



89-90

REGIONAL CANCER CENTRE

TRIVANDRUM


616.994006054
830 NO;1



REGIONAL CANCER CENTRE
TRIVANDRUM-695 011, KERALA, INDIA

REPORT OF ACTIVITIES 1989-'90

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The New building of the Regional Cancer Centre,
Trivandrum. (I Phase) inaugurated on 17-8-'89.



Shri. E. K. Nayanar, Hon'ble Chief Minister inaugurating the New building of the R.C.C. on 17-8-'89, at a function presided over by Shri. A. C. Shunmughadas, Hon'ble Minister for Health.

Distinguished Speakers who paid glorious felicitations during the inaugural meeting on 17-8-'89.





The Out Patient Department in the New building of the Regional Cancer Centre.



Patient Services Counter in the New building of the R. C. C.



"FLASH BACK" Foundation Stone for the Regional Cancer Centre's building was laid on 11-9-84 by Shri K. Karunakaran the then Chief Minister of Kerala.

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INTRODUCTION

The year under report, 1989-90, was to us one of gratification, fulfilment and happiness as the long cherished dream of all of us of constructing a very modern hospital became a reality. This building was inaugurated on the 18th August, 1989 (1st of Chingom ME 1165). The occasion was kindly graced by the Hon'ble Chief Minister and the Hon'ble Minister for Health and Family Welfare.

Despite the fact that the concept of the Regional Cancer Centre and its philosophy of multi-disciplinary cancer management were initially not fully understood even by those in the profession, it was laudable that the programme of construction could be completed in record time and the building was commissioned. The credit goes to a very great extent to the public support thoughtfulness of the professionals, timely political decisions and administrative support for this programme.

Presently the new building accommodates all the offices, outpatients, imageology department, service area, research laboratories, library, national tumour registry, surgical oncology and medical oncology divisions.

Academic and research activities made tremendous progress in this institution during this year. Some of the faculty members received national and international awards for excellent research publications. In recognition of the high standard of research activities two major projects were sanctioned to this Centre. One of the two preventive oncology centres sanctioned in the country was allotted to this Centre.

This year marked the beginning of a series of symposia under the title "Oncology for the 21st Century"; the first in the series was inaugurated on 14-11-1989 in commemoration of

the birth centennial of Pandit Jawaharlal Nehru. Six eminent oncologists from U. S. A. participated in this symposium.

During this year we received information that a C.T. Scanner costing nearly Rs. 150 lakhs under Japanese Aid Scheme has been allotted to the Centre.

The interest taken in the developmental activities of this centre by the Hon'ble Chief Minister and the Hon'ble Minister for Health and Family Welfare are worth mentioning in this report. We wish to place on record our gratitude to them for their unstinted co-operation.

This report for the year 1989-90 contains details of activities of all divisions and the audited statement of accounts.

DEPARTMENTAL ACTIVITIES

DIVISION OF RADIOTHERAPY

Dr. M. Krishnan Nair	—	Director
Dr. T. K. Padmanabhan	—	Professor
Dr. F. Joseph	—	Professor
Dr. B. Rajan	—	Associate Professor
Dr. T. Ganga Devi	—	Associate Professor
Dr. C. S. Kuttappan	—	Associate Professor
Dr. P. G. Jayaprakash	—	Associate Professor
Dr. S. Parameswaran	—	Assistant Professor
Dr. V. Narayana Bhattathiri	—	Assistant Professor
Dr. Jayaprakash Madhavan	—	Assistant Professor
Dr. R. Gireesan	—	Assistant Professor
Dr. C. S. Madhu	—	Tutor
Dr. M. Jamaludeen	—	Tutor
Dr. S. Salahudeen	—	Tutor
Dr. K. Ratheesan	—	Lecturer

MEDICAL ONCOLOGY WING

Dr. V. P. Gangadharan	—	Assistant Professor
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CLINICAL SERVICES

1. Number of new cases	—	5110
2. Number of outpatient visits	—	45512
3. Number of inpatient cases	—	2877
4. Number of cases treated with brachytherapy	—	688
5. Number of cases treated with interstitial implantation	—	98

6.	Number of cases treated with mould treatment	—	15
7.	Number of cases treated with intracavitary oesophagus	—	52
8.	Number of cervix cases treated with preloading radium application	—	6
9.	Number of cervix cases treated with manual afterloading caesium application	—	66
10.	Number of cervix cases treated with Selectron	—	451
11.	Number of cases treated with Chemotherapy	—	9112

ACADEMIC ACTIVITIES

As in previous years Morning Clinics were conducted on all working days where interesting cases were discussed. The paediatric tumour board was conducted every Monday and Head and Neck Clinic on Thursdays. The clinicopathological conference was conducted once a month. Surgical tumour board and Gastroenterology Tumour Board were conducted once a month. Journal Club and symposium were held every Saturday and Imageology session every Friday.

ONGOING TEACHING PROGRAMMES

MD Radiotherapy	—
Dip NB Course	—
Diploma in Medical Radiotherapy (DMRT)	—
MD Radiodiagnosis (Part time)	—
MD General Medicine	—
MS General Surgery	—
MD Obstetrics & Gynaecology	—
MS Orthopaedics & D. Ortho	—
MS ENT & DLO	—
MBBS Classes	—
B.Sc. Nursing	—
M.Sc. Nursing	—
C.R.A (Certified Radiological Assistants Course)	—

Postgraduate students in Obstetrics & Gynaecology are posted in radiotherapy department for one month.

TRAININGS/CONFERENCES ATTENDED

Dr. T. K. Padmanabhan & Dr. Jayaprakash Madhavan visited Christie Hospital and Holt Radium Institute, Manchester between October 1989 – January 1990 (British Council Programme).

Dr. S. Parameswaran visited School of Medicine, University of California, San Francisco, USA between February 1989 - May 1989 (ICRETT FELLOWSHIP)

Dr. Jayaprakash Madhavan attended the IIIrd International Conference on Brachytherapy, Bangalore - March 14-15, 1990.

Dr. M. Krishnan Nair attended the VI Varian European Meeting at Italy between 31st May to June 4th, 1989.

Dr. M. Krishnan Nair attended the 17th International Congress of Radiology at Paris between 1st to 8th July, 1989.

Dr. M. Krishnan Nair attended the A. R. O. I. meeting at West Bengal between 9th & 10th December, 1989.

Dr. M. Krishnan Nair attended the 18th A. C. I. A. P. Conference at Ernakulam between 13-14th January, 1990.

PAPERS PUBLISHED

1. Sankaranarayanan R; Duffy SW; Day NE; Padmakumari G; Padmanabhan T. K. Tobacco Chewing, Alcohol and nasal snuff in cancer of the gingiva in Kerala, India. *Br J Cancer* 1989; 60: 638-643.
2. Sankaranarayanan R; Duffy SW; Day NE; Krishnan Nair M; Padmakumari G. A case control investigation of cancer of the oral tongue and the floor of mouth in Southern India. *Int. J Cancer* 1989; 44: 617-621.
3. Padmanabhan T. K; Sankaranarayanan R; Krishnan Nair, M. Evaluation of local control, survival and pattern of failure with Radiotherapy in cancer of the oral tongue. *Oncology* 1990; 47: 121-123.

4. Stich HF; Brunneimari K; Mathew B; Sankaranarayanan R; Krishnan Nair M. Chemopreventive trials with Vitamin A and Beta Carotene: Some unresolved issues. *Prev Med* 1989; 18: 732-739.
5. Stich HF; Rosin MP; Hornby AP; Mathew B; Sankaranarayanan R; Krishnan Nair M. Pilot intervention studies with Carotenoids. Monograph on carotenoids, Plenum Press, New York, 1989.
6. Stich HF; Mathew B; Sankaranarayanan R; Krishnan Nair M. Remission of precancerous lesions of oral cavity of tobacco chewers and maintenance of protective effects of Betacarotene or Vitamin A. *Am J Clin Nutr* (in press)
7. Stich HF; Palcic B; Sankaranarayanan R; Mathew B; Krishnan Nair M. Quantitation of Chromatin patterns by image analysis as a predictive tool in chemopreventive trials with Vitamin A. In: Experimental and Epidemiologic applications to risk assessment of complex mixtures. IARC Sci Publ. International Agency for Research on Cancer, Lyon, 1990.
8. Sankaranarayanan R; Duffy SW; Krishnan Nair M; Padmakumari G; Day NE. Tobacco and alcohol as risk factors in cancer of the larynx in Kerala, India. *Int. J Cancer* 1990;

DIVISION OF SURGICAL ONCOLOGY

Dr. Thomas Cherian	: Assistant Professor
Dr. Paul Sebastian	: Assistant Professor
Dr. M. Iqbal Ahamed	: Assistant Professor
Dr. K. L. Jayakumar	: Resident Surgical Officer
Dr. P Sivaramakrishnan	: Resident Surgical Officer
Dr. Moly Joseph	: Lecturer
Dr. Gladys Jeevy	: Anaesthetist.

CLINICAL:

Surgical Oncology outpatient functions on six days in a week. All surgical cases registered in the Centre and also those referred from the Medical College or elsewhere are seen in the O.P. Also all follow ups are routinely seen in the O.P. Due to the limitations in our present set up, we are still forced to limit the number and field of surgeries we undertake. We hope to start abdominal surgery and also increase the number of operations undertaken once our theatre and wards in the new building are commissioned. During the reporting year a total of 394 surgeries were undertaken, of which 228 were major operations, most taking 6 to 8 hours or more. It is gratifying to report that in spite of the general poor conditions, advance age and extensive surgical procedures involved, we had no operative deaths, so far. This year, there were 6 perioperative deaths due to unrelated causes. Majority of our cases are still recurrent carcinoma of the oral cavity following radical XRT. In spite of the extensive nature of the lesions involved, the results are comparable to those achieved in any of the advanced centres of the world. The detailed pathological analysis of the excised specimens show that we have been able to achieve tumour clearance all around the margins and base in almost 96% of cases. The split up of the detailed analysis of 159 cases followed up till the date of reporting are as follows:

TABLE I

MAJOR OPERATIONS (1989-'90)

Carcinoma buccal mucosa	59
Carcinoma tongue	48
Carcinoma lower alveolus	49
Carcinoma floor of mouth	4
Carcinoma lip (upper)	2
Carcinoma lip (lower)	5
Fluoringuinal block dissection	3
Metastatic adenocarcinoma scalp	1
Malignant melanoma	2
Other skin tumours	4
Carcinoma penis	3
Soft tissue sarcoma	5
Orbital malignancy	3
Ectopic salivary tumours	2
Submandibular salivary tumours	1
Parotid tumours	2
Carcinoma thyroid	12
Carcinoma breast	21
Total	228
MINOR OPERATIONS	166
Grand Total	394

Detailed analysis till the date of reporting of our major surgical problem namely the cancer of the oral cavity are as follows.

TABLE II

CARCINOMA BUCCAL MUCOSA

Total number of cases done	59		
Cases analysed	47		
Primary surgery	3		
Salvage surgery	44		
Plisimus	15/47		
Surgery at the primary site only	5		
Primary and node dissection	42		
Reconstruction	37		
Primary closure	10		
Tumour clearance at the margins			
Free	30	65.2%	96.7%
Free, but close	5	10.8%	
Dysplastic	9	19.5%	
Positive	2	4.3%	4.3%
Flaps used:			
Pectoralis major myocutaneous flap	18		
Sterno-mastoid -do-	11		
Deltopectoral	4		
Nasolabial	3		
Platysma	2		
Recurrence:			
Local	10		
Nodal	5		

Of the 10 local recurrences 3 patients had second surgery and 1 is NED at present. Of the 5 nodal recurrences, 4 were on the unoperated opposite side of the neck, 1 had functional neck dissection and is NED now. Others refused surgery.

TABLE III

CARCINOMA TONGUE

Carcinoma tongue	Total	—	48	
Cases analysed		—	33	
Primary surgery		—	8	
Following radium implant		—	14	
Post XRT surgery		—	11	
Partial glossectomy		—	12	
Hemiglossectomy		—	8	
Subtotal glossectomy		—	5	
Neck Dissection alone		—	8	
Tumor clearance at the margins				
Free		—	20	} 96.96%
Close		—	4	
Dysplastic		—	8	
Positive		—	1	3.04%
Recurrence:				
Local		—	3	} 21.2%
Nodal		—	3	
Local + Nodal		—	1	
Reconstruction				
Flaps:				
Nasolabial flaps		—	8	
Pectoralis major		—	5	
Sternomastoid		—	2	

All cases who had substantial loss of tongue leading to functional deficit had primary reconstruction restoring adequate functions.

TABLE IV

Lower alveolus	Total	—	48	
Analysed		—	19	
Primary surgery		—	2	
XRT followed by surgery		—	17	
Tumour clearance at the margins:				
Free		—	13	} 94.7%
Close		—	1	
Dysplastic		—	4	
Positive		—	1	5.3%
Recurrence				
Local		—	5	
Nodal		—	1	
Distant metastasis (Chest wall)		—	1	
Death		—	1	
NED		—	10	
Lost to follow up		—	1	

It is interesting to note that local recurrences manifested during the first year. Later appearances of lesions were always found wide of the primary site. Most of these people had severe dysplastic changes in the oral cavity denoting that these recurrent lesions should be taken as fresh primaries rather than local recurrences.

Our policy of primary reconstruction in all cases following radical ablative surgery for recurrent carcinoma helps very much in the early rehabilitation, physical, functional and emotional. This centre insists on our own techniques for reconstruction. We have now perfected a simple technique for reconstruction of the arch of the mandible with good cosmetic and functional results (Figs. 1 to 4).

ACADEMIC:

Being responsible for the academic programmes of the Medical College, Trivandrum, we are involved in the undergraduate and postgraduate training programmes. This division

takes active part in all the academic activities of the centre, mainly Noon Clinics, Seminars, Workshops and helps in research work.

PAIN CLINIC is conducted once a week. Cancer patients in whom all the other modalities have failed are referred to Pain Clinic for pain and symptom management. Mainly oral drugs are given and WHO step ladder analgesic pattern is followed. Drugs for steps I & II are tried with good results. Drugs for 2 weeks are supplied with specific prescription forms, dose of tablets and time to be given are explained to the patients and their relatives.

174 new advanced cases were referred to pain clinic. Only 9 patients could be given Step I drugs and others needed Step II drugs. 419 repeat cases were also seen during this period. 10% of cases come regularly once in two weeks to collect drugs with acceptable pain relief for about 8 months. With Step II, 25% had 3 months of acceptable pain relief, 45% had pain relief for one month. 30% did not have relief with Step II and had to be given injectable narcotics. We hope to get oral morphine (Step III) which would give good pain relief without injections.

TABLE V
DISTRIBUTION OF LESIONS

<i>Site</i>	<i>Number</i>
Buccal mucosa	47
Tongue	35
Lower alveolus	24
Carcinoma cervix	20
Palate	7
Maxilla	3
Tonsil	2
Lung	5
Oesophagus	3
Larynx	8
Breast	9
Liver	1
Soft tissue sarcoma	5
Ovary	1
Vagina	4



2

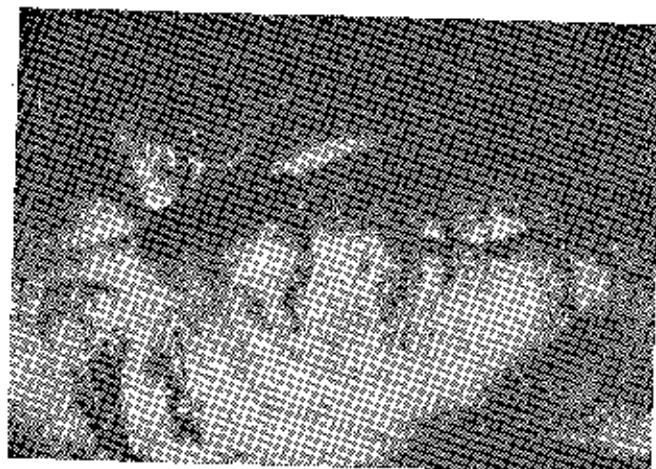
Carcinoma of the arch of mandible pre operative views.

1



4

Post operative views of the same patient.



3

One Syringe Driver was donated to this division by Miss Gillian Burn, an Expert on Palliative care from U. K. on 14-2-1990. This apparatus is effectively used in controlling the pain by giving continuous subcutaneous morphine infusion. She visited our Centre and delivered a talk on "Palliative care in advanced malignancy" to the academic and nursing staff of the Regional Cancer Centre.

ANAESTHESIOLOGY :

For a total of 204 major cases G. A. was given. All cases were examined preoperatively and concurrent diseases were treated as far as possible. 10% of the cases were high risk patients due to cardiac decompensation and were operated. There were no preoperative casualty. More than 75% patients were anaemic and had dehydration with varying degree of electrolyte imbalance. Average age group was 55 yrs. Oldest case was a 86 yr old man. Average duration of anaesthesia - 4 hours. 17 patients had total trismus and blind nasal intubation was done for them. One patient came for 3rd operation and her larynx was distorted completely and blind nasal intubation failed and retrograde railroad method was tried with success.

CONCURRENT DISEASES WITH ASA GRADE III

1.	Hypertension	—	32
2.	Respiratory infection with bronchitis bronchiectasis, asthma and emphysema	—	15
3.	Lateral wall ischaemia	—	10
4.	Unstable angina	—	2
5.	Lt. Ventricular hypertrophy	—	3
6.	R.B.B.	—	5
7.	Atherosclerotic aortic valve disease	—	6
8.	Mitral valve stenosis	—	2
9.	M.V.P.	—	4
10.	Diabetes mellitus	—	6
11.	Epilepsy	—	2
12.	Parkinsonism	—	1

Balanced techniques of anaesthesia with controlled ventilation was used in all cases. Patients had complete recovery and had no residual paralysis. All reflexes returned soon after surgery and extubation was done for all cases on the table as patients were alert. Postoperative pain was managed with analgesic injections. 5 cases had spinal anaesthesia, others had either regional blocks or Ketamine anaesthesia.

CONFERENCES & WORKSHOPS:

1. Dr. Thomas Cherian, Dr. Paul Sebastian, Dr. K. L. Jayakumar, Dr. M. Iqbal Ahamed } CME programme and Endoscopy Workshop on Endoscopy, ASI Kerala Chapter 13th & 14th May, 1988 Trivandrum.
2. Dr. Thomas Cherian, Dr. Paul Sebastian } International Congress on Oral Cancer - New Delhi - 13-17th November, 1989.
3. Dr. Paul Sebastian, Dr. Jayakumar, K. L., Dr. P. Sivarama-krishnan } Workshop & T.T.P. on Head and Neck Cancer - December 1989 Bombay.
4. Dr. Gladys Jeevy } Biennial Conference of Indian Society of Oncology & Preconference Workshop on management of cancer pain and hospice. 7-12 February 1990 at Ahmedabad.
5. Dr. Gladys Jeevy } Satellite meeting of VIth World Congress on Pain with VIth All India Conference on pain - 24-26th March 1990 at Bombay.

PAPERS PRESENTED:

1. A simple technique of primary stage reconstruction of lateral defect of the lip with good cosmetic and functional results - International Congress on Oral Cancer, New Delhi 13-17th November, 1989.
Dr. Thomas Cherian, Dr. Paul Sebastian, Dr. Iqbal Ahamed, Dr. Jayakumar, K. L. and Dr. P. Sivarama-krishnan.

Reconstruction of a functional tongue following glossectomy for recurrent carcinoma. A 5 year experience. International Congress on Oral Cancer, New Delhi 13-17th November, 1989.

Dr. Thomas Cherian, Dr. Paul Sebastian, Dr. Iqbal Ahamed, Dr. K. L. Jayakumar and Dr. P. Sivarama-krishnan.

Salvage Surgery for postirradiation recurrent carcinoma of the buccal mucosa - International Congress on Oral Cancer, New Delhi - November 1989.

Dr. Paul Sebastian, Thomas Cherian, Dr. Iqbal Ahamed, Dr. K. L. Jayakumar, Dr. P. Sivarama-krishnan.

Implementation of WHO Cancer Pain Programme in Kerala. IV Biennial Conference of Indian Society of Oncology Workshop on management of cancer pain and Hospice at Ahmedabad 7-12, February, 1990.

Dr. Gladys Jeevy.

Simple oral analgesics in the management of advanced Cancer Pain at Satellite meeting of VI World Congress on Pain with VI Annual All India Conference on Pain at Bombay 24-26th March, 1990.

Dr. Gladys Jeevy, Dr. Paul Sebastian, Dr. M. Krishnan Nair.

DIVISION OF PAEDIATRIC ONCOLOGY

Dr. P. Kusumakumary — Assistant Professor

Dr. S. Rajeev Kumar — Lecturer

All the paediatric oncology cases were registered in this division.

Clinical activities:

Number of new patients seen	— 201
Total No. of outpatient visits	— 3185
Inpatient admission	— 248

The following is the list of new cases registered.

Leukaemias	— 57 (28.4%)
Brain Tumours	— 41 (20.5%)
Lymphomas	— 16 (8%)
Soft tissue sarcomas	— 8 (4%)
Bone tumours	— 10 (5%)
Wilm's Tumours	— 6 (3%)
Retinoblastoma	— 7 (3.5%)
Neuroblastoma	— 4 (2%)
Germ Cell Tumours	— 8 (4%)
Hepatoblastoma	— 5 (2.5%)
Histiocytosis	— 9 (4.5%)
Miscellaneous	— 31

As in the previous years the most common malignancy in this age group was acute leukaemias of which 3/4 were acute lymphatic leukaemia and the remaining were acute myeloid leukaemia. Only one case of chronic myeloid leukaemia of adult type, was encountered.

Brain tumours constituted the second large group. Among the brain tumours gliomas were most common. There was not much change in the relative frequencies of other solid tumours except a slight reduction in the number of Wilm's tumour and neuroblastoma.

Outpatient clinic in paediatric oncology is being held on all days except Sunday as in previous years. Detailed diagnostic work up of all the patients were done as a routine. This included complete haematology, blood biochemistry urinalysis, bone marrow aspiration/trephine biopsy, aspiration cytology in relevant cases, C.S.F. studies, ultrasound, X-rays and C.T. Scan. About 300 bone marrow aspiration and biopsies and 450 lumbar punctures for diagnosis and therapy were done.

Surgery was the primary modality of treatment for solid tumours followed by irradiation and or chemotherapy depending upon the diagnosis and stage of disease. Chemotherapy was given to all cases of acute lymphatic leukaemia. Patients requiring aggressive chemotherapy were admitted to the wards and appropriate treatment were given.

A well organised and co-ordinated multi-disciplinary team consisting of Paediatric Oncologist, Paediatric Surgeons, Pathologist and Radiation Oncologist meet every Monday at 12.00 upon and major management decisions were taken by this team as in previous years.

Academic activities:

The division imparted teaching and training to M.D. Radiotherapy, D.M.R.T., M. D. Paediatrics students of Medical College, Trivandrum.

