. N. Sadasivan Nair	—	"
Smt. Suseelamma	—	"
Sri. V. Gangadharan	—	"
Smt. P. Seetha	—	"
Sri. C. Viswanathan	—	"
Smt. M. Leela	—	"
Sri. Georgy Mathews	—	"
Smt. Raheena Beegum	—	"
Smt. V. Sheela	—	"
Smt. Valsalakumari Amma	—	"
Sri. Joe D'Cruz	—	"
Sri. K. P. Radhakrishnan	—	"
Sri. K. B. Hari	—	"
Smt. P. Sujatha	—	"
Sri. T. Prasad	—	"
Sri. David Raj	—	"
Sri. P. Ramabhadran	—	"
Sri. N. Satheesh Kumar	—	"
Sri. S. Sreenivasan	—	Radium Technician

CYTOLOGY

<i>Dr. N. Sreedevi Amma</i>	—	<i>Prof</i>
Dr. M. K. Lalitha Bai	—	Professor
Dr. B. Chandralekha	—	Associate Professor
Dr. B. Kumari Chandrika	—	Associate Professor
Dr. Elizabeth K. Abraham	—	Assistant Professor
Smt. J. Ambujakshi	—	Senior Scientific Officer
Sri. G. Raghunathan Nair	—	Cytologist
Sri. K. Vijayagopal	—	Junior Research Officer
Sri. P. Gopalakrishnan	—	Research Assistant
Smt. K.S. Ponnamma	—	Lab. Technician Gr. I
Sri. R. Muraleedharan	—	Cytotechnologist
Smt. Anandavally	—	Lab. Technician Gr. II
Smt. S. Najeeya	—	"
Smt. Sathy Ammal	—	U.D. Typist
Sri. S. Venugopal	—	Technician
Smt. Molykutty John	—	Cytotechnologist

CANCER SURGERY

Dr. Thomas Cherian	—	Assistant Professor
Dr. Gladys Geevy	—	Anaesthetist
Dr. Paul Sebastian	—	Lecturer
Dr. Iqbal Ahamed	—	Lecturer
Sri. R. Harikumar	—	Theatre Assistant
Smt. S. Geetha	—	Staff Nurse
Smt. P. A. Babu	—	Staff Nurse

PAEDIATRIC ONCOLOGY

Dr. P. Kusuma Kumari	—	Lecturer
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. Raveendran Ankathil	—	Scientific Officer
Mr. Thomas Abraham	—	Scientific Officer
Smt. B. Padmavathy Amma	—	Technical Officer
Sri. Robinson	—	Lab. Technician Gr. II
Smt. C. Gangadevi	—	"
Smt. J. Usha	—	"
Smt. A. Leela	—	Animal House keeper-cum-attender
Sri. K. Vikraman Nair	—	"

Hospital Cancer Registry and Medical Records

Sri. P. Gangadharan	—	Associate Professor of Cancer Epidemiology (Statistics)
Dr. R. Sankaranarayanan	—	Assistant Professor of Cancer Epidemiology (Medical)
Sri. S. Muraleedharan Nair	—	Medical Statistician
Sri. R. Raveendran Nair	—	Medical Records Officer
Smt. C. Padmakumari Amma	—	Senior Research Fellow

R. Ramani Nair

6/3

1

1

Smt. P.T. Latha	—	Social Investigator
Smt. Anitha Nair	—	Social Investigator
Smt. Jalajakumari V.	—	Clerk
Sri. L.G. Amaldas	—	"
Sri. G. Rajasekharan Nair	—	"
Smt. C. Sreedevi Kutty	—	Typist
Sri. Shibukumar K.	—	Clerk-Typist
Sri. B. Sreekumar	—	Coding Clerk
Smt. D. Chandrika	—	Coding Clerk
Smt. S. Ponnammal	—	Receptionist
Sri. S. Vijayan Nair	—	Sergeant
Sri. S. Rajayyan	—	Technical helper

Community Oncology :

Dr. Babu Mathew	—	Associate Professor	(1)
-----------------	---	---------------------	-----

Administrative Officer :