Dr. P. Kusumakumary is a Co-guide for M. D. thesis in Pathology of Dr. Meena on "Rhabdomyosarcoma in Childhood", M.D. thesis in Paediatrics of Dr. Chandrasekharan on "Solid Tumours in children".

Dr. P. Kusumakumary is a Co-investigator for Science and Technology funded project on "Immunohistochemical staining of childhood Rhabdomyosarcoma and correlation with prognosis". This work is in progress.

Conference attended:

Dr. P. Kusumakumary attended the 18th Annual Conference of I. A. P. Kerala Chapter held at Ernakulam on 13th & 14th January, 1990.

Dr. P. Kusumakumary attended a Symposium on Research methods in Clinical Oncology held on 23-25th February, 1990 at Tata Memorial Hospital, Bombay.

Papers published:

Chellam, V. G.; Elizabeth Chacko; Kusumakumary P; Surendran, N - "Clear Cell Sarcoma of Kidney (CCSK) - A clinicopathological study of 4 cases" - Indian Journal of Cancer, Vol 26 (1989) p 120-128.

DENTAL WING

Dr. K. R. Nalinakumari : Lecturer

Main activities of this division are:-

1. Dental extraction
2. Biopsies
3. Preparing bite blocks, prosthetic appliances
4. Preparing moulds.
5. Management of precancerous and other oral lesions.
6. Participation in research projects.

During the year 1989-90, the following services were rendered.

1. Total number of sittings of patients	—	2357
2. Number of biopsies	—	654
3. Number of bite blocks and moulds	—	79
4. Number of new cases	—	760
5. Miscellaneous S. R.	—	9

Details of sites and numbers of biopsies

Buccal Mucosa		
(a) Right B. M.	—	131
(b) Left B. M.	—	166
Tongue including		
(a) Right border of tongue,	}	— 135
(b) Left border of tongue		
(c) Dorsum of tongue		
(d) Other sites of tongue		
Floor of mouth	—	18
Under surface of tongue	—	1
Alveolus (a) Upper alveolus		
(Right and left)	—	21
(b) Lower alveolus (Right and left)	—	68
Palate — Hard palate and soft palate	—	25
Lip — Upper lip and lower lip	—	35
Commissure Right and left	—	22
Upper sulcus	—	3
Lower sulcus	—	11
Retromolar region — Right and Left	—	25

As in the previous years, most of the cases with poor oral hygiene, total dental extraction was done at the earliest. Bite blocks are prepared for patients who require radiation. We also prepare moulds for cases requiring radium brachytherapy in sites like hard palate, maxillary antrum and lip cases.

We usually attend cases with precancerous lesions like leukoplakia, S M F and other oral lesions like lichenplanus, erythroplakia etc. We give proper guidance on oral hygiene, oral prophylaxis and advice on modified diet to the patients with precancerous and cancerous lesions. We give monthly check up to these patients.

Biopsies were taken from almost all the suspected cases of oral lesions. We could help a few patients to get free from disease by proper diagnosis, treatment as well as complete excision of the disease.

Research activities:

The Dental section of the Regional Cancer Centre is not directly conducting any research work under the schemes of ICMR, DSTE, CSIR, DST, BRN, BCCA scheme but this wing is giving full co-operation especially in supplying the clinical materials to the various divisions of this centre.

We are also involved in the research activities and are collaborating with research division as well as the radiotherapy department. In addition, we are actively participating in projects undertaken in collaboration with research division on detection of antitumour antibodies in oral cancer (DST project immunodiagnosis of oral cancer using antitumour antibodies) and ultrastructural studies of oral cancer and precancerous lesions. Another aspect of study of this division was the natural killer cell activity in patients with precancerous lesions of the oral cavity.

We are also one of the investigators in Kerala DSTE funded project on "Changes of periodontal tissue in relation to tooth and alveolar bone in case of cancer of alveolar bone".

Our department is the collaborating department of the projects jointly run by the Regional Cancer Centre and the British Columbia Cancer Control Agency of Canada (BCCA).

Papers published presented at conference.

1. Radhakrishna Pillai, M, Prabha Balaram, Kannan, S, Sudha, L, Nalinakumari, K.R., Hareendran, N. K. and Krishnan Nair, M. Clinical implications for oral pre-cancers of interferon activation of latent natural killer cells and alteration in kinetics of target cell lysis. J. Oral Pathol. Oral Surg. Oral Med.

DIVISION OF IMAGEOLOGY

Dr. K. Sasidharan	— Associate Professor
Dr. V. Padmanabhan	— Associate Professor
Dr. V. M. Pradeep	— Assistant Professor
Dr. Reghu Ram K. Nair	— Lecturer
Dr. K. Ramachandran	— Lecturer

Activities:

17096 new cases were registered in the Department during the year 1989-90. The break up of various investigations is as follows:

Ultrasound	— 9291
Isotope scan for thyroid	— 2180
Blood sample assay	— 5500
Radiiodine therapy	— 80
Mammography	— 45

All the imaging equipments such as Gamma Camera, Rectilinear Scanner, Iodine Uptake Counter, Ultrasound machine and Mammography X-ray machine were shifted from the old building and started functioning in the new building. The Gamma Camera continued to have problems with its photomultiplier tube as in the previous year hence the reduction in number of isotope studies of liver, kidneys and bone.

The number of ultrasonograms had to be restricted for want of machine time. Purchase of a second ultrasound machine was agreed on principle.

A 500 mA X-ray machine with memory programming of exposure and with screening facility was purchased and is undergoing installation.

There is a marginal increase in the number of patients who got radio-iodine therapy. Weekly requirement of radioactive iodine was increased from 20 mCi to 40 mCi. Prolactin, Alpha fetoprotein, Carcinoembryonic antigen, Follicle stimulating hormone, Leutinising hormone, Ferritin were the newer radio-immuno assays started this year.

Academic Activities:

There is an increase in demand for the short term training course in ultrasonography. A request from the Director of Medical Education for imparting this course to medical officers under the Directorate of Medical Education is under consideration and is to be started once the second Ultrasound machine with sector scan facility is made available.

One candidate for Ph.D. in Medical Physics was registered under the combined guidance of Dr. V. Padmanabhan and Dr. T. P. Ramachandran.

Dr. K. Sasidharan and Dr. K. Ramachandran attended the Annual Congress of Indian Radiological and Imaging Association (IR & IA) held at Hyderabad in January, 1990.

Dr. K. Sasidharan attended the Annual Meeting of the South Tamil Nadu Chapter of the Indian Association of Medical Ultrasonography held at Kanyakumari in January 1990 and presented a paper on "Ultrasonography of Testis".

Dr. K. Sasidharan and Dr. K. Ramachandran attended and presented papers on Ultrasonography in Obstetrics and Gynaecology at the South Kerala branch meeting of the Obstetrics and Gynaecology Society of India conducted at S. A. T. Hospital, Trivandrum.

Academic programmes:

One day CME programme in Imageology was organised by Dr. Ramachandran as Secretary under the auspices of the Kerala State Branch Meeting of the Indian Radiological and Imaging Association (IR & IA) at Trivandrum. Dr. K. Sasidharan presented papers on Ultrasonography.

Teaching in Ultrasonography and Nuclear Medicine were imparted to students of CRA, II Year and final year MBBS students. B.Sc. MLT and Nursing students.

Radio talks were given by Dr. K. Sasidharan on Imageology and by Dr. V. M. Pradeep on Thyroid.

Dr. K. Sasidharan gave a talk under the Medisat Programme in the Medical College, Trivandrum.

M. Sc. students attended the department for their project work in medical field as part of the collaborative programme between Regional Cancer Centre and Department of Physics, University of Kerala.

A research paper on sonographic evaluation of operability of cervical lymph nodes was published by Dr. V. M. Pradeep, Dr. P. Sen and Dr. V. Padmanabhan.

Papers presented/published

Sasidharan K., Pradeep, V.M., Krishnan Nair M., Disappearing interface in Ultrasonography. Indian Journal of Radiology and Imaging (under publication).

Sasidharan K., Ramachandran K., Pradeep V. M., Krishnan Nair M., Ultrasonography of Lymphoma - Annual Congress of IR & IA, Hyderabad, 1990.

Ramachandran K., Sasidharan K., Pradeep V. M., Ultrasonography of Scrotum. Annual Congress of IR & IA, 1990.

Pradeep V.M., Ramachandran K., Sasidharan K., Ultrasound evaluation of cervical lymphadenopathy - Annual Congress of IR & IA, 1990.

DIVISION OF RADIATION PHYSICS

1. Dr. T. P. Ramachandran — Associate Professor
2. Sri P. G. Gopalakrishna Kurup — Associate Professor
3. Sri C.A. Davis — Assistant Professor
4. Sri T. S. Elias — Lecturer

Patient Services:

For patients undergoing teletherapy and brachytherapy treatment, planning and related dose computations were carried out routinely. The following numbers of cases were planned during the year.

External beam therapy	:	4897
Intracavitary treatment using Selectron Remote Afterloading System	:	451
Interstitial implants	:	98
Intracavitary treatment for carcinoma oesophagus	:	52
Mould treatment	:	15
Treatment using preloaded radium	:	6
The newly procured manual afterloading Caesium applicators for cancer of uterine cervix patients was introduced for treatment during this year.		
Number of cases treated with Manual Afterloading System	:	66

Plaster of Paris shells were made for patient immobilisation in radical external beam therapy for head and neck cancers. Random measurements in patients during external beam therapy were carried out with TLD and DPD-5 dose monitoring system to ascertain accuracy in treatment. As part of the AERB research project, dose to organs like eye, thyroid, contralateral breast etc. were measured in some patients using TLD.

Quality Assurance of the following radiotherapy equipments were carried out.

Linear Accelerator	—	1
Cobalt-60 Teletherapy machine	—	2
Radiotherapy Simulator	—	1
Selectron Remote Afterloading System	—	1
Radium sources	—	603 mgs
Caesium-137 sources	—	688 mCi

Routine calibration, checking and quality assurance tests on all the machines were undertaken which ensured proper dose delivery. Due to the routine check and consequent preventive maintenance in the machine, the downtime was reduced considerably and almost uninterrupted treatment could be given for patients.

Procurement of new equipment:

This division has procured instruments necessary for calibration of beam therapy machines, patient dose monitoring and radiation protection survey.

Participation in national programmes:

We participated in the postal dose intercomparison programme with the Standardisation Laboratory, Division of Radiological Protection, BARC, Bombay. Thermoluminescent dosimeters and chemical dosimeters were used for the inter-comparison purpose. This enabled us to keep our dose delivery to the national standard.

Radiation safety activities

Personnel dose monitoring is done for 90 persons using film badge. This facility is extended to the radiation workers in Regional Cancer Centre, Radiodiagnostic department of Medical College Hospital, S.A.T. Hospital and Dental College. Radiation protection survey were carried out periodically in therapy machines and brachytherapy sections to ensure safety to radiation workers and the public.

This division extends the necessary physics support to Department of Radiodiagnosis in Medical College Hospital and S. A. T. Hospital. Acceptance tests of newly installed machines, periodic quality assurance tests, planning of X-ray installation, possible repairs of equipments etc. are some of the other activities undertaken by the division.

Academic Programme:

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

- M. D. Radiotherapy
- M. D. Radiodiagnosis

DMRT, DMRD, CRA, III Year MBBS, III year B.Sc. Nursing.

As in previous years, one month field training was given to three students of the Diploma in Radiological Physics course of BARC, Bombay. Government approval is awaited for starting M.Sc. Medical Physics course.

Research Project:

Work on the AERB research project "Dose to thyroid and eyelens in radiotherapy especially in the case of the cancer of the upper trunk and head and neck regions" is progressing.

Participation in Workshop/Meeting:

Mr. P. G. Gopalakrishna Kurup attended "Brachytherapy update and Selectron Users Meeting" held at Madras on 11.12.1989 and presented a paper on "Problems and 7 year experience with Selectron".

Mr. T. S. Elias attended the International symposium on "Physics of Medical Imaging and advances in Computer Applications" held in Delhi during 21-23 February, 1990.

Papers published:

Wilkinson, J. M., Ramachandran T. P. "The ICRU recommendations for reporting intracavitary therapy in gynaecology and the Manchester method of treating cancer of the Cervix Uteri". British Journal of Radiology, 62, 362-366, 1989.

DIVISION OF CYTOPATHOLOGY

1. Dr. N. Sreedevi Amma --- Professor
2. Dr. B. Chandralekha --- Associate Professor
3. Dr. Elizabeth K. Abraham --- Associate Professor
4. Dr. G. Rajasekharan Pillai --- Assistant Professor
5. Smt. J. Ambikakumari --- Senior Scientific Officer
6. Sri. G. Reghunathan Nair --- Cytologist.

ACTIVITIES :

The important activities are more or less the same as those of the previous year.

1. Screening of symptomatic women attending Gynaecology outpatient of SAT Hospital, Trivandrum for detection of precancerous and early cancerous lesions of the uterine cervix.
2. Assessment of hormonal status of early pregnant women attending the SAT Hospital especially in those with bad obstetric histories like repeated abortions, spotting in the early months etc.
3. Population screening from Cervical Cancer form PHC Thrikkadavoor, Quilon District & from Medical and Cancer detection camps in the state.
4. Cytodiagnostic aspirations and their interpretations from patients attending the Regional Cancer Centre, MCH, SATH, SCD Hospital Pulayanarkottah, Dental College, a few near by Government Hospital viz. General Hospital W & C Thycaud, District Hospital, Peroorkdada, Taluk Hospital, Chirayinkil etc.
5. Examination of body fluids like Ascitic fluid, pleural fluid, C. S. F., Urine Bronchial washings etc. for malignant cells from patients attending the RCC., MCH, SATH., SCD Hospital and other nearby Govt. Hospitals.

6. Examination of sputum for malignant cells from patients suspected to have carcinoma of the lung. Patients are mainly from R.C.C., SCD Hospital and M.C.H.
7. Peripheral smear & Bone marrow examination & reporting of cases of Regional Cancer Centre and occasional referral cases from haematology unit M.C.H.
8. Histopathological examination of surgical specimens.
9. Review of Histopathology slides of patients referred to R.C.C. from other Hospitals.
10. Teaching and training.
11. Analysis of lesions.
 - (a) Colposcopic biopsies — 2 years 1988 & 89
 - (b) Cervical smears — 5 years 1985-1989

Cytology services rendered to the various Departments

a. Gynaec Cytology

Unit	No. of cases	% of total
01 SAT H	2032	23.27
02 "	1291	14.78
03 "	1041	11.92
04 "	1248	14.29
05 "	798	9.13
06 "	508	5.82
Postpartum clinic	508	5.82
Camps	811	9.29
R. C. C.	67	0.77
Other Govt. Hospital & E. S. I.	127	1.45
Private Hospitals	152	1.74
MCH	12	0.14
Unit not mentioned	187	2.14
Total	8732	100

During the year 8732 cervical smears were examined majority being from SAT Hospital. There is an increase of 1130 smears than that of the previous year. Compared to previous year the number of smears from Medical camps also have increased.

This is mainly because of the cancer awareness programme of the Community Oncology Division & Cancer Detection Camps organised by them. Another important aspect this year is the extension of cervical screening facilities to women attending the postpartum clinics of SAT H. 508 women were screened in the postpartum clinic.

b. Non Gynaec and Aspiration Cytology including body fluids

During 1989-'90 6480 nongynaec and aspiration cytology smears including fluid cytology was examined from 6022 cases. 458 smears were repeat sample. In the analysis of lesions total number of cases (6022) are taken. Compared to the previous year there was an increase of 763 smears this year.

The following table gives the details of total number of smears received from various hospitals and departments. Department-wise distribution of smears.

Department	No. of cases	% of total
Surgical	1352	20.86
Radiotherapy	868	13.39
Medicine	580	8.95
Thyroid clinic, Endocrinology & nuclear medicine	549	8.47
ENT	504	7.78
Medical gastroenterology	377	5.82
Urology	339	5.23
Private Hospitals	229	3.53
General Hospitals & ESI Hospitals	210	3.24
SATH	191	2.95
Medical paediatrics	154	2.38
SCD, Pulayanarkottah	141	2.18
Surgical Paediatrics	99	1.52
Surgical gastroenterology	87	1.34
Cancer Detection Camps	42	0.65
Orthopaedics	39	0.60
Nephrology	19	0.29
Haematology	18	0.28
Others	114	1.76
Department not mentioned	588	8.77
Total	6480	100%

Analysis of Cervical smears.

Detailed analysis of cervical smears shows the following findings.

Lesion	No. of cases	%
Normal	2796	32.02
Inflammation	4349	(22 cases are associated with dysplasia)
T. V. Infection	232	
Fungal infection	38	
HPV infection	3	
Herpes simplex	6	
T. V. with herpes	1	3.28
Glandular cell hyperplasia	82	
Reserve cell hyperplasia	73	
Endocervical regeneration	131	6.30
Mild dysplasia	483	
Moderate dysplasia	37	
Severe dysplasia	30	0.95
Atypical cells	40	
Suspicious or suggestive of malignancy	43	0.15
Carcinoma in situ	13	
Presence of Malignant cells unclassified	14	1.53
Invasive squamous carcinoma	106	
Adenocarcinoma	13	
Adenosquamous carcinoma	1	0.22
Radiation change	19	
Miscellaneous	90	1.03
Unsatisfactory	132	1.51
Total	8732	

Hormonal Cytology

Vaginal smears for hormonal assessment was done in 753 cases during 1989-90. These included mostly cases of early pregnancy with history of repeated abortions and suspected hormonal deficiency, a few case from primary and secondary amenorrhoeas, sterility etc.

Population Screening

352 cervical smears were received from PHC Thrikkadavoor, Kuril. Out of these there were 8 cases of mild dysplasias, one case of carcinoma insitu and one case of invasive carcinoma. The case of carcinoma insitu was brought over here, colposcopy, cone biopsy and hysterectomy was done and the case is being followed up now. (Table A)

FNAC (Fine needle aspiration cytology). (Table B)

Site of Aspiration	Total cases	Benign	Malignant	Suspicious
Thyroid	1594	1562	42	..
Lymphnodes	955	642	285	28
Breast & nipple discharge	808	647	150	11
Liver	392	280	93	19
ENT all sites	186	106	70	10
Oral cavity	158	111	35	12
Skin & S/C tissue	158	107	50	1
Abdominal mass	80	55	22	3
Salivary gland	62	52	10	..
Bone & Joints	47	22	25	..
G. I. T.	39	29	9	1
Lung	31	20	11	..
Female genital system	24	19	4	1
Pancreas	18	15	2	1
Male genital	9	8	1	..
Eyes & lacrimal gland	6	5	1	..
Retroperitoneal mass	5	5	..	..
Spleen	3	3	..	..
Mediastinal mass	1	1	..	..
Site not mentioned	13	10	2	1
Total	4589	3690	811	88

Sputum cytology

During the year under report a total number of 6368 smears were examined from 3184 sputum samples received from 981 patients. 3-5 or more samples were collected from each

Table A. Nongynaecological and Aspiration Cytology — Analysis of lesions.
Analysis of Body fluids

Site	Total no. of cases		Benign		Malignant		Suspicious	
		%		%		%		%
Ascitic fluid	653	43.82	507	91.68	41	7.41	5	0.90
Pleural fluid	318	25.20	283	88.99	29	9.12	6	1.89
Urine	232	18.38	224	96.55	6	2.59	2	0.86
C. S. F.	119	9.43	93	78.15	24	20.17	2	1.68
Bronchial washing	12	0.95	12	100.00	..	..	..	..
Pouch of Douglas	13	1.03	12	92.31	1	7.69	..	..
Pericardial fluid	7	0.56	6	85.71	1	14.29	..	..
Gastric washing	7	0.56	3	42.86	4	57.14	..	..
Hydrocoel fluid	1	0.08	1	100.00	..	..	..	..
Total	1262		1141	90.41	106	8.40	15	1.19
Grand Total of FNAC & fluids	—	5851						
Repat aspiration	—	629						
Total no. entered in the Reg.		6480						

Table C. Sputum Cytology

Lesion	Total No. of cases		Male		Female	
		%		%		%
No malignant cells	698	71.15	581	83.24	117	16.76
Fungus	161	16.41	126	78.26	35	21.74
Nematode larva	2	0.20	1	50.00	1	50.00
Atypia/ suspicious of malignancy	61	6.22	57	93.44	4	6.56
Squamous cell Ca.	20	2.04	19	95.00	1	5.00
Adenocarcinoma	19	1.94	19	100.00	..	..
Small cell carcinoma	13	1.33	13	100.00	..	..
Large cell anaplastic Ca.	4	0.41	3	75.00	1	25.00
Malignant cell (unclassified)	3	0.31	3	100.00	..	..
Total	981		822	83.79	159	16.21

patient. Malignancies were reported in 59 cases. There was a significant male preponderance in all types of malignancies. Detailed analysis is shown below. Compared to previous year the total number of cases examined was increased by 135 (Table C)

Buccal smears

250 Buccal smears were examined from 125 patients for sex chromatin.

Bone Marrow aspirations, Impressions & peripheral smears.

410 samples of Bone Marrow and peripheral smears were examined on an average 4 Bone Marrow slides are examined from each case and hence the total number of smears screened comes to more than 2000 (including peripheral smears). Predominant lesions were acute leukaemias and NHL infiltrations. There was slight increase in the total no. of cases compared to that of previous year. Detailed analysis is shown below.

Lesion	Fresh cases	Follow up
ALL	44	65
AML	18	2
Acute Leukaemia-unclassified	1	..
CML	7	1
CML Blast crisis	1	..
CLL	4	1
Multiple Myeloma	16	5
Plasma cell leukaemia	1	..
NHL infiltration	19	..
NHL No. infiltration	97	..
Hidgkins lymphoma infiltration	1	..
Hodgkins lymphoma no infiltration	35	..
Neuroblastoma infiltration	3	..
Neuroblastoma no infiltration	2	..
Myelodysplastic syndrome	..	4
Sezary syndrome	1	..
Adenocarcinoma metastasis	3	..
Others	79	..
Total	332	78
Grand Total (Fresh cases & follow up)	410	

Histopathology

Histopathology services rendered include detailed histopathological examination of all surgical specimens received from R.C.C. and review of H.P. slides brought from other hospitals by patients referred over here for further management. The latter often involved recutting of the blocks for special staining and sometimes, even processing of fresh bits from the tissue available.

Total cases

During 1989-90 we had a total of 2489 reports of which 1827 belonged to routine processing & reporting & the rest 662 were review cases. (Table D)

Teaching and Training

The Cytopathology Division actively participated in the teaching and training programme of the Medical College Trivandrum. M. B. B. S. Students who are regularly posted in the Cytology lab during their rotation posting in clinical pathology were given an insight into cytological methods of diagnosis & their importance in patient management. Pathology postgraduates of Trivandrum Medical College were given training in Cytology for 3 months during their M. D. course & DCP candidates were given training in cytology for 1½ months. Training is also imparted for students of paramedical courses. DMLT students are posted in cytology for one week and B.Sc. MLT students are posted for 1½ months and given practical training in Cytopreparatory technique in addition to 13-15 lecture classes. General Nursing students and female health supervisor trainees (FHS) were also given training in collection, fixation and mailing of cervical smears, register maintenance and organisation of population screening programmes.

Besides these pathology post graduate of Kottayam and Calicut Medical colleges were also given one week training in the interpretation of various cytology materials. B.Sc. MLT students of Gandhi University Kottayam were also given one week training in cytopreparatory techniques.

36 Table D.

HISTOPATHOLOGY AT A GLANCE

Systems		Total	%	Benign	Malignant	%	Suspicious
I. Oral Cavity	Pharynx etc.	984	39.53	313	642	40.00	29
	Salivary gland	27	1.08	9	18	1.12	..
	Jaw	2	0.08	2	..	..	..
II. Female genital system	Cervix	504	20.25	165	333	20.75	6
	Uterus and parametrium	26	1.04	13	13	0.81	..
	Vulva, GVagina & Vault	14	0.56	3	11	0.69	..
	Ovary	57	2.29	6	49+2	3.18	..
					(Border line)		
III. Hematopoetic System	Breast	150	6.03	42	108	6.73	..
	Lymphnode	263	10.57	70	Lymphoma 80	4.98%	..
					NHL 59	..	
					HL-21	..	
IV. GIT	BM. Spleen, Thymus	54	2.17	41	Metastatic 113	7.04	..
		48	1.93	4	13	..	..
					14	..	
	Liver, biliary tract	12	0.48	1	1	..	..
V. Skin		52	2.09	28	24	..	..
VI. Endocrine		50	2.01	17	33	2.06	..
VII. Soft tissue		43	1.73	15	28	1.74	..
VIII. Male genital system		28	1.12	4	24	1.50	..
IX. A. Bone and Joints		18	0.72	3	15	0.93	..
	B. Kidney and Urinary Tract	18	0.72	3	15	0.93	..
X. Nervous System		15	0.60	4	11	0.69	..
XI. Lung and Larynx		6+11	0.68	1	6+10	0.99	..
XII. Eye		3	0.12	1	2	0.12	..
	Miscellaneous Repeat biopsies	66	2.65				
		38	1.53				
Total		2489		745	1605 (64.48%)		35

Postgraduates of other departments were given guidance in their thesis work which involved cytological aspects. During 1989-90 two theses were guided & helped by Dr. N. Sreedevi. Amma was a co-guide for the thesis "Fine Needle aspiration in Lymphadenopathy-A clinicopathological correlation" submitted from Department of Surgery. The Division also helped in the preparation of a thesis from the Department of Medicine entitled study of Hepatocellular carcinoma with special reference to clinical features, pathological types, Tumour markers and Imaging Techniques" by providing the data on FNAC liver. Dr. B. Chandralekha is guiding a thesis on FNAC of thyroid from Department of pathology.

As a means of continuing Medical Education regular onco-cytohisto pathological CPCs are conducted every month.

Full time training courses are conducted for Cytotechnicians (6 mon) and Cytotechnologists (1 year) based on set objectives & specified curriculum. The 6th batch of Cytotechnicians has passed out in Feb. 1990 and the fourth batch of Cytotechnologists in August 1989.

Research

1. Analysis of Colposcopic biopsies

An analysis of colposcopic biopsies done during two years 1988 and 1989 was done and the results were correlated with clinical features, colposcopic findings and cervical smear reports. Abnormal colposcopic findings were observed in a good number of healthy looking cervixes, but they all had some symptoms like discharge per vaginum, irregular bleeding per vaginum etc. Colposcopic examination was done in 224 women with abnormal cervical smear and/or clinically unhealthy cervix, and directed biopsies were taken in all cases. Subsequent to the biopsy report, cone biopsy and hysterectomy were done in selected cases. The analysis showed 96% cytohisto correlation for severe dysplasia & carcinoma insitu and colposcopy was helpful in pinpointing the site for biopsy as in almost all cases there were no focal lesion. The false positive rate for cytology was 0.47% and false negative rare was 15.9% when all the lesions were taken together; while the false positive rate for colposcopy

was 3.74% & false negative rate 20.56%. The pick up rate of these early lesions was significantly increased when colposcopy and cytology were combined.

2. Analysis of cervical smears

An analysis of cervical smears received in the laboratory during the past 5 years from 1985 to 1989 was done. There were a total of 40,443 cases. The histopathology of cases reported as severe dysplasia, carcinoma insitu and malignancy were collected and correlated with the Cytology report. The cases which did not correlate with histopathology were reviewed as a means of quality control. The analysis showed that dysplasias constituted 10.41%, CIS 0.11% and Invasive carcinomas 2.69% of the total cases. The histocytocorrelation for carcinoma insitu was 88.57 and for invasive carcinoma was 98.63. The false positive rate was 1.29%, but a colposcopy or cone biopsy was not done in these cases to confirm them. The study showed that cervical smear examination is a reliable method to detect cancerous and precancerous lesions of the Uterine cervix.

In this analysis work we are thankful to Dr. M. A. Aleykutty, Professor of Pathology, Medical College, Trivandrum for the kind co-operation extended to our staff in collecting the histopathology reports from their registers.

This paper was presented in the XIX Annual conference of the Indian Academy of Cytopathologists and won the Jwaladevi Award for the best paper presented by Cytotechnologist.

Conference attended

Dr. N. Sreedevi Amma— CME programme on G. I. Tract diseases 13-10-89 Department of Pathology Medical College, Trivandrum IAPM Regional Chapter meeting 14-10-89 Department of pathology Medical College, Trivandrum. 'Red Rose Symposium' 14-11-89, R. C. C., Trivandrum. Annual Review meeting of NCRP & Pannel of pathologist meeting 18th to 18th Nov. 1989 AIIMS, New Delhi.

XIX Annual Conference of Indian Academy of cytologists 10th to 12th Feb. 1990, Udaipur.

Dr. B. Chandralekha—Red Rose Symposium, 14-11-89
Regional Cancer Centre, Trivandrum. CME programme on
G.I.T. diseases, 13-10-89, Department of Pathology, Medical
College, Thiruvananthapuram.

IAPM Regional chapter meeting, 14-10-89 Dept. of Patho-
logy, Medical College, Thiruvananthapuram.

Dr. Elizabeth K. Abraham — Regional Chapter meeting of
IAPM, 8-4-89, Lisie Hospital, Ernakulam.

CME programme and IAPM Regional chapter meeting, 13th
to 14th October 1989; Dept. of Pathology, Medical College,
Thiruvananthapuram Red Rose Symposium, 14 - 11 - 1989,
R. C. C., Thiruvananthapuram.

Oncopathology workshop, 7th & 8th Dec. 1989, TMH,
Bombay. Annual conference of IAPM, 10th to 12th Dec. 1989,
Bombay.

Dr. G. Rajasekharan Pillai — Regional chapter meeting of
IAPM 8-4-89, Lisie Hospital, Ernakulam. Red Rose sympo-
sium, 14-11-1989, R.C.C., Trivandrum.

Shri. K. Raveendran Pillai — Red Rose symposium,
14-11-89, R. C. C., Thiruvananthapuram.

Smt. Mollykutty John — XIX Annual conference of IAC
10th to 12th Feb. 1990, Udaipur.

Training of staff

Dr. Elizabeth K. Abraham—Short term course in computer
applications 23-1-89 to 20-3-89, Institute of Human Research
and Development for Electronics.

First National workshop on Enzyme Histochemistry &
immunohistochemistry, 5-7-89 to 22-7-89. Department of
Pathology, P.G. Institute for Basic Medical Science, Taramani,
Madras.

Sri. K. Raveendran Pillai — Training course in "Mammalian
cell culture" 4-12-89 to 16-12-89, centre for cellular & mole-
cular biology Hyderabad.

Smt. Najiya. S., Laboratory Technician of this Division was
given the guidance to prepare for the National Examination of
Cytotechnologist conducted by the Indian Academy of Cytologists.
She appeared for the examination in Dec. 1989 in AIIMS, New
Delhi and passed the examination.

Papers presented in conferences

Dr. N. Sreedevi Amma — "A correlative study of cervical
cytology, colposcopy and Histology, "XIX Annual Conference
of IAC, Udaipur. Dr Elizabeth K. Abraham — "Malignant
Systemic mastocytosis" as case report — in Annual Conference
of IAPM held in Bombay. Smt. Mollykutty John — "Cytohisto-
correlation of Cervical Cytology, an analysis of 40,443 cases"
in XIX Annual conference of IAC Udaipur.

Other activities

This division had an active role in the activities of early
cancer detection programmes. The staff of this division actively
participated in various cancer detection camps (more than 30
camps organised by the community oncology Division of R.C.C.,
National service scheme, District collectors and other voluntary
agencies & were given facilities to collect cervical smears and
FNAC at the camp site.

DIVISION OF RESEARCH

1. Dr. (Mrs) Prabha Balaram : Associate Professor
2. Dr. Vijayakumar T. : Senior Research Officer
3. Dr. K. K. Vijayan : Lecturer
4. Mr. Thomas Abraham : Scientific Officer
6. Mr. Ravindran Ankathil : Scientific Officer
6. Mrs. Remani, P. : Lecturer
7. Mrs. Padmavathy Amma B. : Technical Officer.

The Division was mainly concerned with research activities on immunochemical, molecular, biochemical, cytogenetic, immunochemical and electron microscopical aspects of human cancers. Immunological investigations were carried out in cancerous and precancerous lesions of the oral cavity and cancer of the lung. Oral cancer patients were classified into three groups based on the effect of patients (autologous) serum on lymphocyte functions. Accordingly, the 56 patients investigated could be grouped into blockers (44%), enhancers (26%) and those with no blocking or enhancing serum activity (30%) on T cell functions. In an effort to characterise the blocking factor, the effect of isolated circulating immune complexes (CIC) on the T lymphocyte function was assessed. The response with CIC did not always correlate with the effect of the whole serum suggesting that there are other factors present in the cancer serum responsible for the blocking/enhancing effect. The patients are being followed upto evaluate the changes in serum immunoregulation following therapy. Evaluation of immune competence in 60 lung cancer patients showed gross immunological alterations such as alteration in the monoclonal antibody defined T and B lymphocyte populations, reduced mitogenic responses, increased IgG and IgA levels and association of low IgM levels with distant metastasis. Immune responses in diabetic and nondiabetic patients with periodontitis revealed gross impairment with a higher degree in patients with diabetes. Another study in progress is the evaluation of the status of tumour

markers such as AFP, CEA, Beta-2- microglobulin, SCC, CA 19-9 and cytoskeletal proteins in precancers and cancers of oral cavity and cervix. Profound alterations in the immunological parameters were found in children with necrotising enteritis. Increase in serum IgA levels was a prominent feature in these patients.

Ultrastructural studies were carried out in 25 leukoplakia cases and 25 oral cancer cases. Eight of the twenty five leukoplakia cases showed marked cellular and architectural changes. Of these 8, 3 were found to have precancerous changes at the light microscopy level. Of the other 6 in which no precancerous changes could be noticed in LM, two showed malignant changes at the EM level and converted within two years of the EM observation thus suggesting the potential use of EM in early diagnosis of malignant changes in leukoplakic lesions.

Biochemical studies carried out were the following:- 5 seeds and 1 latex were identified from among 23 new seeds and 3 latexes screened for positive lectin activity. The lectin activity of *Mangifera indica* (mango seeds) and *Persea americana* (Avacado pear) were found to be due to polysaccharides. Binding of jackfruit lectin isolated and labelled with HRP in this laboratory showed higher affinity to neoplastic cells in cervix and thyroid tissue when compared to normal cells. Alterations in the concentration of trace and bulk elements like Copper, Zinc, Magnesium, Manganese, Cobalt, Cadmium and Selenium and serum iron and total iron binding capacity were observed in oral SMF patients. Findings suggest chronic iron deficiency to be one of the etiological factors for OSMF.

Evaluation of HPV DNA was carried out in 50 cases of cancer of the uterine cervix in collaboration with the Institute of cytology & Preventive Oncology, New Delhi. An increased incidence of HPV 6 & 18 was noticed in these lesions.

Chromosome studies carried out in bone marrow samples of 65 patients (29 males and 36 females) with acute lymphoblastic leukemia (ALL), before starting therapy revealed the following: Clonal chromosome abnormalities were detected in 32 patients (49.5%) while normal karyotype was observed in 33 patients

(50.5%). The karyotypes fell into five categories according to the modal chromosome number (1) Normal diploid (50.6%) (2) Pseudodiploid (9.2%) (3) Hypodiploid (4.6%) (4) Hyperdiploid with 47-50 chromosomes (30.7%) and (5) Hyperdiploid with 50 chromosomes (4.6%). The chromosome abnormalities observed were non-random with involvement of chromosomes belonging to B, C, E and G groups. Gain of chromosome No. 21 (trisomy 21) was the most frequent numerical change (16.9%). Trisomy 8 (12.3%) and trisomy 18 (9.2%) were detected in lesser frequencies. Deletion of the long arm of chromosome No. 6 (6.1%) and translocation between chromosomes 4 and 11 (3.07%) were detected. Ph chromosomes were detected in 4.6% of the patients. These patients are being followed up to evaluate the relationship between the chromosome abnormalities observed and the prognosis and survival period.

Papers published/presented at conferences.

1. Radhakrishna Pillai M; Prabha Balaram; Padmanabhan T.K; Thomas Abraham; Hareendran. N.K. and Krishnan Nair. M: Immunocompetence in lung cancer: relation to extent of tumour burden and histological type. *Cancer* 64 (6) : 1853 - 1859, 1989.
2. Vijayakumar. T. and Remani P. : Viruses in Human oral cancer. *J. Odontol, Stomatol, Maxillofac Surg* 1:7, 1989.
3. Ravindran Ankathil, Vijayakumar, T; Vasudevan, D. M; Joy Augustine and Krishnan Nair, M: Practical value of cytogenetic (chromosome) studies in the diagnosis and/or prognosis of patients with malignant neoplasms. *Proceedings of the 1st Kerala Science Congress, 1989.*
4. Radhakrishna Pillai, M; Prabha Balaram; Bindu, S; Hareendran, N.K.; Padmanabhan, T.K. and Krishnan Nair, M: Interleukin - 2 production in lymphocyte cultures: a rapid test for cancer associated immunodeficiency in malignant cervical neoplasia. *Cancer Letters* 47 (3): 205-210, 1989.

5. Rajendran, R; Vijayakumar, T; Vasudevan, D.M. : An alternative pathogenetic pathway for oral submucous fibrosis (OSMF). *Medical hypothesis* 30:35, 1989.

6. Ravindran Ankathil; Vijayakumar, T; Sudha, L; Remani, P; Vasudevan, D.M; Stephen, J, and Krishnan Nair, M: Chromosome abnormalities in squamous cell carcinoma of the human oral cavity. *Neoplasma* Vol 37 (2) : 191-197, 1990.

7. Radhakrishna Pillai, M; Prabha Balaram; Hareendran, N.K; Bindu, S; Thomas Abraham; Padmanabhan, T.K. and Krishnan Nair, M: Immune reactive proteins as prognostic and clinical markers in malignant cervical neoplasia. *J. Cancer Res and Clin Oncol* 115 : 583-591, 1989.

8. Radhakrishna Pillai, M; Prabha Balaram; Bindu, S; Hareendran, N.K; Padmanabhan, T.K. and Krishnan Nair, M: Radiation associated eosinophilia and monocytosis in carcinoma of the uterine cervix: a simple reliable prognostic and clinical indicator. *Neoplasma* 37 (1) : 91, 1990.

9. Remani, P; Joy Augustine; Vijayan, K. K; Ankathil, R; Vasudevan, D. M; Krishnan Nair, M. and Vijayakumar. T: Jackfruit lectin binding pattern in benign and malignant lesions of breast. *In vivo* 3:275, 1989.

10. Rajendran, R. and Vijayakumar, T: Acute myeloid leukaemia - a case with unusual clinical presentation. *Ker Dent, J*, 12 : 197, 1989.

11. Anil, S. and Vijayakumar, T: Oral manifestation of HIV infection. *CARC calling* 2 : 2021, 1989.

12. Anil, S and Vijayakumar, T: Oral manifestation of HIV infection. *Proc Nat Symp on AIDS, Tirunelvely, 1990.* pp 14-16.

13. Vijayakumar, T: Immunology of solid tumours and pre-malignant lesions. *ICMR Bull* 19 : 91, 1989.

14. Rajendran, R; Sujathan, C.K; Augustine, J; Vasudevan D.M. and Vijayakumar, T: Ackerman's tumour (verruco carcinoma) of the oral cavity: A histopathologic study of 426 cases. *Sing Dent J* 14 : 48, 1989.
15. Remani, P and Vijayakumar, T: Lectins - properties and biological applications *Ker Dent J* 13 : 219, 1989.
16. Anil, S; Remani, P; Vijayakumar, T and Joseph, P.A. Total haemolytic complement (CH 50) and its fractions (C3 and C4) in diabetic patients with periodontitis. *Periodontol* 61:27, 1990.
17. Haseena Beevi, V. M. and Vijayakumar, T: Aspirin - An overview. *J Odontol Stomatol Maxillofac, Sug* 1 : 85, 1990.
18. Anil, S; Remani, P; Ankathil, R and Vijayakumar, T: Role of circulating immune complexes in the pathogenesis of localised juvenile periodontitis. *Sing Dent J* 14 : 1989.

Conferences attended

1. Anil, S; Remani, P; Ravindran Ankathil and Vijayakumar, T. XIX Annual conference of Indian Immunology Society, October 1989, Sevagram, Wardha.
2. Vijayakumar, T; Shanavas, K. R; Remani, P; Anil, S; Rajendran, R and Krishnan Nair, M. International Congress of Oral Cancer, November 1989, New Delhi.
3. Prabha Balaram; Radhakrishna Pillai, M; Chidambaram, S; Padmanabhan, T. K. and Krishnan Nair, M. Second Kerala Science Congress, February 1990, Trivandrum.
4. Remani, P; Joy Augustine; Vijayan, K. K.; Ravindran Ankathil; Haseena beevi, V.M; Krishnan Nair, M and Vijayakumar, T. II Kerala Science Congress, February 1990, Trivandrum.

Sreelekha, T.T; Vijayan, K. K. and Vijayakumar, T. II Kerala Science Congress, February 1990, Trivandrum.

Ravindran Ankathil. II Kerala Science Congress, February 1990, Trivandrum.

Girija Meenattoor, J. II Kerala Science Congress, February 1990, Trivandrum.

Training/Workshops participated

1. Ravindran Ankathil — Training in Radiation Biology, Radiobiology department, Kasturba Medical College, Manipal, July 1989.
2. Girija Meenattoor — International Symposium and workshop on Bioseparations. Centre for Biotechnology, Anna University, December 1989.
3. Thomas Abraham — Indo US workshop on Molecular Biology of Human Lymphoma and T Cell leukemia virus. Cancer Research Institute, Bombay, January 1990.

Teaching

MS/MD/MDS Thesis supervision

1. Antinuclear antibodies in collagen diseases. (Department of Medicine, Medical College)
2. Antinuclear antibodies in children. (Department of Pediatrics, SAT)
3. Immunological evaluation of Periodontitis patients with diabetes (Dental College, Trivandrum).
4. Immunological evaluation of children with necrotising enteritis (Department of Pediatrics, SAT)
5. A clinical and immunological study on corneal transplantation (Department of Ophthalmology, Medical College)

M.Sc. Project Supervision (Cochin University of Science and Technology)

1. A study on the profile of thymus dependent lymphocytes in solid tumours - Miss Sheela Shany.

2. Immunoregulation by serum factors in oral cancer - Mr. E. V. Dasan.

Ph.D thesis/Supervision - 7 Nos.

1. Biological markers in squamous cell carcinoma.

2. Plant lectins and their binding patterns in human malignant tumours.

3. Chromosome abnormalities in human malignant neoplasm and their clinical significance.

4. Immunopathological studies on oral leukoplakia.

5. Immunoregulation in squamous cell carcinoma of the oral cavity.

6. Studies on bioactive polysaccharides.

7. Effect of radiosensitisers on radiation damage.

Special Award

Dr. Prabha Balaram, is the recipient of the State Committee on Science and Technology Prestigious "Young Scientist" award for the year 1990 for the best paper presented in the field "Health Care" at the Science Congress.

Clinical Services

Total No. of routine investigations	—	1,46,254
Hematology	—	90,100
Biochemistry	—	37,210
Urine, CSF & Others	—	18,800
Serum immunoglobulin	—	80
Lymphocyte typing	—	12
Antinuclear antibodies, Cryoglobulin etc.	—	22
V M A	—	15
Cytogenetics (Karyotyping)	—	15

Aided Research Projects

<i>Project</i>	<i>Agency</i>	<i>Investigators</i>
1. Immunodiagnosis of oral cancer using anti tumour antibodies	Dept. of Science, Technology and Environment, Kerala Govt. 1987-'90.	Dr. Prabha Balan Dr. Thomas Cheriyan Dr. Lalith Bai Dr. K.T. Sreelatha
2. Synthesis of Antitumour peptides	Dept. of Science Technology and Environment, Kerala Government 1988-'90	Dr. P. K. Rajan Dr. K. K. Vijayan
3. Serum and tissue immunoglobulins as biological markers in pre-malignant lesions of the oral cavity, uterine cervix and breast.	Department of Science, Technology and Environment, Kerala Govt. 1988-'91	Dr. T. Vijayakumar Dr. V. N. Bhattachari Dr. C. S. Madhu
4. Characterisation of serum blocking factors in cancer	ICMR 1989-'91	Dr. Prabha Balaram Dr. T. K. Padmanabhan
5. Isolation and purification of immune complexes from sera of cancer patients	Department of Science, Technology and Environment, Kerala Govt. 1987-'90.	Dr. T. Vijayakumar Dr. K. K. Vijayan
6. Isolation and purification of tissue specific plant lectins and their use in the diagnosis and treatment of cancer	ICMR 1986-Dec. '89	Dr. M. Krishnan Nair Dr. T. Vijayakumar Dr. K. K. Vijayan

**DIVISION OF MEDICAL RECORDS AND 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
Mrs. G. Padmakumari Amma	— Senior Research Fellow

**A. Medical Records and Statistics
Regional Cancer Centre.**

During the year 1989, the new case registrations in the outpatient department numbered 5277, which was just about the same number as in 1988. The patient statistics for the year 1989 were as follows.

Patient Statistics 1989

TABLE I

Total new registrations	5277
Number of cancer cases	4507 (87% of total)
Males	2441
Females	2066
Sex Ratio	1.18 : 1.00
Benign tumours	165
Vesicular Mole	136
All other and Non-cancer	469
Inpatient admissions	2877
Deaths in the hospital	174
No. of follow-up letters sent	623

During the year 1989, the number of cancer cases registered were less than that in 1988, the reasons are unknown for this change, especially when the total attendance had remained steady. More non-cancer have attended the hospital for check-

The males outnumbered females, though by a small percentage. Tables II & III presents the site, sex, age distribution of cancer cases.