Sri. E. U. Aravindakshan	—	Administrative Officer
Sri. Joseph Stephen	—	Finance and Accounts Officer
Sri. C. Somasekharan Nair	—	Financial Assistant
Sri. K. Parameswaran	—	Secretary and Confidential Assistant
Sri. P. K. Viswanatha Menon	—	Cashier-Cum-Accountant
Sri. C. Gnaneswaran	—	Accountant
Sri. C. C. Thankamani	—	Confidential Assistant
Smt. R. Sudevi	—	"
Smt. B. Savithri Amma	—	"
Smt. Mallikadevi S.	—	"
Sri. S. V. Sasikumar	—	Office Assistant
Sri. N. Ramaswamy Iyer	—	"
Smt. N. Beena	—	"
Smt. B. Lalitha	—	"
Sri. K. Sasikumar	—	"
Sri. T. Padmakumar	—	"
Smt. J. Ragini Amma	—	Clerk-Typist
Sri. P. Krishnan Nair	—	Driver
Sri. P. Sreekumaran Nair	—	Driver

Sri. M. Subair	—	Helper
Sri. P. Antony	—	"
Sri. K. Devaraja Panicker	—	"
Sri. G. Surendran	—	"
Sri. R. Anil Kumar	—	"
Sri. C. Hari	—	"
Sri. Thankappan Chettiar K.	—	"
Sri. K. G. Balachandran	—	"
Sri. P. Gopakumar	—	"
Sri. P. S. Suresh	—	"
Sri. L. Balachandran	—	"
Sri. K. Sivankutty	—	"
Sri. S. Senan	—	"
Smt. P. Seethalekshmi	—	"

Engineering Wing :

Sri. C. Gopalakrishnan Nair	—	Chief Construction Engineer
Sri. R. Raveendranathan Nair	—	Project Engineer
Sri. V. Subramonian Potti	—	Asst. Project Engineer
Sri. P. Rajagopalan	—	Asst. Engineer
Sri. R. Asokan Nair	—	Ist Grade Overseer
Sri. P. Krishna Pillai	—	U. D. Typist
Smt. P. Suseela	—	Confidential Assistant
Sri. Jose T. Jose	—	Accountant

Early Cancer Detection Centre, Ernakulam :

Dr. B. Syamalakumari	—	Cytopathologist	(1)
Smt. C. Radha	—	Cytotechnologist	
Smt. Mercy Joseph	—	Cytotechnologist	
Sri. K. Sujathan	—	Cytotechnician	
Sri. P. K. Ajayakumar	—	Cytotechnician	
Smt. T. P. Ramani	—	L. D. Typist	
Smt. L. Madhavikutty Amma	—	Staff Nurse	
Sri. K. N. Viswambaran	—	Jr. Laboratory Asst.	
Smt. N. Santhakumari	—	Hospital Attendant Gr. II	
Sri. P. M. Abdul Rahiman	—	Helper	

Early Cancer Detection Centre, Palghat:

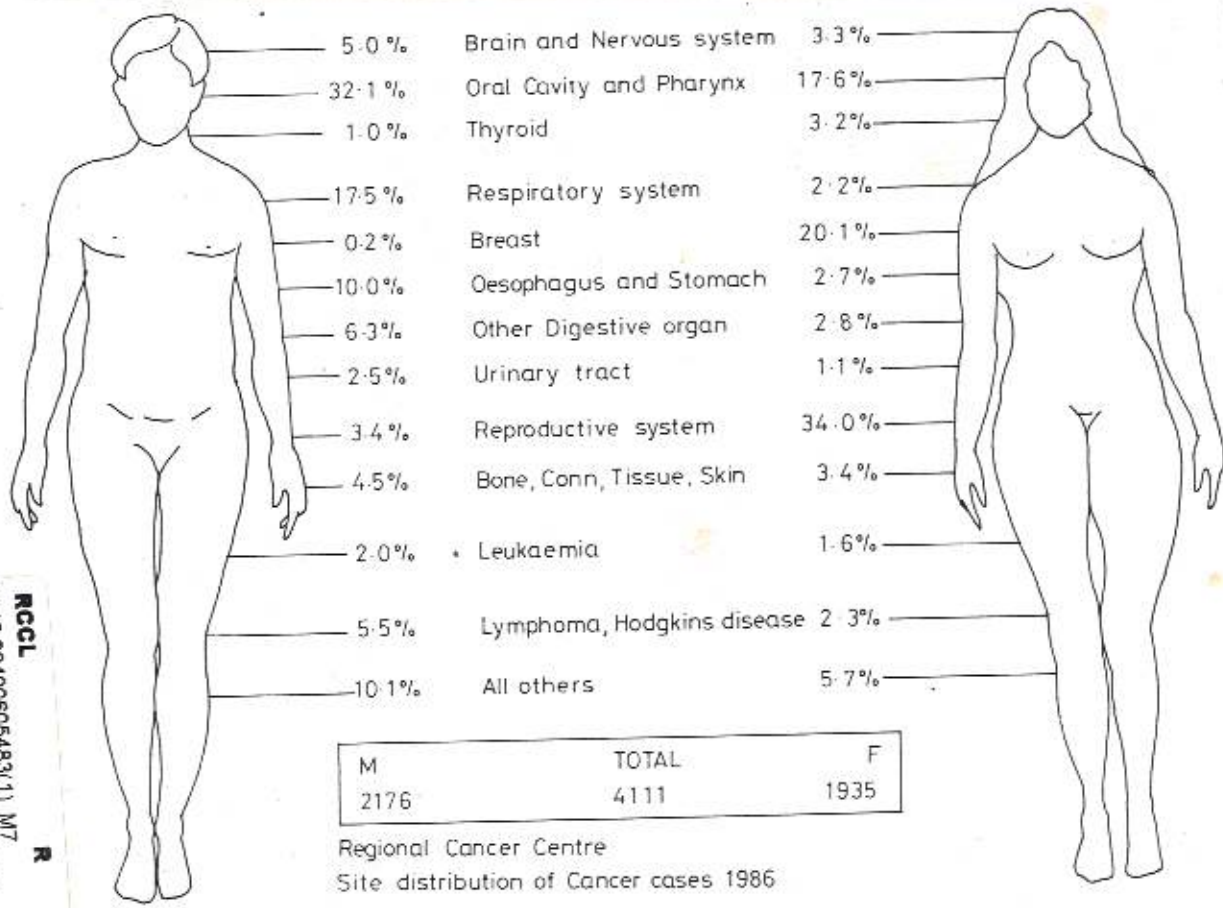
Dr. R. Ananda Kamath	—	Cytopathologist
Sri. Raveendran Pillai	—	Cytotechnologist
Smt. Sheeba Mathew	—	Cytotechnician
Sri. K. S. Jayalal	—	Cytotechnician
Smt. P. C. Bhavani	—	Staff Nurse
Smt. Anna Mary Danath	—	Lab. Assistant
Smt. Lekshmikutty	—	Hospital Attendant Gr. II
Sri. G. Dass	—	Helper

ACKNOWLEDGEMENTS

- Government of India, Ministry of Health & Family Welfare.
- Government of India, Department of Science & 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.
- 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.
- University of British Columbia – Environmental Carcinogenesis Unit, Vancouver, Canada.
- Bhabha Atomic Research Centre, Trivandrum.
- 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.
- Kerala State Committee on Science, Technology and Environment, Trivandrum.
- Director, 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 and Children, Trivandrum.
Dean, Dental College, Trivandrum.
Prof. E. J. Ambrose, Professor Emeritus, London University.
Dr. Dorothy Pearson, Christie Hospital, Manchester.
Dr. Patricia Morris Jones, Royal Manchester Children Hospital, Pendelbery.
Dr. Calvin Zippin, Director, Tumour Registry, San Francisco.
Dr. A. B. Miller, Director, Epidemiology Unit, National Cancer Institute, Canada.
Dr. T. Hirayama, Director, Institute of Preventive Oncology, Tokyo, Japan.
Dr. L. D. Sanghvi, Project Officer, National Cancer Registry Project, Bombay.
Dr. J. A. Forrester, Chester Beatty Laboratories, London.
Dr. N. W. Johnson, Dept. of Dental Sciences, Royal College of Surgeons, London.
Dr. R. Sri Pathmanathan, Consultant Monklands District General Hospital, U. K.
Dr. A. D. 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. R. Sundha Gangal, Cancer Research Institute, Tata Memorial Hospital, Bombay.

Dr. D. J. Jussawalla, Tata Memorial Centre, Bombay.
Dr. V. Shanta, Director, Cancer Institute, Mardas.
Dr. P. B. Desai, Director, Cancer Institute, Bombay.
Dr. R. D. Ganatra, Head, Radiation Medical Centre, Bombay.
Dr. M. Krishna Bhargava, Director, Kidwai Memorial Institute of Oncology, Bangalore.
Dr. B. D. Gupta, Post Graduate Institute, Chandigarh.
Dr. Sneh Bharagava, All India Institute of Medical Sciences, New Delhi.
Smt. B. Saradamma, Controller of Stationeries, Government of Kerala, Trivandrum.
Mr. B. Trivikraman Pillai, Dy. Director of Census Operations, Kerala.
Director, Bureau of Economics and Statistics, Kerala.



RCCL
 616.99400605483(1) M7
 207920
R

Regional Cancer Centre
 Site distribution of Cancer cases 1986