Overall, 4% of the cases was in the paediatric age group and 61% was in the age groups 50 and above. However in males, 66%, and in females 54% of the cases were in the age groups 50 and above. The centre is striving hard to maintain high diagnostic standards and microscopic verification of cancer is the most confirmatory of all diagnostic criteria in cancer. There has been 85% histological confirmation of the total cancer cases. The detailed sitewise tabulation of microscopic verification is in Table IV. The percentage distribution of cases and male to female ratios are also shown in Table IV. The ten leading cancer types in males and females were as in Table V.

TABLE V

**TEN LEADING CANCER SITES IN MALES & FEMALES
1989**

Site	Male		Site	Female	
	No.	%		No.	%
Lung	317	12.99	Cervix	476	23.03
Other Mouth	358	10.57	Breast	449	21.73
Tongue	183	7.50	Other Mouth	137	6.63
Oesophagus	128	5.24	Ovary	124	6.00
Brain	103	4.22	Thyroid	90	4.36
Stomach	98	4.01	Brain	67	3.24
Larynx	98	4.01	Tongue	66	3.19
Oropharynx	95	3.89	Gum	60	2.90
Hypopharynx	89	3.65	Rectum	49	2.37
Gum	74	3.03	Body uterus	32	1.55

Lung has become the commonest cancer site in men replacing mouth cancer while cervix continues to be the commonest site of cancer in women. The overall percentage distribution of cancer cases have undergone only minor changes. However

from hospital statistics it is not possible to draw generalisation and thus a correct evaluation of the significance of changes is difficult. Apart from lung cancer becoming the leading cancer in men, cervix to breast ratios have undergone some changes and it is anticipated that in the coming years there will be more breast cancer cases to attend to than cervix cancer cases. In Fig. 1 the breast to cervix ratios are presented for the years 1982-1989.

Sex ratios, greater than 5:1 were noted for cancers of Floor Mouth, Oropharynx, Hypopharynx, Liver, Larynx, Lung and Urinary bladder. Female preponderance was noted for Thyroid cancer which was a feature seen all over the world.

The data also highlights the potentials for cancer prevention programmes. The figure 2 shows that almost 50% of all cancers in men was seen in oral cavity, Pharynx, Larynx and Lung together and 54% of all female cancers was in Breast and Gynaecological sites together.

Whereas the pattern seen in men reflects the influence of tobacco habits and thus underscores the necessity and potentials for preventive action, the distribution seen in women highlights the role of early cancer detection, self-examination, and the need for cancer awareness among the public at large.

Table VI gives the site distribution of 10 leading Paediatric cancer cases. These ten sites together formed almost 90% of the cancer load in children.

B. HOSPITAL CANCER REGISTRY:

The Hospital Cancer Registry, Medical College Hospital, Trivandrum is a part of the network of cancer registries under the Indian Council of Medical Research, New Delhi. There are at present 12 Cancer Registries in the National Cancer Registry Programme which 6 are Population based, including a rural registry and 6 are Hospital based registries. The data from these registries are being used for the National Cancer Control Programme.

Summary of 1987 data of Hospital Cancer Registry

In 1989, the cancer cases seen in the year 1987 in different registries were presented in the Annual Review Meeting of registries held in November 1989 in Delhi. From the Trivandrum registry, 4759 cancer cases were reported. The incident (diagnosed in 1987) cases numbered 4436 cases. There was an increasing trend in incident case registrations. In 1983, 3715 cases were reported and in 1987, the number was 4436, an increase of 16% over the 4 year period. Microscopic verification was 88% for the 1987 cases. The average age of the male cancer patient was 52 years and for the females it was 51 years. 65% of male cancer patients and 59% of female cancer patients were above 50 years. Oral cavity & Pharynx formed 29.9% among male cancers and 17% among female cancer cases. 31.2% of all female cancer was seen in reproductive system. Lung cancer was the leading cancer site in men. Breast cancer was the leading cancer in Muslim & Christian women. In Hindu women cervix was the leading cancer site.

ONGOING RESEARCH PROJECTS

The Hospital Cancer Registry has undertaken the following research activities.

1. Natural Background Radiation Cancer Registry.

This is a project funded by the Department of Atomic Energy, Govt. of India. The period of study is 1990-1995. The budgeted expenditure is Rs. 35 lakhs. The objectives of the study are:—

1. What is the cancer incidence in the area.
2. Is it different from other population groups.
3. What is the pattern of cancer in the area.
4. Is it different from other areas.
5. Are the incidence and pattern related to background radiation and is it dose related.

In this project, a house to house survey is undertaken (which is complemented by) cancer check up clinics, and surveillance of morbidity and mortality.

2. National Cancer Data base

This is a project funded by the Department of Electronics Government of India. The initial funding is for 3 years. The objectives of the study are to create a data base for all cancer related information to be used for cancer control in India. These relate to information on cancer incidence, mortality, treatment facilities, inventory of ongoing clinical and basic research, cancer literature, community anti-cancer programmes etc. In this the initial effort is to evolve standard data collection formats, computer software, and cancer facilities information collection from various centres all over the country etc.

3. Epidemiologic study of Stomach Cancer - Bombay Madras - Trivandrum.

This is funded by the Indian Council of Medical Research New Delhi. This is a multicentric project initiated to study the suspected associated factors of stomach cancer. This is a case-control study. Present funding is upto 31st March, 1991.

4. Causes of Delay in Cancer

Cancer is curable when detected early and treated promptly. However cancer cases continue to be detected late in the course of the disease. In the Regional Cancer Centre almost 80% of the patients come with disease spread either regionally or with distant metastasis. The study evaluates the patient related delay and the physician related delay.

5. K. A. P Study

The knowledge, attitude and practice pattern (KAP) of the general population of Kerala on cancer is assessed by studying a 600 individuals who accompanied patients attending the Medical College Hospital, Trivandrum. KAP information aids in planning and targeting health education.

6. Diet and Cancer

Diet as a major modulator of carcinogenesis is increasingly appreciated. This particular case control study attempts to

evaluate the role of local dietary practices in epithelial cancers like oral, pharynx, larynx, lung oesophagus, colon, breast and uterine cervix. Dietary information has already been collected in more than 2000 cancers and approximately 1200 controls.

7. Thyroid Cancer - Epidemiology

This is a descriptive epidemiologic study of thyroid cancer cases seen in the Hospital Cancer Registry, Trivandrum with regard to morphology type, age, sex, religion and geographic region.

8. Treatment & End Results Study

Analysis of treatment practices, response rates and survival of patients with oral, oropharyngeal, laryngeal, breast and cervical cancers.

Medical students are encouraged to get exposed to research methods by involving them in studies pertaining to clinical profile and survival of above-mentioned cancers. Some of the above studies are at the stage of analysis now.

9. Epidemiologic study of Skin Cancer

This is a descriptive epidemiologic study of skin cancer cases seen in the Hospital Cancer Registry analysed with regard to histology, age, sex, community and site of cancer.

10. Occupation and Cancer

This study was initiated as recommended by the Annual Review Meeting of the National Cancer Registry Project in 1989. Along with the Hospital Cancer Registry, Chandigarh, the Registry at Trivandrum was chosen for this study. The study is being conducted as per the direction and with the involvement of the National Institute of Occupational Health, Ahmedabad.

11. Evaluation of chemopreventive potential of Beta Carotene and Vitamin A in Oral precancerous lesions.

This study is an interactive programme of the registry with community oncology division and the University of British

Columbia, Canada. Being funded by National Cancer Institute Canada, this study is in operation since 1986. Vitamin A and Beta carotene have been proved to have chemopreventive potential and further studies are initiated to address issues in dosage and spacing.

12. Evaluation of Lutein as a chemopreventive agent in Oral precancerous lesions.

This study, to be funded by EEC and American Association of Cancer Research, is again a collaborative programme involving the Registry, Community Oncology Division, MRC Dunn Nutrition Unit, Cambridge, MRC Biostatistics Unit, Cambridge and University of Birmingham, UK. Lutein is a major water soluble carotenoid with proven chemopreventive potential in laboratory studies. This is probably first planned human trial where it will be compared with Betacarotene and Vitamin A. This study involves several laboratory and clinical end points.

Other activities

Mr. P. Gangadharan was invited to attend the symposium held in connection with the Rotary Cancer Hospital Day, New Delhi and presented a paper on "Epidemiology of Breast Cancer" in November, 1989.

Mr. P. Gangadharan presented a paper on "Cancer of Thyroid" during the Annual Meeting of the Indian Association of Cancer Research, Mysore in March, 1990.

Dr. R. Sankaranarayanan attended the following conferences

1. Workshop on Cancer Control Programme jointly sponsored by Ministry of Health and Family Welfare, Government of India and World Health Organization held at Bangalore in December 4-7, 1989.

2. Meeting on organisation of Preventive Oncology units in India, ICMR, New Delhi in March 15, 1990.

The Hospital Cancer Registry, Trivandrum continued to publish 'CRAB' the Journal of the National Cancer Registry Programme. In the absence of Dr. Sankaranarayanan, Dr. T. K. Padmanabhan edited the issues.

Advanced Training

1. Dr. R. Sankaranarayanan returned after an years' training in Cancer Epidemiology in Medical Research Council (MRC) Cambridge, England. The training was under the Commonwealth Fellowship Plan.
2. Smt. G. Padmakumari Amma has proceeded to England for a six month training in Cancer Epidemiology at M. R. C. Cambridge.

Publications

1. Sankaranarayanan R, Duffy SN, Padmakumari G, Day NE, Krishnan Nair, M. A case control investigation of cancer of the oral tongue and floor of mouth in Southern India. *Int. J Cancer* 1989; 42: 195-199.
2. Sankaranarayanan, R. Duffy SN, Padmakumary G, Day NE and Padmanabhan, T.K.—Tobacco Chewing, alcohol and nasal snuff in cancer of the gingiva in Kerala, India. *Br. J Cancer* 1989; 60: 638-643.
3. Sankaranarayanan, R. Oral Cancer in India. An epidemiologic and clinical review. *Oral Surg, Oral Med, Oral Path* 1990; 69: 325-330.
4. Padmanabhan, TK, Sankaranarayanan, R, Krishnan Nair, M. Evaluation of local control, survival and pattern of failure with radiotherapy in cancer of the tongue. *Oncology* 1990; 47: 121-123.
5. Stich, HF, Brunneman, KD, Mathew, B, Sankaranarayanan, R, Krishnan Nair, M. Chemopreventive trials with Vitamin A and Betacarotene: Some unresolved issues. *Preventive Med.* 1989; 17: 732-739.
6. Sankaranarayanan, R. Systemic and topical treatment of oral leukoplakies. *Br. J. Oral maxillofacial Surg.* 1989; 27: 160-261 (Letter)
7. Sankaranarayanan, R. Role of Chemotherapy in the management of oral cancer. *J. Royal Soc Med* 1989; 82: 573 (Letter)
8. Jayalekshmy, P; Letha, PT; Krishnan Nair, M; Padmanabhan, TK. Reasons for delay in cancer diagnosis. *Cancer Registry Abstract* Nov. 1989; Vol. III, No. 2: 10-11.

TABLE 111

CASES OF CANCER BY AGE AND SITE (ICD-9)

SEX : FEMALE YEAR : 1959

ICD-9	SITE	5-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	TOTAL
140	LIP	-	-	-	-	-	-	-	-	-	-	2	2	3	4	-	2	13
141	TONGUE	-	-	-	-	-	1	1	-	-	4	10	11	11	16	5	5	98
142	SALIVARY GL.	-	-	-	2	-	2	1	-	-	-	2	-	1	1	-	1	10
143	GUM	-	-	-	-	-	-	1	-	-	-	-	-	11	11	8	9	60
144	FLOOR OF MOUTH	-	-	-	-	-	-	1	1	1	6	6	6	-	-	-	-	4
145	OTHER MOUTH	-	-	-	-	-	-	-	-	-	-	1	2	-	1	-	-	4
146	OROPHARYNX	-	-	-	-	1	-	1	2	5	23	14	20	22	21	9	18	137
147	NASOPHARYNX	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	10
148	HYPOPHARYNX	-	-	-	1	-	1	2	-	-	-	-	3	2	1	2	1	6
149	PHARYNX ETC.	-	-	-	-	-	-	1	-	1	3	1	1	-	-	-	-	7
150	ESOPHAGUS	-	-	-	-	-	-	-	1	-	-	-	-	-	1	1	-	2
151	STOMACH	-	-	-	-	-	-	-	-	1	5	2	5	1	1	-	-	2
152	SMALL INTES.	-	-	-	-	1	1	1	2	2	2	3	5	6	6	1	2	30
153	COLON	-	-	-	-	-	-	-	-	1	-	-	-	-	2	1	1	20
154	RECTUM	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	2
155	LIVER	-	1	-	-	2	3	2	3	6	4	1	8	6	3	4	3	11
156	GALL BLADD.	1	-	-	-	-	2	-	-	-	1	-	1	-	-	-	-	49
157	PANCREAS	-	-	-	-	-	-	-	-	-	1	-	1	-	1	2	-	11
158	RETROPERIT.	1	-	-	-	-	-	-	1	-	2	-	-	1	-	-	-	5
159	NASAL CAV.	-	-	-	1	1	-	-	-	1	1	-	2	-	-	-	-	7
161	LARYNX	-	-	1	1	-	-	-	1	1	1	-	1	-	-	1	-	8
162	LUNG	-	-	-	-	-	1	-	1	2	3	3	4	2	1	1	1	21
163	PLEURA	-	-	-	-	-	-	-	-	-	-	2	-	2	3	2	1	8
164	THYMUS	-	-	-	-	-	-	-	-	2	1	4	5	4	5	2	1	24
170	BONE	1	1	7	1	3	2	-	-	-	-	-	-	-	-	-	-	-
171	CONNECTIVE T.	1	1	1	3	6	2	2	3	-	3	2	3	-	1	1	-	18
																		28

172	SKIN MELAN	-	-	-	-	1	-	-	1	2	2	1	1	-	-	-	2	10
173	SKIN OTHER	-	-	-	-	-	-	-	-	-	-	-	3	4	2	-	-	9
174	BREAST	-	-	-	1	-	11	30	66	62	69	61	55	37	19	11	7	449
177	UTERUS NOS	-	-	-	-	1	1	1	1	1	1	-	-	-	-	-	-	6
180	CERVIX	-	-	-	2	1	1	13	39	42	64	61	82	70	53	28	18	476
181	PLACENTA	-	-	-	2	3	1	-	-	1	1	-	-	-	-	-	-	8
182	BODY UTERUS	-	-	-	-	-	-	-	-	1	5	6	4	4	3	3	-	32
183	OVARY	-	-	3	4	15	8	6	13	7	17	13	20	7	9	4	1	124
184	VAGINA	-	-	-	-	-	-	1	-	-	1	1	4	4	5	3	1	20
186	URINARY BLAD.	-	-	-	-	-	-	1	-	1	-	-	-	2	1	-	-	5
189	KIDNEY ETC.	1	-	1	-	-	-	-	-	-	-	-	-	-	-	1	1	2
190	EYE	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	3
191	BRAIN	4	7	7	4	4	6	7	7	7	3	4	2	3	-	-	-	67
192	NERVOUS SY.	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-	3
193	THYROID GL.	-	-	2	1	6	17	13	13	6	7	1	8	5	3	5	3	98
194	OTH. ENDO. GL.	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	3
195	ILL DEF. SIT.	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	2
196	SEC. LYMPH. N.	-	-	-	-	-	3	-	3	1	6	-	1	2	2	2	1	21
197	SEC. RES. ETC.	-	-	-	-	-	-	2	-	1	-	2	1	7	3	1	-	17
198	SEC. OTHER	-	-	-	-	-	1	3	-	1	3	3	4	5	2	1	1	24
199	PRIM. LNC.	-	-	-	-	-	1	-	2	1	-	1	4	3	2	2	1	19
200	LYMPHOGARD.	2	-	1	1	-	1	1	1	1	-	1	2	3	3	1	1	17
201	HODGKINS, D.	1	-	-	2	2	3	2	-	-	-	-	1	-	-	-	-	11
202	OTH. LYMPH.	-	-	-	-	-	-	2	1	1	4	2	-	1	4	2	1	16
203	MULT. MYEL.	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	2
204	LEUK. LYMPHO.	7	5	5	4	2	-	-	-	1	-	1	-	-	7	-	-	27
205	LEUK. MYELO.	-	5	2	5	1	2	-	3	1	1	3	1	2	-	-	-	26
206	LEUK. MONOC.	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
208	LEUK. UNS.	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

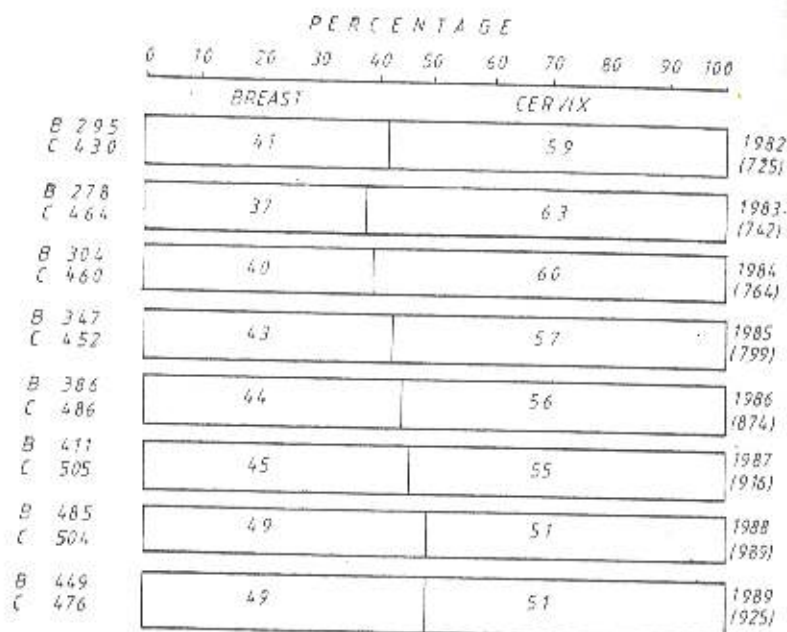
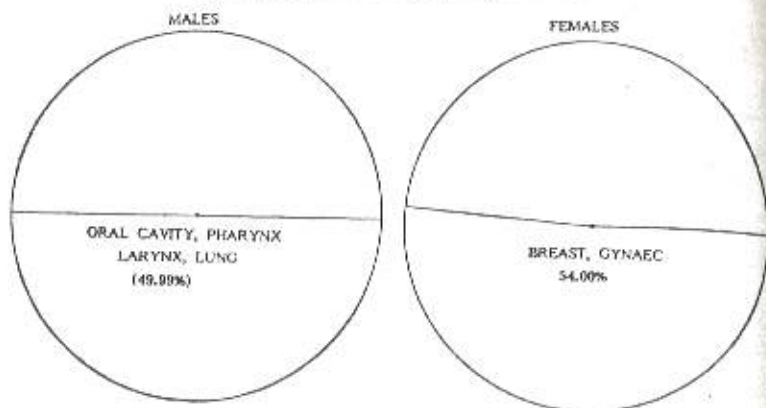
140-208 ALL SITES	23	24	35	33	53	71	94	174	168	265	224	273	241	202	104	84	2066
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TABLE IV

SITE DISTRIBUTION, SEX RATIOS & MICROSCOPIC VERIFICATION, 1989

ICD-9 Mal. Neoplasm of	MALE		FEMALE		TOTAL		Sex Ratio M : F	Histologically proved cases	
	NO.	%	NO.	%	NO.	%		No.	%
140 LIP	19	0.78	13	0.63	32	0.71	1.46 : 1	20	62.50
141 TONGUE	183	7.50	66	3.19	249	5.52	2.77 : 1	208	86.43
142 SALIVARY GL.	18	0.74	10	0.48	28	0.62	1.80 : 1	27	85.53
143 GUM	74	3.03	80	2.80	154	2.87	1.23 : 1	114	85.07
144 FLOOR OF MOUTH	35	1.47	4	0.19	40	0.89	9.00 : 1	35	87.50
145 OTHER MOUTH	258	10.57	137	5.63	395	6.78	1.88 : 1	283	73.16
146 OROPHARYNX	85	3.89	6	0.29	91	0.71	4.33 : 1	98	93.35
147 NASOPHARYNX	26	1.07	7	0.34	33	2.13	12.71 : 1	30	83.75
148 HYPOPHARYNX	69	3.65	2	0.10	71	0.20	3.50 : 1	8	88.89
149 PHARYNX ETC.	7	0.29	30	1.45	37	3.51	4.27 : 1	126	79.76
150 OESOPHAGUS	128	5.24	20	0.97	148	2.62	4.89 : 1	104	88.14
151 STOMACH	98	4.01	11	0.53	109	0.64	2.45 : 1	35	100.00
152 SMALL INTES.	2	0.08	49	2.37	51	1.71	1.06 : 1	93	92.08
153 COLON	27	1.11	3	0.15	30	0.11	6.00 : 1	68	88.31
154 RECTUM	52	2.13	7	0.34	59	0.51	2.29 : 1	15	66.22
155 LIVER	66	2.70	15	0.74	81	0.82	1.50 : 1	13	86.67
156 GALL BLAD.	2	0.08	21	1.02	23	1.09	1.33 : 1	1	100.00
157 PANCREAS	16	0.66	9	0.44	25	2.37	10.68 : 1	42	85.71
158 RETROPERIT.	9	0.37	24	1.16	33	7.57	13.21 : 1	100	93.48
159 OTHER DIG SYS	1	0.04	5	0.24	6	0.11	---	254	74.49
160 NASAL CAV.	28	1.15	1	0.05	29	1.22	1.22 : 1	36	80.00
161 LARYNX	98	4.01	10	0.48	108	1.38	1.14 : 1	60	86.77
162 LUNG	317	12.89	29	1.40	346	0.58	1.60 : 1	25	86.15
163 THYROID	5	0.20	18	0.87	23	0.96	3.88 : 1	44	100.00
164 BONE	22	0.90	449	21.73	471	9.86	---	317	82.87
171 CONN. TISS.	33	1.35	7	0.33	40	0.16	---	7	100.00
172 SKIN, MELA	16	0.66	6	0.29	22	0.13	---	6	100.00
173 SKIN, OTHER	35	1.43	475	23.04	510	10.56	---	497	85.50
174 BREAST	---	---	6	0.39	6	0.18	---	6	100.00
175 BREAST MALE	7	0.29	32	1.55	39	0.71	---	31	96.88
179 UTERUS NOS.	---	---	124	6.00	124	2.75	---	112	90.32
180 CERVIX	---	---	20	0.97	20	0.44	---	19	85.00
181 PLACENTA	---	---	---	---	32	0.71	---	29	80.63
182 BODY UTERUS	---	---	---	---	21	0.47	---	21	100.00
183 OVARY	---	---	---	---	34	0.75	---	31	91.18
184 VAGINA	32	1.31	---	---	44	0.90	7.80 : 1	37	84.09
185 PROSTATE	21	0.86	---	---	7	0.39	2.00 : 1	14	93.33
186 TESTIS	34	1.39	---	---	16	0.30	2.20 : 1	15	93.75
187 PENIS ETC.	39	1.60	6	0.24	45	3.77	1.54 : 1	106	62.35
188 URI. BLAD.	10	0.41	5	0.24	15	0.18	1.67 : 1	7	87.50
189 KIDNEY	11	0.45	5	0.24	16	2.88	0.44 : 1	124	86.35
190 EYE	109	4.22	67	3.24	176	0.15	1.33 : 1	7	100.00
191 BRAIN	5	0.20	3	0.15	8	0.11	1.50 : 1	5	100.00
192 NERVOUS SY.	40	1.64	90	4.36	130	1.46	2.14 : 1	63	95.45
193 THYROID GL.	4	0.16	5	0.24	9	0.18	1.08 : 1	28	74.29
194 OTH. ENDO. GL.	3	0.12	2	0.10	5	1.78	2.93 : 1	39	48.75
195 ILL DEF. SIT.	45	1.84	21	1.02	66	1.20	1.84 : 1	45	83.33
196 SEC. LYMPH. N	18	0.74	17	0.82	35	1.49	2.44 : 1	67	100.00
197 SEC. RES. ETC	56	2.29	24	1.16	80	0.67	1.73 : 1	36	100.00
198 SEC. OTHER	35	1.43	10	0.52	45	1.71	3.28 : 1	74	96.16
199 PRIM. UNK.	50	2.05	17	0.82	67	0.78	1.53 : 1	51	88.57
200 LYMPHOSARC.	19	0.78	11	0.53	30	1.55	1.59 : 1	70	100.00
201 HODGKINS, D.	59	2.42	18	0.87	77	1.15	1.30 : 1	52	100.00
202 OTH. LYMPH.	20	0.82	15	0.73	35	0.02	---	1	100.00
203 MULT. MYELO.	43	1.76	27	1.31	70	0.02	---	1	100.00
204 LEUK. LYMPHO.	26	1.07	26	1.26	52	0.02	---	1	100.00
205 LEUK. MYELO.	1	0.04	1	0.05	2	0.02	---	1	100.00
206 LEUK. MONOC.	---	---	---	---	---	---	---	---	---
207 LEUK. MISC.	---	---	---	---	---	---	---	---	---
208 LEUK. UNS.	---	---	---	---	---	---	---	---	---
140-208 ALL SITES	2441	100.00	2066	100.00	4507	100.00	2848		

REGIONAL CANCER CENTRE 1989
DISTRIBUTION OF CANCER IN MALES & FEMALES



B. Breast Cancer C. Cervix Cancer
Number in brackets Right side is total of Breast & Cervix Cancer cases

FIG. 1. BREAST - CERVIX RATIOS, 1982-1989

TABLE VI
TEN LEADING PAEDIATRIC CANCERS 1989

Type of Cancer	Boys		Type of Cancer	Girls	
	No.	%		No.	%
Leukaemia	32	30.77	Leukaemia	25	31.25
Brain	19	18.27	Brain	20	25.00
Lymphoma & HD	15	14.42	Bone	9	11.25
Bone	5	4.81	Ovary	5	6.25
Connective Tissue	4	3.85	Eye	5	6.25
Liver	4	3.85	Lymphoma & HD	4	5.00
Kidney	4	3.85	Connective Tissue	3	3.75
Eye	4	3.85	Kidney	2	2.50
Thyroid	3	2.88	Thyroid	2	2.50
Nasopharynx	3	2.88	Liver	1	1.25
Total	93	89.43	Total	76	95.00
All Sites	104		All Sites	80	

92% of childhood cancers seen are found in the above 10 leading sites.

DIVISION OF COMMUNITY ONCOLOGY

1. Dr. Babu Mathew — Associate Professor
2. Dr. Ramani S. Wesly — Lecturer

The Community Oncology as an entity and faculty was established for the first time in India at the Regional Cancer Centre, Trivandrum in 1985. It has now completed 5 years of its existence; and during this short span, the division's achievements were well appreciated at national and international levels. As in the previous years the major activities were centred round on the following lines.

1. Health Education on Cancer
2. Professional training
3. Generation of software for cancer awareness programmes.
4. Training and utilisation of voluntary organisations for cancer survey and surveillance.
5. Cancer Screening Programmes in rural areas.
6. Community based epidemiological and interventional research.
7. Starting of a supplementary registry for precancerous lesions.

During the year under report in addition to college students, as a new venture, we imparted trainings on detection and awareness programmes, to a few selected unemployed youths, members of Voluntary Organisations etc. and utilised them for detection of cases. It is quite gratifying to note that this maiden venture fetched excellent results.

I. Health Education on Cancer:

The cancer related health education was carried out through media, health awareness programmes for voluntary groups as well as students.

A. Cancer Awareness Programmes:

22 Cancer Awareness Programmes were held throughout the State, the details of which are given in Table I.

B. Participation in Health Exhibitions

This division took part in 3 major exhibitions and 6 School Science Exhibitions. It also supplied software to Early Cancer Detection Centre, Palghat to participate in the exhibitions held in Government Victoria College. The exhibitions at Trivandrum and Mar Basalius College, Kottayam were seen by several thousands of people.

Having realised that the Panchayaths have to play a pivotal role in the implementation of community health activities, a State level health festival was organised at Palghat jointly by the Regional Cancer Centre and India Population Project of the Health Services Department of Kerala on 3-3-1990. This was inaugurated by the Hon'ble Minister of Health and Family Welfare Shri. A. C. Shanmughadas in a meeting presided over by the Hon'ble Minister for Power and Rural Development Shri. T. Sivadasa Menon. 207 Panchayath Presidents and 9 Block Development Chairman (The participants evinced keen interest in the implementation of cancer control and prevention programmes in Panchayats.) attended the cancer awareness programme and the cancer exhibition.

C. Articles in Lay Press:

3 articles were published by Dr. Babu Mathew in the lay press during the period under report, the details of which are given below:

- | | | |
|--|-----------|-------------------|
| 1. Importance of cancer Education | Aug. 1989 | Memoirs of N.S.S. |
| 2. Pukaelayum Vayile Cancerum | Jan. 1990 | Ningalute Arogyam |
| 3. Cancer Bhadhikkan Kooduthal Sadhyatha | Feb. 1990 | Kudumba Sahayee |

D. Programmes through All India Radio:

A total of 5 programmes were broadcast through All India Radio during the year by the staff of the Community Oncology Division. Four Talks and discussions on the "harmful effects of tobacco", "Oral Cancer", "Prevention of Cancer" and an introduction about "Battle Against Cancer at Kottayam" were given by Dr. Babu Mathew and "Misconcepts on health" by Dr. Ramani S. Wesley through All India Radio.

Antitobacco slogans and information on prevention of cancer were broadcast through All India Radio in between the main programmes.

E. Programmes through Doordarshan:

A programme for 20 minutes on Regional Cancer Centre was produced by the Trivandrum Doordarshan based on the script and direction by the division. It was telecast on 27th March, 1990. Antitobacco messages were telecast as fillers in between major programmes. File shots of portions of our 3 previous programmes were also telecast during the period under report.

II. Professional Training:

Two batches of Public Health Nurses were given training on the principles of cancer prevention and control. 67 Public Health Nurses were given classes for 2 days in the months of April and October, 1989.

A batch of 40 Health workers working under Trivandrum Social Service League were given one day training on Cancer Prevention and Control. The division is all set for giving training to Medical students and Medical Officers.

III. Generation of software for Cancer Awareness Programmes:

Several posters, slogans, leaflets, models and projection slides were generated, pretested and evaluated during the period under report.



Trained Volunteers conducting field survey and examining Villagers at Chavaserry.



A view of the crowd attending the Cancer detection Camp at Chavaserry.



More than 200 Panchayat Presidents of Idukki, Palghat, Malapuram and Wayanad districts attended the Cancer Awareness Classes held at Palghat on 3-3-90.



Shri. A. C. Shunmukadas, Hon'ble Minister for Health and Shri. T. Sivadasa Menon, Hon'ble Minister for Power and Rural Development, keenly watching the exhibits in the Cancer Awareness Exhibition at Palghat, on 3-3-90.

25 posters were developed with the help of amateur artists. They were displayed in the exhibitions and various training programmes for pretesting and evaluation. A leaflet for training the volunteers for cancer survey and surveillance was developed and is being pretested during the Chavassery Programme. A model to show the hazards of smoking was made by school students under our instruction and this was given the first prize in Science Exhibition at the state level. A set of projection slides with tape recorded audio commentary is now available for the use of voluntary agencies for cancer awareness programmes.

IV. Training and Utilisation of Voluntary Agencies for Cancer Survey and Surveillance.

This year this division concentrated on giving training to youths and members of Voluntary Organisations and thereby generating man power for cancer awareness and detection programmes. The trainees were utilised for detection of all suspected cases by themselves by making house to house visits. These cases were further examined by experts from Regional Cancer Centre for confirmation. The details of each of such major camps are given below:

a) The first one was organised in a Fisherman Village, Azeekal and sponsored by the Azeekal Development Project. 92 unemployed educated youth were trained for one day by staff of the Community Oncology Division to carry out tobacco survey, examine the oral cavity and ask questions regarding seven warning signals of cancer with the help of didactic lectures, patient demonstrations and discussions. These volunteers in turn personally contacted 13959 persons out of a total population of 14971, within a period of six weeks and 9 cases of new cancers 169 precancerous lesions were detected.

A similar training was given to educated youth for cancer survey and surveillance at Chavassery, Cannanore District. This programme was sponsored by North Malabar Gramin Bank and Farm Information Exchange Club of Chavassery. One hundred and fifty youth were given training on 20-3-1989. This work is in progress.

b) A programme named "BACK" (battle against cancer at Kottayam) was inaugurated by Sri Mani Abraham, Chairman, Kottayam Municipality. Intensive training was given to nearly 600 College students, (N.S.S. Volunteers) of the Mahatma Gandhi University and made them competent to conduct tobacco survey and for screening and detection. So far they have identified 700 suspected lesions. The work is in full progress and is expected to be completed by the middle of 1990.

c) The N. S. S. Unit Government Arts College, Trivandrum under Prof. N. Sadasivan has undertaken a tobacco survey and oral cancer detection programme in 7 urban slums of Trivandrum City. When the students examined 1872 high risk persons in these slums, they have picked up 892 persons with suspicious oral lesions out of which 3 new cancers and 90 precancerous lesions were detected.

V. Cancer Screening Programmes in Rural areas.

The Community Oncology Division has conducted 48 cancer detection camps during the current year. After the appointment of a Lady Lecturer in the department we were able to meet the requests for cancer detection camps from various regions of the State. In these camps 6871 (high risk) persons were screened. Forty two new cases of cancer, 15 treated cases with active disease and 534 precancerous lesions were diagnosed in these camps. The details are shown in the Table II.

This division maintains a registry of all precancerous cases and do their follow up. It will facilitates epidemiological studies very much.

VI. Research Activities

A. Ongoing Projects:

1. Collaborative studies with the Environmental Carcinogenesis Unit, University of British Columbia, Canada.

In the previous four years about 10 short projects were taken up in the collaborative study with University of British Columbia. Only 2 short projects on estimation of Beta Carotene

levels to maintain the protective effect on the oral mucosa of heavy chewers and comparative effects of Betacarotene, Vitamin A and Canthazantine remain to be completed.

2. I.C.M.R. Project on the Feasibility of utilising trained Multipurpose Health Workers for Primary and Secondary Prevention of Oral Cancer in the rural areas.

The project was started in January 1988 and the Phase I of the Project was over in July 1989. After this period 292 trained health workers were expected to identify oral cancer in early stages of presentation and refer to the Regional Cancer Centre, Trivandrum. They could refer so far only 3 cases thereby questioning the feasibility. We are contemplating alternate strategies.

The Phase II of the study, the antitobacco Community Education Programme using the health workers was to be started in July, 1989. Due to the transfer of one of the Co-investigators this could not be done. In the regular health education programmes conducted by the health workers, antitobacco education is not included.

60% of the male health workers are tobacco habitues and most of the health workers were reluctant to take up anti-tobacco health education programmes in the community. Therefore new strategies are being formulated to launch an effective antitobacco community education programme.

B. New Projects:

1. Preventive Oncology Centre:

The ICMR has sanctioned 2 Preventive Oncology Centres in India, one at Ahmedabad and the other at Trivandrum in November, 1989. To fulfill the objectives of the Preventive Oncology Centre, 7 projects within the framework of the mandate given by ICMR were submitted in December 1989. The review Committee has finally agreed in March 1990 the following projects to be started in the Preventive Oncology Centre from next financial year. The projects are -

- (1) Preparation and inclusion of a lesson on health hazards of tobacco for students in Standard VII.
- (2) Antitobacco campaign through high school children.
- (3) Continuing Medical Education on cancer for Medical and Dental personnel.
- (4) Opportunistic Cancer Screening in Kazhakuttam Village.

2. Collaborative studies on Chemoprophylaxis of Oral Precancerous lesions.

Preliminary discussions were made in January, 1990 at Trivandrum with Professor M.K. Basu of University of Birmingham, United Kingdom on a collaborative project of Chemoprophylaxis of Oral Precancers with Vitamin A and retinoids. The project is expected to be flagged off in October, 1990.

Papers Published:

1. Babu Mathew: Action on Tobacco Control: Role of National Service Scheme. Monograph on Tobacco and Health: The Indian Scene, L.D. Sanghvi and Perin Notani (Eds.) UICC Workshop, Bombay, India, 1989 Pages 202-204.
2. Babu Mathew: Intervention Studies of Tobacco Behaviour modification in Kerala State. Monograph on Tobacco and Health: The Indian Scene, L.D. Sanghvi and Perin Notani (Eds) UICC Workshop, Bombay, India 1989, Pages 147-149.
3. H. F. Stich, K. D. Brunneman, Babu Mathew, R. Sankaranarayanan and M. Krishnan Nair. Chemopreventive Trials with Vitamin A and B Carotene: Some unresolved issues. Preventive Medicine: 18: 732-39: 1989.
4. H. F. Stich, Babu Mathew, R. Sankaranarayanan and M. Krishnan Nair. Remission of precancerous lesions in the oral cavity of tobacco chewers and maintenance of the protective effect by Beta Carotene and Vitamin A. American Journal of Clinical Nutrition (Supplement) 1989.

Conferences attended and paper presented:

- Babu Mathew and M. Krishnan Nair: Primary and Secondary Prevention of Oral Cancer using the National Service Scheme Volunteers in Rural Areas. International Congress on Oral Cancer, New Delhi- November, 1989.
- Babu Mathew. "Are we on the Cross Roads?" Symposium on Dental Education in India. 1st Annual Conference of the Indian Dental Association, South Zone States, Davangere - December 1989.
- M. Krishnan Nair, Babu Mathew, R. Sankaranarayanan and Ramani S. Wesley participated in the Workshop on State Cancer Control Programmes held at Kidwai Memorial Institute of Oncology, Bangalore sponsored by W.H.O. and Ministry of Health, Government of India - December, 1989.
- 4. Ramani S. Wesley, Babu Mathew, M. Krishnan Nair, Padmakumari Amma and C. Sreekumar. Primary health care approach utilising unemployed educated youth for oral cancer detection. Indian Science Congress held at Cochin, January, 1990.
- 5. M. Krishnan Nair, Babu Mathew and R. Sankaranarayanan. Evaluation of Control Strategies in tobacco related cancers in Kerala. International Symposium on the control of tobacco related cancer and other diseases held at Bombay, 1990.

Acknowledgements:

We place on record our gratitude to Dr. K. R. Harilal, Principal, Medical College, Kottayam, Shri. Mani Abraham, Chairman, Kottayam Municipality and Prof. Thomas C. Abraham NSS Programme Co-ordinator, Mahatma Gandhi University, Kottayam for their co-operation in the "B A C K" project. We thank Prof. N. Sadasivani, NSS Programme Officer, Govt. Arts College, Trivandrum, Mr. M.S. Thomas, Project Advisor, C. D. Project, Mavelikkara and Mr. D. Krishnanatha Pai, Manager, North Malabar Gramin Bank, Chavassery, for their active support and participation. We remember with gratitude, at this time Late Shri. P. J. John, Joint Director (Health Education) of Health Services Kerala, for the valuable services rendered in all the activities of this division and centre.

TABLE I. DETAILS OF THE CANCER AWARENESS PROGRAMME

<i>Sl.No.</i>	<i>Place</i>	<i>Sponsored by</i>	<i>Date</i>	<i>Approx. No. attended</i>	<i>Categories of Persons who attended</i>
1	2	3	4	5	6
1.	Tharayilkadu (Alleppey)	Tharayilkadu, C. D. Project	20-5-'89	92	Unemployed youth
2.	Muttathara	K B S C Arts Club	28-5-'89	164	Lay Public
3.	Kottarakara	N.S.S. Co-ordinator; Kerala University	1-6-'89	45	N.S.S. Programme Officers
4.	Malloor (Pathanamthitta)	N.S.S. Unit, St. Stephen's College	7-6-'89	60	N.S.S. Volunteers
5.	Kayamkulam	Fisherman Welfare Society	22-7-'89	30	Unemployed educated youth
6.	Thycaud	N. S. S. Unit, Government Arts College, Trivandrum	2-9-'89	50	College Students.
7.	Peringamala	N.S.S. Unit, Peringamala Iqbal College	16-9-'89	60	College Students.
8.	Veilayambalam	Trivandrum Social Service League	19-9-'89	40	Community Health Workers
9.	Venmony (Quilon)	Pourasamithi	30-9-'89	30	Members of Voluntary Agency
10.	Kottayam	N.S.S. of Mahatma Gandhi University & Kottayam Municipality	7-10-'89	200	N.S.S. Units Units of 4 Colleges in Kottayam Town
11.	Nariyapuram (Pathnamthitta)	N.S.S. Unit, Catholic College, Pathanamthitta	13-10-'89	100	N.S.S. Students
12.	Kottayam	N.S.S. Mahatma Gandhi University, Kottayam Municipality	28-10-'89	400	N.S.S. Volunteers and Programme Officers of 6 Colleges in Kottayam area
13.	Karamana	N.S.S. Unit, Women's College	31-10-'89	400	Students
14.	Kottayam	N.S.S. Unit, Polytechnic	22-12-'89	175	Polytechniques Students
15.	Pandalam	N.S.S. Unit of N.S.S. College, Pandalam	30-12-'89	200	N.S.S. Volunteers

1	2	3	4	5	6
16.	Chempazhanthi	Zoology Association Chempazhanthi S. N. College	17-1-'90	45	Zoology Students
17.	Nettayam	Politechnique	25-1-'90	200	Diploma Engineering Students and Staff
18.	Pattambi (Trichur)	Y's men Club Pattambi,	28-1-'90	59	Doctors and Lay People
19.	Prasanth Nagar	Nair Service Society: Bhappuji Nagar	16-2-'90	45	Women of N.S.S. Karayogam
20.	Akulam	N.S.S. Unit II Government Arts College, Triyandrum	22-2-'90	56	College Students
21.	Chavasseri (Cannanore)	North Malabar Gramin Bank	18-3-'90	150	Employed & Unemployed Volunteers
22.	Collectorate, Quilon	D.M.O. Quilon	23-3-'90	75	School Teachers
Total				2675	

TABLE II. DETAILS OF THE CANCER DETECTION CAMPS

Sl.No.	Place of detection camps	Sponsors	Date	No. of New cancer cases	No. of Old cases with active disease	No. of Pre- Cancers	Total exa- mined
1	2	3	4	5	6	7	8
1.	Palood	Rotary Club of Trivandrum	8-4-'89	—	—	2	50
2.	Venpakal	Rotary Club of Trivandrum	26-4-'89	2	—	11	320
3.	Kuravilangad (Kottayam)	I.R.D.P. and youth club	7-5-'89	3	—	5	250
4.	Chakai	National Evangelisa- tion team	19-5-'89	—	—	1	20
5.	Peringamala	N.S.S. Unit, Medical College Trivandrum	25-5-'89	—	—	8	100

1	2	3	4	5	6	7	8
6.	Tharayilkadu (Alleppey)	Tharayilkadu commu- nity Development project	27-5-'89	2	—	22	350
7.	Poudikonam	B.Sc. Nursing Students	28-5-'89	—	—	12	80
8.	Nanthiyode	N.S.S. Unit Programme Officer, M. C. H. Trivandrum	29-5-'89	—	—	20	150
9.	Nallanikkal (Alleppey)	Fisherman Welfare Society	3-6-'89	3	4	43	799
10.	Muttathara Market	K.B.S.C. Arts Club	10-6-'89	—	—	14	164
11.	Mangaiapuram	N.E.T Rural Development Project	16-6-'89	—	—	15	124
12.	Chenkachoola Colony	N.E.T. & Zenana Hostel Students	9-7-'89	—	—	2	91
13.	Poovachal	District Collector Trivandrum	19-8-'89	1	—	14	160

1	2	3	4	5	6	7	8
14.	Azhiyikkal (Alleppey)	Fisherman Development Project	23-9-'89	2	2	24	500
15.	Venmony	Pourasamithi	30-9-'89	2	2	15	194
16.	Mudavanmughal	N.S.S. Unit, Arts College, Trivandrum	1-10-'79	—	—	24	84
17.	Nellimoodu	Kamaraj Foundation	2-10-'89	2	—	9	165
18.	Muttathara	N.S.S. Units, Arts College, Trivandrum	9-10-'89	1	—	17	223
19.	Balaramapuram	N.S.S. Unit, Arts College, Trivandrum	9-10-'89	2	—	16	80
20.	Manvila	Bharath Scout & Guides	10-10-'89	—	—	4	34
21.	Thengapattanam	State Bank of Travancore	12-10-'89	4	1	12	185
22.	Parumala	N.S.S. Unit, D. B. College, Parumala	13-10-'89	—	—	19	198

1	2	3	4	5	6	7	8
23.	Chennilode Colony	N. S. S. Unit, Arts College, Trivandrum	22-10-'89	—	—	4	210
24.	Cheriathura	N.S.S. Unit All Saints College	30-10-'89	1	—	15	100
25.	Thalikuzhi	Samasia, Arts Club	4-11-'89	—	1	12	70
26.	Chennilode Colony	N. S. S. Unit, Arts College, Trivandrum	5-11-'89	—	—	8	50
27.	Shringavathoppu Colony	N.S.S. Unit, Arts College, Trivandrum	12-11-'89	—	—	14	45
28.	Kaithamukku	N. S. S. Unit, Arts, College, Trivandrum	12-11-'89	—	—	3	28
29.	Athinade	Dharmasethra R.D. Project	2-12-'89	2	—	5	190
30.	Anad	Rotary Club, Trivandrum	18-12-'89	—	—	5	100
31.	West Pattathanam	N.S.S. Unit, TKM College, Quilon	21-12-'89	1	—	5	94

1	3	3	4	5	6	7	8
32.	Vithura	N.S.S. Unit, Government Arts College, Trivandrum	29-12-'89	—	—	7	200
33.	Thiruvalla	N.S.S. Unit, Marthoma College, Thiruvalla	30-12-'89	1	—	5	35
34.	Neyyattinkara	Sree Narayana Vichara Vedi	6-1-'90	—	—	—	20
35.	Nettayam	N.S.S. Unit, Poly Technique, Nettayam	26-1-'90	—	—	12	90
36.	Thundathil	B.Sc. Nursing Students Vyaparavyavasaya Samithi	27-1-'90	—	—	9	30
37.	Pattambi (Trichur)	Rotary Club & Y'S Club of Pattambi	28-1-'90	1	—	10	180
38.	Vellayani	N.S.S. Unit, Agricultural College Trivandrum	12-2-'90	—	—	8	83

1	2	3	4	5	6	7	8
39.	Kottayam	N.S.S. M.G. University	17-2-'90	—	1	30	175
40.	Amboori	Priyadersini Memorial Mahila Samajam	23-2-'90	—	2	9	70
41.	Puthiyathura	Catholic Welfare Society, Trivandrum	24-2-'90	—	—	3	30
42.	Murukumpuzha	Kanfed and Madiya Nirodhana Samity	3-3-'90	—	—	9	170
43.	Navaikulam	Desabhimani Library	10-3-'90	1	—	9	60
44.	Palghat	Co-operative Sugar Factory Ltd.	17-3-'90	6	1	19	400
45.	Kozhinjampara	Government Hospital Kozhinjampara	17-3-'90	4	1	19	160
46.	Vallakkadav	Kushtteroga Nirmarjanna Samithi	25-3-'90	1	—	6	40
Total				42	15	534	6891

EARLY CANCER DETECTION CENTRE, ERNAKULAM

B. Syamala Kumari — Cytopathologist

The Early Cancer Detection Centre, Ernakulam has completed 15 years of its existence. As in the previous years, this centre has engaged mainly on the following activities during the year 1989-90.

Routine examination of patients in the Centre.

Cancer Detection Camps & Clinics in the Rural Hospitals.

Pap. Smear test, Fine needle aspiration cytology and other cytological tests.

Conducting Cancer Awareness Programmes.

During this year we have started a new programme of Cancer Detection, Check up among industrial workers of this district. Urine samples of 270 Indian aluminum Factory workers were examined in the centre. In addition to the activities at Ernakulam District we have conducted 4 Cancer Detection Camps in different areas of Kottayam District in connection with the "To the People Programme" organised by the District Collector, Kottayam.

The follow-up clinics for the cancer patients undergoing treatment in Regional Cancer Centre, Trivandrum have been going on in the third Saturdays of every month. This clinic covers 75-90 patients in a month.

With the generous financial assistance provided by M/s. Travancore Cochin Chemicals, M/s, Indian Rare Earths Ltd. and Cochin Refineries Ltd., a Histopathology unit and a Colposcopy unit will be established in this Centre.

A total of 8292 persons underwent cancer detection check up during the year under report. This includes patients referred from other hospitals, cancer detection camps and those coming to the Centre voluntarily. A total of 15 camps and 3 awareness programmes were conducted, 195 cancer cases were detected 173 from the Centre and 22 from camps and referred for treatment. Details are shown in the table below:

I. RESUME OF WORK DURING 1989-1990 EKM

Particulars of work	Centre based	Camp based	Total
Persons screened	5740	2552	8292
Cervical smears	3640	788	4428
Oral Smears	115	62	177
Sputum Smears	104	—	104
Fine Needle Aspiration Cytology	395	65	460
Body Fluid Cytology	113	—	113
Urine smears	270	—	270
Nipple discharge Cytology	8	—	8
Semen Cytology	1	—	1
Endometrial washing Cytology	1	—	1

Details of Camps Conducted in 1989-90

No.	Date	Place	Sponsors	Persons screened	Smears	Gynaec	Non-Gynaec
1.	4-4-89	Kothamangalam	Indian Medical Association	121	61	58	3
2.	22-4-89	Nellad	Malankara Orthodox Mission Hospital Kolenchery	85	55	50	5
3.	27-5-89	Vaikom	Consumer Guidance & research Society of India	343	154	135	19
4.	31-5-89	Ramapuram	Kottayam Collector	93	25	16	9
5.	2-8-89	Vechoor	Kottayam Collector	30	29	22	7
6.	23-9-89	Olkal	Kerala Sastra Sahityaparishad	325	117	105	12
7.	4-10-89	Kulasekharamangalam	Kottayam Collector	50	18	9	9
8.	4-11-89	Akanad	State Bank of India Perumbavoor	648	167	152	15
9.	9-12-89	Perumbalam	Sarang Arts & Sports Club	300	102	90	12
10.	30-12-89	Mattanchery	Netto Mattanchery	85	18	12	6
11.	13-1-90	Kuttamassery	Aiswarya Arts & Sports Club	213	79	75	4
12.	16-1-90	Manimala	Kottayam Collector	38	15	8	7
13.	3-2-90	Trippunithura	NSS Unit Ayurveda College, Trippunithura	12	12	6	6
14.	10-3-90	Uzhavoor	Youth Talent Society	147	47	44	3
15.	31-3-90	Sherthallai	Rural Development Organisation	61	16	6	10

II. LESION BREAK UP 1989-'90

	Centre	Camp	Total
I. GYNAECOLOGICAL			
1. Normal	484	239	723
2. Normal Atrophic smear	66	—	66
3. Inflammation	1340	315	1555
4. Atrophic smear with inflammation	149	6	155
5. Endocervicitis	414	34	448
6. Trichomonas infection	621	109	730
7. Fungus	26	5	31
8. Inflammation with Reserve Cell hyperplasia (RCH)	19	13	32
9. Endocervicitis with RCH	74	9	83
10. Inflammation with mild dysplasia	92	14	106
11. Inflammation with moderate dysplasia	8	3	11
12. Inflammation with severe dysplasia	3	1	4
13. Trichomonas with mild dysplasia	75	20	95
14. Trichomonas	54	—	54
15. T. V. with moderate dysplasia	23	1	24
16. T. V. with severe dysplasia	3	1	4
17. R T. V. with RCH	2	—	2
18. T. V. & Fungal infection	4	1	5
19. Endocervicitis with mild dysplasia	23	1	24

	Centre	Camp	Total
20. Endocervicitis with moderate dysplasia	4	—	4
21. Endocervicitis with severe dysplasia	3	—	3
22. Atrophic smear with inflammation & mild dysplasia	8	—	8
23. Herpes infection	1	—	1
24. Trichomonas & Herpes infection	2	—	2
25. HSV with severe dysplasia	4	—	4
26. HSV with moderate dysplasia	1	—	1
27. Inflammation with atypical squamous metaplasia	7	2	9
28. Endocervicitis with atypical squamous metaplasia	6	—	6
29. Inflammation with atypical glandular cell hyperplasia	15	—	15
30. Mild dysplasia	7	4	11
31. Moderate dysplasia	3	—	3
32. Severe dysplasia	1	—	1
33. Endometrial hyperplasia	1	—	1
34. Hyperkeratotic cervix	12	5	17
35. Squamous Cell Carcinoma	42	2	44
36. Carcinoma-in-situ	7	2	9
37. Endocervical adenocarcinoma	1	—	1
38. Radiation changes	1	1	2
39. Post Radiation dysplasia	1	—	1
40. Miscellaneous	33	—	33
Total	3640	788	4428

	Centre	Camp	Total
II. NON-GYNAECOLOGICAL			
1. Oral lesions			
1. Fungal infection	2	1	3
2. Inflammation	22	8	30
3. Leukoplakia	30	38	68
4. Leukoplakia with atypia	17	5	22
5. Carcinoma recurrence	1	—	1
6. Radiation changes	4	1	5
7. Squamous cell carcinoma	37	9	46
8. Squamous Papilloma	2	—	2
2. Sputum			
1. No malignant cells	76	—	76
2. Fungal infection	2	—	2
3. Squamous Cell Carcinoma	16	—	16
4. Adeno Carcinoma	4	—	4
5. Muco Epidermoid Carcinoma	1	—	1
6. Oat Cell Carcinoma	4	—	4
7. Undifferentiated Carcinoma	1	—	1
III. ASPIRATIONS			
a) Breast			
Duct Papilloma	2	—	2
Mammary dysplasia	43	5	48

	Routine	Camp	Total
Fibrocystic Dysplasia	34	3	37
Fibro adenoma	31	6	37
Inflammation	38	3	41
Malignancy	26	1	27
b) Parotid Aspirations			
NMC	7	—	7
Pleomorphic adenoma	1	—	1
Minor Salivary Gland Warthins	1	—	1
c) Thyroid			
Non-malignant lesions	45	16	61
Neoplasms			
a. Benign	3	5	8
b. Malignant:-			
Papillary Carcinoma	4	1	5
Anaplastic Carcinoma	1	—	1
d) Lymphnode			
N.M.C. - Granulomatous	35	2	37
Lymphadenitis	18	3	21
Malignancy			
a. Primary	1	—	1
b. Secondary	35	2	37
e) Other sites			
Benign	58	16	74

	Centre	Camp	Total
Malignancy	2	1	3
Radiation Changes	1	—	1
Recurrence	1	1	2
f) Tumour Aspiration			
Benign	2	—	2
Malignant	1	—	1
g) Bone Aspiration			
Benign	2	—	2
h) Liver Aspiration			
Benign	3	—	3
IV. FLUIDS			
a. Bronchial Washings			
NMC	44	—	44
Malignancy			
Squamous Cell Carcinoma	2	—	2
Adeno Carcinoma	3	—	3
Oat Cell Carcinoma	3	—	3
Well Differentiated Carcinoma	2	—	2
b. Pleural fluid			
NMC	28	—	28
Squamous Cell Carcinoma	5	—	5
Adenocarcinoma	4	—	4

	Centre	Camp	Total
Peritoneal Fluid			
N. M. C.	14	—	14
Adeno Carcinoma	7	—	7
d. CSF			
N. M. C.	1	—	1
v. URINE			
N. M. C.	268	—	268
Miscellaneous	2	—	2
VI. NIPPLE DISCHARGE			
N. M. C.	8	—	8
VII. ENDOMETRIAL WASHINGS			
N. M. C.	1	—	1
VIII. SEMEN			
N. M. C.	1	—	1

EARLY CANCER DETECTION CENTRE, PALGHAT

Dr. R. Ananda Kamath — Medical Officer

The activities of this Centre during the year were in line with the main objectives of the National Cancer Control policy for India. (1) Primary Prevention of Tobacco related cancer, (2) Early detection of cancer of uterine cervix and oral cavity, (3) Extension of therapy to all curable cancers and pain relief for all incurable cancers. These included routine work at the institution, conduct of cancer detection camps and cancer awareness talks and participation in exhibition. Routine work in the institutions comprised of examination of persons referred from other institutions and those who came voluntarily, Cytology of smears collected at the Centre and camps, giving suitable guidance to cases diagnosed as cancer and follow-up of some treated cancer cases and advanced cancer cases. Thirteen Cancer Detection Camps were held in various places in the district with the help of voluntary organisations. Details of these are given in table IV. At these camps apart from screening, a small talk also was given relating to the problem of cancer. Separate cancer awareness talks were also given. Govt. Victoria College had conducted a Science Exhibition in connection with its centenary and the Oncology stall of this centre attracted a good number of visitors. This Centre actively participated in the State Health Festival held at Palghat on March 1990 along with the Regional Cancer Centre staff, for cancer awareness and exhibition.

Acknowledgements

Thanks are due to Dr. K. G. R. Kartha, District Medical Officer of Health, Palghat, for allotting vehicle and deputing nursing students to attend the camps. Thanks are due to various voluntary organisations for organising the camps.

TABLE I. RESUME OF WORK DONE DURING THE YEAR 1989-1990 PLT

	Male	Female	Total	Ca. Cases
Total Number of Persons Screened in the Centre	528	355	883	54
Number of Smears taken for Cytological Examination	306	213	519	51
Total Number of Persons Screened in the Camp	775	927	1702	6
Number of Smears taken for Cytological Examination	44	503	547	11
Total Number of Smears taken	352	714	1066	
Total Number of Biopsy sent for HPE			36	
Total Number of known Cancer cases and suspected Cancer cases in the Camps			70	
Number of Cancer patients referred to RCC. TVM.			60	
Number of Cancer patients referred to MCH Kozhikode			6	
Number of Cancer patients referred to other Institutions			56	
Total number of referred cases			122	

TABLE II. BREAK UP OF CYTOLOGICALLY DETECTED LESIONS 1989-1990

SPECIMEN	CARCINOMA			TOTAL
	CENTRE	CAMP	CENTRE	
Cervix	176	461	18	637
Buccal	84	73	15	157
Sputum	231	2	15	233
Breast	5	3	2	8
Fluid	5	—	1	5
Others	18	8	4	26
TOTAL	519	547	55	1066

ANALYSIS OF CERVICAL SMEARS 1989-'90

	Centre	Camp	Total
1. Normal	20	94	114
2. Inflammation	108	237	345
3. Hyperkeratotic Cervix	1	4	5
4. Inflammation with Squamous Metaplasia	9	34	43
5. Trichomonas Vaginalis Infection	7	33	40
6. Inflammation C Reserve Cell Hyperplasia	3	5	8
7. Endocervical Cell Regeneration	4	7	11
8. Herpes Infection	1	1	2
9. T. V. C Mild Dysplasia	—	3	3
10. Inflammation C Mild Dysplasia	1	13	14
11. Inflammation C Squamous Metaplasia & Mild Dysplasia	—	7	7
12. Mild Dysplasia	—	2	2
13. T. V. C Moderate Dysplasia	—	2	2
14. Inflammation C Moderate Dysplasia	—	2	2
15. Severe Dysplasia	1	1	2
16. Carcinoma in SITU	2	2	3
17. Suspicious of Malignancy	2	—	2
18. Invasive Squamous Carcinoma	15	7	22
19. Adeno-Carcinoma	1	—	1
20. Malignant Cells	—	1	1
21. Radiation Changes	1	—	1
22. Unsatisfactory Samples	—	7	7
TOTAL	176	461	637

NON-GYNAECOLOGICAL 1989-90

	Centre	Camp	Total
I. Oral			
No Malignant Cells	67	68	136
Herpes Infection		1	1
Suspicious of Malignancy	1	1	2
Suggestive of Malignancy	3		3
Malignancy	12	2	14
Radiation Change	1	1	2
TOTAL	84	73	157

II. Sputum			
No Malignant Cells	212	2	214
Malignancy Cells	7		7
Squamous Cell Carcinoma	6		6
Adeno Carcinoma	2		2
Suspicious of Malignancy	2		2
Unsatisfactory	2		2
TOTAL	231	2	233

	Centre	Camp	Total
III. Breast			
No Malignancy Cells	3	3	6
Malignancy	2		2
TOTAL	5	3	8

IV. Pleural Fluid			
No Malignancy Cells	4		4
Malignancy	1		1
Total	5		5

V. Other Items			
No Malignancy Cells	14	8	22
Malignancy	4		4
Total	18	8	26

TABLE IV DETAILS OF CAMPS CONDUCTED IN 1989-90

Sl. no.	Date	Place	Sponsored by	No. of participants	Smear Taken	No. of Biopsies	Known Cancer cases	Clinically Diagnosed ca. cases	Cytologically Diagnosed ca. cases	Suspected ca. cases
1.	2-4-89	Kallepully	Fine Arts & Sports Club	47	17	1				
2.	28-4-89	Perumkulam	P. H. Centre Pazhambalokode	89	33	1	1	1	1	
3.	14-5-89	Walayar	Malabar Coments Ltd, Walayar	53	9			1		
4.	24-9-89	Vellinuzhy	Yuvadhara Arts & Sports Club	102	61		1	1	1	1
5.	22-10-89	Ponkandom	Akshaya Arts & Sports Club Ponkandom	134	64	3	3			
6.	9-12-89	Mannampatta	N.S.S Unit V.T. Bhattathirippad College, Sreekrishnapuram	68	39	1	1		1	2
7.	19-12-89	Nandiyode	Primary Health Centre, Nandiyode	40	14		1			
8.	7-1-90	Sreekrishnapuram	Recreation Club, Sreekrishnapuram	327	109	2	4	1	1	7
9.	28-1-90	Pattambi	Lions Club, Pattambi	88	20	2	2			1
10.	11-2-90	Pallikunnu	Chaitanya Arts & Sports Club	154	62	3	4		3	3
11.	17-3-90	Monnpara	Co-operative Sugar Mills Ltd.	375	56	1	6	2		5
12.	17-3-90	Kozhinjappara	Govt. Hospital, Kozhinjappara N.S.S. Unit.	160	41	1	6			8
13.	29-3-90	Kottekadu	Govt. Victoria College	75	22		4			3
TOTAL				1702	547	15	38	6	11	37

TABLE V

LIST OF AWARENESS PROGRAMMES IN 1989-90

Sl. No.	Date	Place	Sponsored by	Number of Participants
1.	25-3-89	Kallepully	Fine Arts Club, Kallepully	110
2.	18-2-90 to 11-3-89	Govt. Victoria College Palakkadu	Govt. Victoria College, Centenary Celebration Exhibition, Palghat.	2,50,000
3.	14-3-90	Koyyamarakadu Palakkadu Dt.	Health Festival, P. H. Centre Kanjikkode	200
4.	23-3-90	Attappalilom Palakkadu, Dt.	Health Festival, P. H. Centre	150
5.	28-3-90	Walayar Palakkadu, Dt.	Health Festival, P. H. Centre, Walayar.	210

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 - All Mondays at 12 noon. Resource persons from other departments - Dr. V. G. Chellam, Professor of Paediatric Pathology, Dr. Mani Ninan, Director & Professor of Paediatric Surgery, Dr. N. Surendran, Professor of Paediatric Surgery.
- II. Head and Neck Clinic - All Tuesdays 12 Noon. Resource persons - Staff of E. N. T.
- III. Trophoblastic tumour clinic - All Wednesdays 12 Noon. Resource persons - Dr. K. Lalitha, Director and Professor of Obst. & Gynaecology.
- IV. Clinicopathological Conference - on 1st Saturday of every month at 11.30 AM. Resource persons - Dr. M. A. Aleykutty, Professor of Pathology & other staff of Department of Pathology.
- V. Pain Clinic — All Thursdays at 1 P. M.
Conveners — Dr. Gladys Jeevy and Dr. Paul Sebastian



Dr. M. V. Pillai, Naval Hospital, Bethesda U.S.A. addressing the participants in the Red Rose Symposium



"Oncology for the 21st Century" Receiving the distinguished faculty members from U.S.A. for the Red Rose Symposium on 14-11-1989.

SYMPOSIA/SEMINARS

ONCOLOGY FOR THE 21ST CENTURY

In order to give further impetus to research and to promote modern clinical practices in the field of oncology, this centre arranged a series of symposia called "ONCOLOGY FOR THE 21ST CENTURY" with eminent foreign doctors and scientists as faculty members. This series of symposia will continue upto 2000 AD. These are being conducted as a collaborative effort of a number of prestigious national and international scientific institutions and bodies.

During the year under report we commemorated the birth centennial of our beloved late Prime Minister Pandit Jawaharlal Nehru, by conducting the first in the series of symposia called "The Red Rose Symposium". This was held in Regional Cancer Centre, Thiruvananthapuram on 14-11-1989. A short account of this symposium is given below.

The symposium was inaugurated by Dr. N. Balakrishnan Nair, Chairman, Science and Technology Department, Government of Kerala at a function presided over by Dr. V.K. Jayapalan, Principal, Medical College, Trivandrum. Dr. M. V. Pillai, Naval Hospital, Bethesda, U.S.A. presented a report on the symposium and was the moderator. The following eminent scientists of international repute from U.S.A. as faculty members delivered lectures on their specialized areas of work.

1. Dr. James F Holland, Mount Sinai School of Medicine, New York, U.S.A. "Cure for Leukemia" - "The Light at the end of the Tunnel".
2. Dr. Morton Coleman, Cornell University, New York, U.S.A "Chemotherapy of malignant lymphomas" from Megadose to Monoclonals.
3. Dr. Lawrence Lessin, George Washington University Medical College, Washington DC, U.S.A. "Hematopoietic growth factors" - From bench to bedside.

4. Dr. Jimmie Holland, Memorial Sloan Kettering Cancer Centre, U.S.A. "Mind, Medicine and Malignancy".
5. Dr. Andrew M Yeager, John Hopkins Medicine Centre, U.S.A. "Bone Marrow Transplantation"- From small steps to giant leaps.

There were more than 150 participants from the different departments of all the Medical Colleges of Kerala, other private hospitals and the Regional Cancer Centre. The lively discussions which ensued after the lectures helped not only for the cross-pollination of views and ideas but also enabled our scientists in familiarising with the modern trends.

This centre wishes to place on record their gratitude to all the guest faculty members especially, Dr. M. V. Pillai for the pivotal role he played in arranging such a grand academic session.

Pain Relief Seminar

Ms. Gillian Burn, an international expert and WHO Consultant on Cancer Pain Relief from Great Britain, visited Regional Cancer Centre in February 1990. She participated in a seminar on Palliative Care in Advanced Malignancy on 14.2.1990. She also delivered a talk on "Multidisciplinary approach to Palliative Care". Ms Burn donated a Syringe Driver for the management of intractable pain to the "Pain Clinic" of Regional Cancer Centre and demonstrated its application.

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

- | | |
|---|---|
| Dr. Elizabeth K. Abraham
Assistant Professor of
Cytopathology | Regional Conference of the Indian Association of Pathologists & Microbiologists, Ernakulam - April 1989. |
| Dr. K. Sasidharan
Associate Professor of
Imageology | Workshop-cum-Seminar on Recent Advances in Ultrasonography, Bombay - April 1989. |
| Dr. Prabha Balaram | ICMR Meeting on Research Projects, New Delhi - April 1989. |
| Dr. Elizabeth K. Abraham
Assistant Professor of
Cytopathology | First National Workshop on Histochemistry and Immuno histochemistry; Basic Medical Sciences, University of Madras - July, 1989. |
| Mr. Ravindran Ankathil,
Scientific Officer | Higher training in Radiation Biology Kasturba Medical College, Manipal - July 1989. |
| Dr. V. N. Bhattahiri,
Assistant Professor of
Radiotherapy | -do- |
| Dr. S. Parameswaran
Assistant Professor of
Radiotherapy | Association of Physicians of India-Regional Conference, Trivandrum October 1989. |
| Dr. M. Iqbal Ahamed
Assistant Professor of
Cancer Surgery | International Congress of Oral Cancer New Delhi - October 1989 |
| Dr. Paul Sebastian,
Assistant Professor of
Cancer Surgery | -do- |
| Dr. T. Vijayakumar,
Senior Research Officer. | -do- |

Mr. P. G. Gopalakrishna Kurup, Associate Professor of Radiation Physics.	International Congress of Oral Cancer New Delhi-October 1989.	Dr. K. Ramachandran Lecturer in Imageology.	Annual Congress of Radiology and Imaging Association, Hyderabad - January 1990.
Dr. Paul Sebastian, Assistant Professor of Cancer-Surgery.	Workshop and Technology Transfer Programme on Head and Neck Cancer Bombay - December 1989.	Dr. K. Sasidharan, Associate Professor of Imageology.	-do-
Dr. N. Sivaramakrishnan, Resident Surgical Officer.	-do-	Mr. Thomas Abraham Scientific Officer.	Workshop on Molecular Biology of Human Lymphoma and T-Cell Leukemia Virus at Cancer Institute, Bombay - January 1990.
Dr. K. L. Jayakumar Resident Surgical Officer.	-do-	Dr. P. Kusumakumary Assistant Professor of Paediatric Oncology.	Annual Conference of the Indian Association of Paediatrics (Kerala Chapter) Ernakulam - January 1990
Mr. Ravendran Pillai, K. Cytotechnologist.	Training Course on Mammalian Cell Culture at Centre for Cellular and Molecular Biology, Hyderabad December 1989.	Dr. B. Prabha Associate Professor of Cancer Research	International Conference on Molecular Basis of Immunology at AIIMS, New Delhi - January 1990.
Dr. Elizabeth K. Abraham, Assistant Professor of Cytopathology.	Annual Conference of the Indian Association of Pathologists & Micro- biologists and preceding Workshop in Oncopathology, Bombay - Decem- ber 1989.	Dr. Ramani S. Wesley, Lecturer in Community Oncology.	Indian Science Congress, Cochin - February 1990
Mr. C. A. Davis, Assistant Professor of Radiation Physics.	Selectron Users' Meeting, Madras - December 1989.	Dr. B. Prabha, Associate Professor of Cancer Research.	Indian Science Congress, Cochin - February 1990
Mr. P. G. Gopalakrishna Kurup, Associate Professor of Radiation Physics.	-do-	Dr. Gladys Jeevy Anaesthetist.	International Workshop on Pain Relief in Oncology, IV Biennial Conference of Indian Society of Oncology at Gujarat Cancer & Research Institute, Ahamedabad - February, 1990.
Dr. P. G. Jayaprakash Asst. Professor of Radiotherapy.	-do-	Dr. N. Sreedevi Amma, Professor of Cytopathology	XIX Annual Conference, Indian Academy of Cytopathologist, RNT Medical College, Udaipur - February 1990.
Dr. C. S. Madhu Tutor in Radiotherapy.	Annual Conference of the Association of Radiation Oncologists of India Nagpur - January 1990.	Smt. Molykutty John Cytopathologist	-do-

Mr. Thayal Singh Elias,
Lecturer in Radiation
Physics.

Dr. T. Ganga Devi
Associate Professor of
Radiotherapy.

Smt. G. Padmakumari
Senior Research Fellow.

Dr. P. Kusumakumary,
Assistant Professor of
Paediatric Oncology.

Dr. R. Sankaranarayanan,
Assistant Professor of
Cancer Research.

Dr. B. Prabha
Associate Professor of
Cancer Research.

Dr. Jayaprakash
Madhavan,
Assistant Professor of
Radiotherapy.

Dr. Gladys Jeevy,
Anaesthetist

International Symposium on Physics
of Medical Imaging & Advances In
Computer Application, New Delhi -
February 1990.

Symposium on "Research Methods
in Clinical Oncology", Bombay -
February 1990.

-do-

-do-

IXth Annual Conference of Indian
Association of Cancer Research,
Mysore - March 1990.

-do-

Ind International Endocrine Therapy
Conference, Bangalore - March 1990.

Satellite Meeting of VI World Congress
on Pain; VI All India Conference on
Pain, Bombay - March, 1990.

PAPERS PUBLISHED / PRESENTED IN CONFERENCES ETC.

1. Sankaranarayanan, R; Duffy, SW; Day, NE; Padmakumari G; Padmanabhan, TK. Tobacco chewing, Alcohol and Nasal snuff in cancer of the gingiva in Kerala, India. Br J Cancer 1989; 60: 638-643.
2. Sankaranarayanan, R; Duffy, SW; Day, NE; Krishnan Nair, M; Padmakumari, G. A case control investigation of cancer of the oral tongue and the floor of mouth in Southern India. Int. J. Cancer 1989; 44: 617-621.
3. Padmanabhan, TK; Sankaranarayanan, R; Krishnan Nair, M. Evaluation of local control survival and pattern of failure with radiotherapy in cancer of the oral tongue. Oncology 1990; 47: 121-123.
4. Stich, HF; Brunnenman, K; Mathew, B; Sankaranarayanan, R; Krishnan Nair, M. Chemopreventive trials with Vitamin A and Beta Carotene: Some unresolved issues. Prev. Med 1989; 18: 732-739.
5. Stich, HF, Rosin, MP; Hornby, AP; Mathew, B; Sankaranarayanan, R; Krishnan Nair, M. Pilot intervention studies with carotenoids. Monograph on carotenoids, Plenum Press, New York, 1989.
6. Stich, HF; Mathew, B; Sankaranarayanan, R; Krishnan Nair, M. Remission of precancerous lesions of oral cavity of tobacco chewers and maintenance of protective effects of Beta-carotene or Vitamin A. Am J Clin Nutr (in press)
7. Stich, HF, Palcio, B; Sankaranarayanan, R; Mathew B; Krishnan Nair, M. Quantitation of Chromatin patterns by image analysis as a predictive tool in chemopreventive trials with Vitamin A.

In: Experimental and Epidemiologic applications to risk assessment of complex mixtures. IARC Sci Publi. International Agency for Research on Cancer, Lyon, 1990.

8. Senkaranarayanan, R; Duffy SW; Krishnan Nair, M; Padmakumari, G; Day, NE. Tobacco and alcohol as risk factors in cancer of the larynx in Kerala, India. *Int. J Cancer* (in press) 1990.
9. Chellam, VG; Elizabeth Chacko; Kusumakumary, P; Surendran, N. Clear Cell Sarcoma of Kidney (CCSK) - A clinicopathological study of 4 cases. *Indian Journal of Cancer*. Vol 26 (1989) p 120-128.
10. Radhakrishna Pillai, M; Prabha Balaram; Kannan, S; Sudha, L; Nalinakumari, KR; Hareendran, NK; Krishnan Nair, M. Clinical implications for oral pre-cancers of interferon activation of latent natural killer cells and alteration of kinetics of target cell lysis. *J. Oral Pathol. Oral Surg. Oral Med.* (Accepted)
11. Sasidharan, K; Pradeep VM; Krishnan Nair, M. Disappearing interface in Ultrasonography. *Indian Journal of Radiology and Imaging* (under publication).
12. Sasidharan, K; Ramachandran, K; Pradeep, VM; Krishnan Nair, M. Ultrasonography of Lymphoma - Annual Congress of IR & IA, Hyderabad, 1990.
13. Ramachandran, K; Sasidharan, K; Pradeep, VM. Ultrasonography Scrotum. Annual Congress of IR & IA, 1990.
14. Pradeep VM; Ramachandran K; Sasidharan K. Ultrasound evaluation of cervical lymphadenopathy - Annual Congress of IR & IA, 1990.
15. Wilkinson, J.M; Ramachandran, TP. The ICRU recommendations for reporting intracavitary therapy in gynaecology and the Manchester method of treating cancer of the Cervix Uteri. *British Journal of Radiology*, 62: 362-365, 1989.
16. Sreedevi Amma, N. A correlative study of cervical cytology colposcopy and histology. XIX Annual Conference of IAC, Udaipur.
17. Elizabeth K. Abraham. Malignant Systemic Mastocytosis - A case report - Annual Conference of IAPM held in Bombay.
18. Mollykutty John. Cytohistocorrelation of Cervical Cytology - An analysis of 40, 443 cases. XIX Annual Conference of IAC, Udaipur.
19. Radhakrishna Pillai, M; Prabha Balaram; Padmanabhan, TK; Thomas Abraham; Hareendran, NK; Krishnan Nair, M; Immunocompetence in lung cancer: relation to extent of tumour burden and histological type. *Cancer* 64 (6) : 1853-1858, 1989.
20. Vijayakumar, T and Remani, P; Viruses in Human Oral Cancer. *J. Odontol Stomatol Maxillofac Surg* 1:7, 1989.
21. Ravindran Ankathil, Vijayakumar, T; Vasudevan, DM; Joy Augustine and Krishnan Nair, M; Practical value of cytogenetic (chromosome) studies in the diagnosis and/or prognosis of patients with malignant neoplasms. *Proceedings of the 1st Kerala Science Congress, 1989.*
22. Radhakrishna Pillai, M; Prabha Balaram; Bindu, S; Hareendran NK; Padmanabhan TK and Krishnan Nair, M. Interleukin - 2 production in lymphocyte cultures: a rapid test for cancer associated immunodeficiency in malignant cervical neoplasia. *Cancer Letters* 47 (3) : 205-210, 1989.
23. Rajendran, R; Vijayakumar, T; Vasudevan, DM; An alternative pathogenetics pathway for oral submucous fibrosis (OSMG). *Medical hypothesis* 30:36, 1989.
24. Ravindran Ankathil, Vijayakumar, T; Sudha L; Remani P; Vasudevan, DM; Stephen, J and Krishnan Nair, M. Chromosome abnormalities in squamous cell carcinoma of the human oral cavity. *Neoplasma* Vol 37 (2) : 191-197 1990.
25. Radhakrishna Pillai, M; Prabha Balaram; Hareendran, NK; Bindu, S; Thomas Abraham; Padmanabhan, T. K. and

- Krishnan Nair, M: Immune reactive proteins as prognostic and clinical markers in malignant cervical neoplasia. *J Cancer Res and Clin Oncol* 115: 583-591, 1989.
26. Radhakrishna Pillai, M; Prabha Balaram; Bindu, S; Hareendran, NK; Padmanabhan, TK and Krishnan Nair, M: Radiation associated eosinophilia and monocytosis in carcinoma of the uterine cervix: a simple reliable prognostic and clinical indicator. *Neoplasma* 37 (1): 91, 1990.
 27. Remani P; Joy Augustine; Vijayan, KK; Ankathil, R; Vasudevan, DM; Krishnan Nair, M and Vijayakumar, T: Jackfruit lectin binding pattern in benign and malignant lesions of breast. *In vivo* 3: 275, 1989.
 28. Rajendran R and Vijayakumar, T: Acute myeloid leukaemia - a case with unusual clinical presentation. *Ker Dent J* 12: 197, 1989.
 29. Anil, S and Vijayakumar, T: Oral manifestation of HIV infection. *CARC calling* 2: 2021, 1989.
 30. Anil, S and Vijayakumar, T. Oral manifestation of HIV infection. *Proc. Nat Symp on AIDS, Tirunelvely, 1990.* pp 14-16.
 31. Vijayakumar, T: Immunology of solid tumours and premalignant lesions. *ICMR Bull* 19: 91, 1989.
 32. Rajendran, R; Sujathan, CK; Augustine, J; Vasudevan, DM and Vijayakumar, T: Ackerman's tumour (verrucous carcinoma) of the oral cavity: A histopathologic study of 426 cases. *Sing Dent J* 14: 48, 1989.
 33. Remani P and Vijayakumar, T: Lectins - properties and biological applications. *Ker Dent J* 13 : 219, 1989.
 34. Anil, S; Remani, P; Vijayakumar T and Joseph RA: Total haemolytic complement (CH 50) and its fractions (C3 and C4) in diabetic patients with periodontitis. *J Periodontol* 61: 27, 1990.
 35. Haseena Beevi, VM and Vijayakumar, T: Aspirin - An overview. *J Odontol Stomatol Maxillofac Surg* 1:85, 1990.
 36. Anil, S; Remani, P; Ankathil, R and Vijayakumar, T: Role of circulating immune complexes in the pathogenesis of localised juvenile periodontitis. *Sing Dent J* 14:1989.
 37. Sankaranarayanan, R. Oral Cancer in India. An epidemiologic and clinical review. *Oral Surg Oral Med Oral Path* 1990; 69: 325-330.
 38. Sankaranarayanan, R. Systemic and topical treatment of oral leukoplakias. *Br. J. Oral maxillofacial Surg* 1989; 27: 260-261 (Letter).
 39. Sankaranarayanan, R. Role of Chemotherapy in the management of oral cancer. *J. Royal Soc. Med.* 1989; 82:573 (Letter).
 40. Jayalekshmy, P; Latha, PT; Krishnan Nair, M; Padmanabhan, TK. Reasons for delay in cancer diagnosis. *Cancer Registry Abstract Nov. 1989; Vol III, No. 2: 10-11.*
 41. Babu Mathew: Action on Tobacco Control: Role of National Service Scheme. *Monograph on Tobacco and Health: The Indian Scene - L.D. Sanghvi and Perin Notani (Eds.) UICC Workshop, Bombay, India, 1989* pages 202-204.
 42. Babu Mathew: Intervention Studies of Tobacco behaviour modification in Kerala State. *Monograph on Tobacco and Health: The Indian Scene. L.D. Sanghvi and Perin Notani (Eds) UICC Workshop, Bombay, India 1989.* Pages 147-149.
 43. Babu Mathew and Krishnan Nair, M; Primary and secondary prevention of oral cancer using the national service scheme volunteers in rural areas. *International Congress on oral cancer, New Delhi - November, 1989.*

44. Babu Mathew. "Are we on the Cross Roads?" Symposium on Dental Education in India. 1st Annual Conference of the Indian Dental Association, South Zone States, Davangere - December 1989.
45. Ramani S. Wesley; Babu Mathew; Krishnan Nair, M; Padmakumari, G and Sreekumar, C. Primary health care approach utilising unemployed educated youth for oral cancer detection. Indian Science Congress held at Cochin - January, 1990.
46. Krishnan Nair, M; Babu Mathew and Sankaranarayanan R. Evaluation of Control strategies in tobacco related cancers in Kerala. International Symposium on the control of tobacco related cancer and other diseases held at Bombay 1990.
47. Thomas Cherian; Paul Sebastian; Iqbal Ahamed, Jayakumar KL and Sivaramakrishnan P. A simple technique of primary stage reconstruction of lateral defect of the lip with good cosmetic and functional results - International Congress on Oral Cancer, New Delhi 13-17th November 1989.
48. Thomas Cherian; Paul Sebastian; Iqbal Ahamed; Jayakumar KL; and Sivaramakrishnan P. Reconstruction of a functional tongue following Glossectomy recurrent carcinoma. A 5 year experience. International Congress on Oral Cancer, New Delhi 13-17th November, 1989.
49. Paul Sebastian; Thomas Cherian; Iqbal Ahamed; Jayakumar KL; and Sivaramakrishnan P. Salvage Surgery for postirradiation recurrent carcinoma of the Buccal Mucosa. International Congress on Oral Cancer, New-Delhi - November, 1989.
50. Gladys Jeevy. Implementation of WHO Cancer Pain Programme in Kerala. IV Biennial Conference of Indian Society of Oncology Workshop on management of cancer pain and Hospice at Ahmedabad - 7-12 February, 1990.

51. Gladys Jeevy; Paul Sebastian; Krishnan Nair M. Simple oral analgesics in the management of advanced Cancer Pain at Satellite meeting of VI World Congress on Pain with VI Annual All India Conference on Pain at Bombay 24-26h March, 1990.

DISTINGUISHED VISITORS

1. Dr. John Yarnold
The Royal Marsden Hospital
Downs Road, Sutton
Surrey, SM2 5 PT
United Kingdom
2. Andrew M Yeager,
The Johns Hopkins Oncology Centre
Baltimore, Maryland
U.S.A.
3. Morton Coleman,
New York Hospital
Council Medical Centre
New York, NY 10021
4. James F. Holland,
Mount Sinai Medical Centre
New York
5. Jimmi C. Holland,
Memorial Sloan-Kettering
Cancer Centre
1275 York Avenue
New York
6. Lawrence A. Lessin,
George Washington University
U.K.
7. Gillian L. Burn
"Railway Cuttings"
2, Fairoak Road
Cardiff CF2 4 PL

ADMINISTRATION

GOVERNING BODY MEMBERS OF THE REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM

1. Shri E. K. Nayanar
Chief Minister of Kerala : Chairman
2. Shri A. C. Shanmukhadas
Minister for Health : Vice-Chairman
Government of Kerala.
3. Shri. Palat Mohandas, : Alternate
Secretary to Government : Vice-Chairman
Health & Family Welfare Dept.
4. Shri. R. Narayanan, : Member
Commissioner & Secretary
to Govt., Finance Department
5. Shri. V. Krishnamurthy, : Member
Secretary to Govt.
Planning Department
6. Secretary to Govt. : Member
Union Ministry of Health &
Family Welfare, Govt. of India or
his nominee.
7. Director General of Health : Member
Services, New Delhi or his nominee
8. Dr. S. C. Gupta, : Member
Director,
Vikram Sarabhai Space Centre,
Trivandrum.
9. Dr. M.S. Valiathan, : Member
Director, Sree Chitra Tirunal
Inst. of Medical Science &
Technology, Trivandrum.

10. Dr. G. Santhakumari,
Director of Medical Education
Trivandrum. : Member
11. Dr. Elsie Philip, (upto 30.4.1989)
Dr. V. K. Jayapalan (from 1.5.89)
Principal, Medical College
Trivandrum : Member
12. Senior most Pathologist in the
Medical College services in the
Kerala Government. : Member
13. Dr. M. Krishnan Nair,
Director, Regional Cancer Centre.
Trivandrum. : Convener

MEMBERS OF THE EXECUTIVE COMMITTEE OF THE REGIONAL CANCER CENTRE SOCIETY

1989-1990

1. Shri. Palat Mohandas,
Secretary to Govt., Health &
Family Welfare Dept. : Chairman
2. Shri. R. Narayanan,
Commissioner & Secretary
Finance Department : Member
3. Shri V. Krishnamurthy,
Secretary to Govt.
Planning Department : Member
4. Dr. G. Santhakumari,
Director of Medical Education
Trivandrum : Member
5. Dr. Elsie Philip (upto 30-4-89)
Dr. V. K. Jayapalan (from 1-5-89)
Principal, Medical College,
Trivandrum. : Member
6. Dr. M. Krishnan Nair,
Director,
Regional Cancer Centre,
Trivandrum : Convener

**MEMBERS OF THE BUILDING COMMITTEE OF THE
REGIONAL CANCER CENTRE, TRIVANDRUM.**

1. Shri. P.R. Balakrishnan (till 20-5-1989) : Chairman
Shri. E. Abdul Azeez (from 26-4-89 to 22-1-1990)
Shri. M. J. Mathew (from 16-2-1990)
Chief Engineer, P.W.D.
Buildings & Local Works,
Trivandrum.
2. Dr. M. Krishnan Nair : Member
Director
Regional Cancer Centre,
Trivandrum
3. Dr. Elsie Philip (upto 30-4-89)
Dr. V. K. Jayapalan (from 1-5-89) : Member
Principal
Medical College,
Trivandrum.
4. Dr. G. Santhakumari, : Member
Director of Medical Education,
Trivandrum.
5. Shri. Thomas Panicker : Member
Chief Architect
P.W.D., Trivandrum
6. Shri. Joseph Stephen (upto 31-5-89) : Member
Shri. K.R. Bhaskaran Nair (from 17-7-89)
Finance & Accounts Officer,
Regional Cancer Centre,
Trivandrum.
7. Shri P. Rajagopal (from 5-10-89)
(Asst. Engineer in charge of P.E.)
Shri G. Raveendranathan Nair
(Asst. Engineer in charge of P.E.)
Shri. G. Raveendranathan Nair : Convener
Project Engineer
Regional Cancer Centre
Trivandrum.

**SCIENTIFIC COMMITTEE MEMBERS OF THE
REGIONAL CANCER CENTRE SOCIETY, TRIVANDRUM**

1. Dr. Sundram, M. S. : Chairman
Head, Biomedical Division,
BARC, Bombay
2. Dr. Elsie Philip, MD, (upto 30-4-89) : Vice-Chairman
Dr. V. K. Jayapalan, MD (from 1-5-90)
Principal, Medical College,
Trivandrum
3. Dr. M. S. Valiathan, MS, FRCS, FAMS : Alternate
Director, Sree Chitra Thirunal
Institute for Medical Science &
Technology, Trivandrum. : Vice-Chairman
4. Dr. N. Lakshmypathy, MD : Member
Director, Institute of Nuclear
Medicine & Allied Sciences, Delhi.
5. Dr (Mrs.) G. Sudha Gangal, Ph.D. : Member
Head, Division of Immunology,
Tata Memorial Hospital, Bombay.
6. Dr. Renadev Ph.D. : Member
Retd. Director,
Cancer Research Institute
Tata Memorial Centre, Bombay
7. Dr. Jayaram Panicker, MD : Member
Retd. Principal,
Medical College,
Calicut.
8. Dr. Yagnanarayana Iyer, Ph.D. : Member
Prof. of Biochemistry
St. John's Medical College,
Bangalore.

9. Dr. N. Sreedevi Amma, MD,
Prof. of Cytology,
Regional Cancer Centre,
Trivandrum. : Member
10. Dr. T. P. Ramachandran, Ph.D.
Assoc. Prof. of Radiation Physics
Regional Cancer Centre,
Trivandrum. : Member
11. Dr. K. Sasidharan,
Assoc. Prof. of Nuclear Medicine,
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
Science, Coimbatore. : Member
14. Dr. T. K. Padmanabhan, MD,
(upto 5-3-90)
Superintendent,
Regional Cancer Centre,
Trivandrum. : Convener

MAJOR DECISIONS OF THE GOVERNING BODY OF THE REGIONAL CANCER CENTRE SOCIETY

- Resolved to implement the scheme sanctioned by the ICMR to set up a Centre for Preventive Oncology as the subsidiary of the Regional Cancer Centre with financial support from them.
- Resolved to implement the project entitled "Cancer Registry in the natural background areas in Kerala" sanctioned by the Department of Atomic Energy with financial assistance of Rs. 36 lakhs provided by them.
- Resolved to approve the audited Statement of Accounts and the Annual Report of the Regional Cancer Centre Society for the year 1988-89 with the comments of the Commissioner & Secretary to Government (Fin) as such. It was also resolved to approve the budget proposals for 1990-91 and revised estimates for 1989-90 subject to the provision made in the annual budget of the Kerala Government.
- Resolved to pursue vigorously the bifurcation of staff of DME and RCC as ordered by the Government of Kerala and get the matter finalised by the Government at the earliest.
- Resolved to permit the Regional Cancer Centre Society to avail of a loan of Rs. 40 lakhs with State Government guarantee to be repaid by the State Government in the financial year 1989-90 to make the outstanding payments on building and to implement a few urgent developmental activities, in view of the financial constraints.
- It was resolved to request the State Government to exempt the Mini Bus purchase for Cancer Care for Life Scheme from the payment of usual taxes for free transport of Cancer patients.

MAJOR DECISIONS OF THE EXECUTIVE COMMITTEE DURING THE YEAR 1989-90

The Committee resolved to establish training facilities for cancer control with W.H.O. support and to utilize the amount of US \$ 10,000/- for the purpose of establishing a Cancer Control Training Centre and Detection Centre.

The Committee resolved to take over the 2 ECDCS in Ernakulam and Palghat in consultation with the DHS. It was further resolved that the Director, Regional Cancer Centre may write to Government on the need to retain these centres as part of the Regional Cancer Centre.

It was resolved to appoint Dr. P. N. Madhavan Nair as Prof. of Cancer Research (Immunology) in the Regional Cancer Centre taking into consideration his achievements in the field of Cancer Research and the senior position which he holds presently in United States and agreed to sanction him a few advance increments in the present scale of pay when he joins the post.

It was resolved to purchase "Micro Comp 550" X-ray unit offered by M/s. I. G. E. India Ltd., Cochin at a cost of Rs. 8,25,316.

The Committee agreed to the proposal to conduct a Regional Symposium on 14-11-1989 on "Advance in Oncology" with the participation of 6 American specialists and to incur an expenditure of Rs. 15,000/- on this account.

The Committee resolved to implement the 1st pay revision order of Government of Kerala in Regional Cancer Centre w.e.f. 1-7-1988.

It was resolved that letters of appreciation should be given to Dr. Prabha Balam, for the best paper presented by her in the section on health care in the Kerala Science Congress, Smt. Molykutty John for winning the Jwaladevi Award for the best paper presented in the 19th Annual Conference of the Indian Academy of Cytologists in Udaipur and Sri Ravindranathan Nair, Medical Records Officer for the untiring efforts made in organising clinical facilities in the new building of the Regional Cancer Centre.

ENGINEERING DEPARTMENT

The necessity for constructing a new building complex Regional Cancer Centre, Trivandrum to accommodate various sophisticated and modern equipments used for diagnosis and treatment of cancer patients as well as to provide beds for them had been felt from the very inception of the Centre. Accordingly, an estimate had been prepared for Rs. 950 lakhs for the construction of the building project. In accordance with the pattern of sharing of expenditure with the State and Central, the State Government had provided funds in the Annual Budget estimate for construction. An Engineering Wing was formed for construction activities in 1983-84 and plans in respect of First Phase of Building Complex was finalised, and the construction of the building was taken up during 1985. The Governing Body of the Cancer Centre gave their approval for the construction of the 1st Phase of the building estimated to cost of Rs. 217 lakhs later on revised Rs. 301 lakhs to accommodate revised proposals and increased cost of services, such as, Air-conditioning, Electrification and Fire protection and fire fighting etc.). The foundation stone for the 1st Phase was laid on 11-9-1984 by Sri K. Karunakaran, the then Hon'ble Chief Minister of Kerala in the presence of Sri. K.P. Ramachandran Nair, the then Hon'ble Minister for Health at a function held in a befitting manner. Henceforth there was no question of looking back, and relentless strenuous work of all concerned helped to complete building in a record period of 4 years.

INAUGURAL FUNCTION

The new building was inaugurated by Shri. E. K. Nayanar, Hon'ble Chief Minister of Kerala on 17-8-1989, at a function presided over by Shri A. C. Shanmukhadas, Hon'ble Minister for Health and Family Welfare. Shri. M. Vijayakumar, M. L. A., Dr. M. S. Valiathan, Director, Sree Chitra Thirunal Institute for Medical Sciences & Technology, Dr. V. K. Jayapalan, Principal, Medical College, Trivandrum, Dr. K. P. Chandrasekharan, Joint Director of Medical Education, Dr. K. V. Krishnadas, Rtd. Director & Professor of Medicine, and Dr. K. Balaraman, Director of Health Services (Retd) delivered felicitation speeches. To mark the occasion mementos were awarded to 12 persons including architects, engineers and labourers for the valuable work done by them in completing the 1st Phase of building project.

The new building with an area of 5,000 sq. mts. houses the O.P. waiting and patient examination facilities, all investigative facilities such as imageology (radiological, nuclear and ultrasonographic), Clinical Pathology, Library, Surgical theatres and acute post-operative care areas, medical oncology and National Tumour Registry & Offices. A 500 M. Cub. capacity Ground Water Tank, Two 200 tonnes YORK Centrifugal Airconditioning systems and a 1250 KVA Indoor Transformer etc. which all will cater to the needs of II Phase of the building complex have also been commissioned. This is expected to reduce the cost of the II phase building construction. Fire detection and fire protection facilities, Medical Gas systems, Telephone Communication systems have also been provided.

The Civil works were done at a cost of Rs. 1.47 crores by M/s P. Ratnaswamy, Engineers & Contractors, Trivandrum. Electrification works for Rs. 26 lakhs done by M/s Harrison Malayalam Limited, Rs. 31 lakhs worth of electrical equipments were installed for the project. M/s Blue Star Limited has done the Airconditioning system for Rs. 30 lakhs and we had imported 2 Nos. Centrifugal Chiller from YORK, U.S.A. for Rs. 24 lakhs. M/s Madras Engineering Concerns, Madras and M/s M.E. Industries, Bombay, have done the Plumbing and fire protection and fire fighting systems respectively.

The II phase of the Building Project - an 8 storey block to house the inpatient wards, Main surgical theatre, 4 EB Therapy rooms, Research Division, Utilities and Radiotherapy, Clinical Laboratories and Imageology, accommodation for residential staff etc. -- is on the anvil. The work on the new project will commence in August, 1990 and is expected to be completed in 3 years time.

The Building Committee which controls the construction activities of the Project met four times to discuss planning and implementation of the Project during the current year.

Sri G. Raveendranathan Nair, Project Engineer left the Engineering Department on completion of 5 years of deputation in October 1989 and handed over charge to Shri P. Rajagopal, Assistant Project Engineer.

ACCOUNTS

REGIONAL CANCER CENTRE

SOCIETY, THIRUVANANTHAPURAM

BALANCE SHEET AS AT

31-3-1989

31 MARCH, 1990

As at
31-3-1989

LIABILITIES

Rs.	Rs.	P.	Rs.
	CAPITAL FUND		
	4,13,32,290.78		
	As per last Balance Sheet		
	Add: Transfer of Capital Grants		
	36,64,257.82		
	State Government		
	23,00,000.00		
	Central Government		
	6,000.00		
	Transfer of donations received		
4,13,32,300			
	CAPITAL GRANT :		
	From Government of India		
	Ministry of Health and Family Welfare, New Delhi		
	3,00,000.00		
	1st Instalment of Grant for 1989-90 as per letter No. V-22015/9/88-R dated 3.8.1989		
	Less: Amount utilised for purchase of equipments transferred to Capital Fund		
Nil	3,00,000.00		
	Kerala State Government Grant Capitalised		
	36,64,257.82		
	Less: Amount utilised for construction of Building and purchase of equipments transferred to Capital Fund		
Nil	36,64,257.82		
	Donation received for purchase of Capital Assets		
	80,000.00		
	Less: Amount utilised during the year		
10,000	8,000.00		
4,13,42,300	64,000.00		
	Carried Over		
	4,73,86,557.80		

As at
31-3-1989

ASSETS

Rs.	Rs.	P.	Rs.	P.
	FIXED ASSETS:-			
6,02,94,273	5,67,08,066.04			
4,41,384	Nil			
	As per Schedule			
	Add: Capital Goods in Transit			
	8,25,316.00			
	Machinery-at-site			
			5,75,33,382.04	
	INVESTMENTS:-			
	Term Deposits in respect of Cancer Care for Life Scheme, with Banks			
	1,08,71,718.00			
	In-Non-Operational Account with Banks			
	38,163.95			
1,00,60,703			1,10,09,879.95	
	CURRENT ASSETS, LOANS AND ADVANCES:-			
3,72,818	6,40,850.00			
1,68,784				
	Stock of Chemicals, Films Sundry Medical items etc.			
	1,11,089.00			
	Interest Accrued on Bank Deposits			
Nil	6,70,000.00			
2,64,274	10,50,977.75			
15,000	15,000.00			
Nil	6,484.00			
1,97,115	2,03,115.00			
138	207.00			
9,980	9,982.70			
	Deposits			
	Stamps on Hand			
	Cash on Hand (including imprest Rs. 6,550)			
	Balances with Banks and Treasury:-			
	State Bank of Travancore.			
1,63,683	Nil			
27,055	9,35,180.15			
12,01,905	11,72,582.95			
1,38,438	4,83,899.00			
25,07,212	18,84,099.00		72,52,386.56	
	Medical College			
	Canara Bank, Puthanchanthol			
	Indian Overseas Bank, Pattom			
	Kerala State Co-operative Bank, Trivandrum.			
	Government Treasury			
6,58,60,799			7,58,25,648.56	
	Carried Over			

REGIONAL CANCER CENTRE

SOCIETY, THIRUVANANTHAPURAM

INCOME AND EXPENDITURE ACCOUNT

FOR THE YEAR ENDED 31ST MARCH, 1990

Figures for the previous year		Figures for the previous year		Figures for the previous year		Figures for the previous year	
Rs.	EXPENDITURE	Rs.	EXPENDITURE	Rs.	INCOME	Rs.	P.
1,40,444	To Opening Stock of Chemicals,				By Grant from Government of Kerala		
	.. Films and other Sundry Medical				Health and Family Welfare		
	Items etc.	3,72,810			Department received during		
5,51,393	.. Purchase of Chemicals, Films etc.	3,12,477			the year:-		
	.. Salaries, Wages, Bonus, Con-				1st Instalment as per letter No.		
	tribution to Provident and				G.O. Rt. 2002/89/H & FWD	30,00,000.00	
25,69,004	Other Funds	33,52,834			dt. 1-7-1989		
9,83,476	.. Purchase of Medicines	7,89,592			2nd Instalment as per letter No.		
6,44,509	.. Purchase of Nuclear and				G. O. Rt. 2914/89/H & FWD	26,00,000.00	
	Radiotherapy Isotopes	4,19,592			dt. 29-9-1989		
32,468	.. Consultation service fee	27,632			3rd Instalment as per letter No.		
19,696	.. Uniform	24,338			G.O. Rt. 3724/89/H & FWD	30,00,000.00	
30,500	.. Rent	8,266			dt. 19-12-1989		
89,371	.. Postage, Telegrams and Telephone	1,10,829			4th Instalment as per letter No.		
1,09,934	.. Printing and Stationery	1,10,862			G.O. Rt. 786/90/H & FWD	18,00,000.00	
54,349	.. Travelling Expenses	1,92,311			dt. 12-3-1990		
28,360	.. Advertisement charges	56,045			5th Instalment as per letter No.		
21,776	.. Electricity charges	4,07,950			G.O. Rt. No. 931/90/H & FWD	1,60,000.00	
3,250	.. Legal Expenses	8,600			dt. 22-3-1990		
	.. Remuneration to Auditors:					1,04,50,000.00	
7,500	Fee for Audit	8,500			Less: Part of the Grant		
	Fee for Tax Representation	1,500			Capitalised and transferred		
	.. Repairs and Maintenance:-				to Balance Sheet	36,64,257.82	
	Equipments	5,24,363.20		47,62,100			67,86,742.18
	Buildings	66,645.82		12,50,384	By Investigation Fees		18,74,203.71
	Vehicles	1,06,092.75					
4,20,754		7,47,101.77					
	.. New Building Incorporation and						
	Shifting Expenses	93,858.30					
8,60,100	.. Interest Paid to Banks	15,44,335.79					
65,62,883	Carried Over:	91,68,228.69		80,32,484	Carried Over:	84,59,945.69	

REGIONAL CANCER CENTRE
 INCOME AND EXPENDITURE ACCOUNT

SOCIETY, THIRUVANANTHAPURAM
 FOR THE YEAR ENDED 31st MARCH 1990

Figures for the previous year

EXPENDITURE (Contd)

Rs.		Rs.	P.	Rs.
56,62,885	B/forward.			97,68,225
14,033	To Conferences, Seminars & Workshops			50,933
87,839	.. Books and Periodicals			1,02,507
	.. Early Cancer Detection Centre Expenses			
	Salaries and Allowances	3,29,308.40		
	Travelling and other Expenses	51,480.45		
4,28,843	.. Proportional Share of Expenditure of National			3,80,789.30
1,19,801	.. Labour Registry			1,19,068.00
25,030	.. Miscellaneous Expenses			67,893.00
72,39,429				96,89,807.05

NOTE: Receipts and Payments on account of various Research and other Schemes sanctioned by ICMR and other organisations/Government departments have not been incorporated herein.

Vide our report of date attached
 For SURI & CO.
 Chartered Accountants

Sd/-
 N. SUBBIAH
 Partner

Place: Thiruvananthapuram
 Dated: 07-11-1990

Figures for previous year

INCOME (Contd)

Rs.		Rs.	P.
60,32,484	B/forward		84,59,945.89
7,019	By Interest Received		37,204.80
3,000	.. Cytotechnician Course Fee		3,750.00
	.. Fee and charges on Radio Immune Assay Course		
500	.. Fee on Ultrasonography Training		7,000.00
2,000	.. Miscellaneous Receipts		45,577.40
24,029	.. Closing Stock of Chemicals, Films and Other Sundry Medical Items etc.		6,40,950.00
3,72,816	.. Excess of Expenditure over Income		6,95,378.56
7,97,581			
72,39,429			98,89,807.05

Sd/-
 Director

Sd/-
 Principal
 Medical College, Trivandrum

DR. AYSHA GUHARAJ, MD
 Director
 Directorate of Medical Education
 Trivandrum 695 011.

REGIONAL CANCER CENTRE
CANCER CARE SOCIETY
INCOME AND EXPENDITURE ACCOUNT

SOCIETY, THIRUVANANTHAPURAM
SCHEME
FOR THE YEAR ENDED 31st MARCH 1990

Figures for the previous year		EXPENDITURE		Figures for the previous year		INCOME	
Rs.		Rs.		Rs.		Rs.	P.
36,000	To Salaries	47,139		9,183	By Sale of Application Form	12,850	00
7,250	.. Advertisement and Publicity	10,670		8,89,431	.. Interest on Fixed Deposits	9,71,297	61
25,311	.. Processing of Application Forms and mailing charges	21,782					
	.. Cost of Return of unused Application Forms	56,324					
9,218	.. Printing and Stationery	31,767					
	.. Postage and Telephone						
2,500	.. Rent						
1,166	.. Travelling Expenses	1,211					
	.. Maintenance and Motor Vehicles	13,417					
20,500	.. Cost of Medicines and Expenses reimbursed to patients	1,07,137					
37	.. Miscellaneous Expenses	429					
7,97,680	.. Excess of Income over Expenditure for the year	6,95,376					
8,98,814		8,84,147		8,98,814		9,84,147	61

Vide our Report of date attached

For SURI & CO
Chartered Accountants
Sd/
N. SUBBIAH
Partner

Sd/-
DR. AYSHA GUHARAJ M. D.
Director
Directorate of Medical Education
Thiruvandrum 695 014

Sd/-
Director

Sd/-
Principal
Medical College, Thiruvandrum

Place: Thiruvananthapuram
Dated: 07-11-1990

REGIONAL CANCER CENTRE

Schedule of Fixed Assets

SOCIETY, TRIVANDRUM

as on 31st March 1990.

	Written down value as on 1-4-1989		Additions during the year		Deduction during the year		Balance as on 31-3-1990	
	Rs.	P.	Rs.	P.			Rs.	P.
Building	1,89,08,147.	79	34,85,736.	68	..	..	2,23,93,884.	47
Boundary wall	1,27,118.	63	..	..	..	..	1,27,118.	63
Furniture and Fixtures	4,93,251.	45	6,59,652.	57	..	..	11,52,904.	02
Office Equipments	1,03,706.	50	6,177.	40	..	..	1,09,883.	90
Vehicles	1,02,253.	95	3,36,239.	00	..	..	4,38,492.	95
Library Books	1,96,340.	65	..	..	..	..	1,96,340.	55
Hospital and Lab Equipments	1,62,88,609.	39	16,04,274.	63	..	..	1,78,92,884.	02
Lift/Elevators	4,39,433.	00	50,047.	00	..	..	4,89,480.	00
Electrical Installation and Fittings	58,33,236.	80	1,60,636.	10	..	..	59,93,872.	90
Air-Conditioning (under installation)	56,23,384.	65	10,015.	70	..	..	56,33,400.	35
Telephone Equipments	5,15,695.	00	..	..	..	..	5,15,695.	00
Water Supply	8,02,985.	00	1,01,014.	00	..	..	9,03,999.	00
Addition to Old Building	8,60,110.	25	..	..	..	..	8,60,110.	25
	5,02,94,272.	96	64,13,793.	08			5,67,08,066.	04

Note: A sum of Rs. 116 lakhs and Rs. 80 lakhs have been utilised till 31-3-1990 on purchase of Hospital and Laboratory Equipments and construction of building respectively out of the Grant-in-Aid received from the Government of India.

Sd/-
Director

Trivandrum,
7-11-1990.

For SURI & CO.,
Chartered Accountants
Sd/-
N. SUBBIAH
Partner

Sd/-
Principal
Medical College
Trivandrum

Sd/-
Dr. AYSHA GUHARAJ, MD.
Director
Directorate of Medical
Education, Trivandrum-11

7th November, 1990

The Governing Body,
Regional Cancer Centre Society
THIRUVANANTHAPURAM

AUDITORS' REPORT

We have examined the accounts of REGIONAL CANCER CENTRE SOCIETY THIRUVANANTHAPURAM (Regn. No. 567/81) for the year ended 31st March 1990, the attached Balance Sheet as at 31st March 1990, and the Income and Expenditure Account for the year ended that date annexed thereto and we certify the same to be correct and in agreement with the books of account and other records kept by the Society so far as it appears from our examination of these books and records, subject to the following:

1. Depreciation on Fixed Assets has not been charged since 31-3-1986 and the unprovided depreciation amounted to Rs. 1,26,38,989 including Rs. 39,73,913 relating to the year ended 31.3.1990.
2. In respect of additions to the old building, capitalised during the year 1987/88 at Rs. 8,60,110, pending negotiation and/or settlement with State P.W.D., additional claim of Rs. 4,16,940 made by the State P.W.D. has not been provided for in the accounts.
3. In respect of land of 89 cents at Palghat, assigned by Government in G.O.No. 619/88-RD dated 28.7.1988 and building constructed thereon, the value of which amounted to Rs. 1,27,119 and is included under Fixed Assets, the receipt of patta in favour of the Society is yet to be obtained.
4. Stock records in respect of chemicals, films and other medical materials have not been properly maintained. The closing stock of Rs. 6,40,950 as on 31.03.1990 has been valued as per the inventories furnished by various Departments.
5. Advances considered good includes Rs. 29,452 towards travelling advances and Rs. 82,816 towards advances for purchases, aggregating to Rs. 1,12,268, outstanding for more than one year in respect of which no proper adjustments/recoveries have been made in the accounts. The control procedures for squaring up of advances require to be strengthened.
6. No provision has been made in respect of Advances considered doubtful of recovery amounting to Rs. 15,000.

Existing internal control procedures for the purchase of chemicals, films and other medical materials and also for capital assets should be strengthened further to the advantage of the Society and also periodical physical verification has to be conducted to facilitate comparison of physical stock with the records and to make adjustments, if any, in the financial records.

No Sales tax liability on the works contract has been provided for in the accounts.

In the absence of specification as to capital and revenue nature for the grant of Rs. 1,04,50,000 received from Government of Kerala, the grant received has been treated as revenue grant shown under income and expenditure account to the extent of excess of expenditure over income, including the Cancer Care for Life Scheme and the balance of grant received has been treated as capital grant, carried to Balance Sheet.

For SURI & CO.
Chartered Accountants

Sd/-
N. SUBBIAH
Partner

REGIONAL CANCER CENTRE

NOTE

No.
RCC/Accts/90-91
Date: 14-11-1989

Subj:- Remarks of R. C. C. on the points raised in Auditors Reports.

1. State Govt. have instructed that depreciation need not be charged.
2. State Govt. have been requested to waive the additional claim of Rs. 4,16,940.
3. Action is pursued with revenue Authorities to get Pattin in respect of the 69 cents of land in Palghat.
4. Observations of Auditors noted. We have taken action to improve the system of maintenance of stock records.
5. Instructions are noted for guidance.
6. Court has decreed the amount in favour of the Centre and hence the amount is realisable. It is not doubtful of recovery.
7. Instructions are noted for guidance and action will be taken to streamline the procedures.
8. Observations are noted.
9. Parts of the grant was utilised on construction of Building and acquisition of assets and hence that part of grant, shown as capital grant is in order.

Sd/-
DIRECTOR

SURI & Co.,
Chartered Accountants

Mahatma Gandhi Road
Thiruvananthapuram-695 001

12-11-1990

UTILISATION CERTIFICATE

Certified that the grant of Rs. 23,00,000 (Rupees Twenty three lakhs only) received by the Regional Cancer Centre Society, Trivandrum (Reg. No. 567/81) from Ministry of Health and Family Welfare, Government of India, as per letters No. V-22015 6/88-R dated 20-01-1989 and 03-05-1989, has been utilised during the year ended 31-03-1990, for purchase of equipments in connection with the development of the Regional Cancer Centre.

For SURI & CO.
Chartered Accountants
Sd/-
N. SUBBIAH
Partner

8-11-1990

UTILISATION CERTIFICATE

Certified that the grant of Rs. 1,04,50,000 (Rupees One Crore Four lakhs and fifty thousand only) received during 1989/90 by REGIONAL CANCER CENTRE SOCIETY THIRUVANANTHAPURAM (Regn. No. 567/81) from Health and Family Welfare Department, Government of Kerala, as per the following Government Orders:

G.O. (Rt) No. 2002/89/H&FWD dt. 1-7-1989	30,00,000
G.O. (Rt) No. 2914/89/H&FWD dt. 29-9-1989	25,00,000
G.O. (Rt) No. 3724/89/H&FWD dt. 19-12-1989	30,00,000
G.O. (Rt) No. 786/90/H&FWD dt. 12-3-1990	18,00,000
G.O. (Rt) No. 931/90/H&FWD dt. 22-3-1990	1,50,000

	1,04,50,000

has been utilised by the Society during the year 1989/90 for the purpose of Chemotherapy and Nuclear Medicine and allied services and also for the purpose of maintenance of the Institution and other working expenses, implementation of projects, construction of buildings, functioning of Early Cancer Detection Centres and maintenance of National Tumour Registry.

For SURI & CO.
Chartered Accountants
Sd/-
N. SUBBIAH
Partner

CANCER CARE FOR LIFE SCHEME

Modern medical management of cancer is expensive on account of the enormous cost for diagnosis and treatment. As such a number of patients especially of the weaker section do not comply with the stringent requirements of modern treatment. The R. C. C. sought to relieve the problem to a certain extent by offering to the residents of Kerala, a welfare scheme called "Cancer Care for Life". It was introduced in June, 1985. Anyone who is not a cancer patient can become a member of the scheme by filling in an application form for membership and making a one-time remittance of Rs. 101/- to a designated bank. There is no medical examination prior to enrolment in the scheme. A membership card is issued to those joining the scheme. The membership in the scheme entails the applicant to receive cancer diagnostic and treatment facilities at the R.C.C., Trivandrum in the unfortunate event of getting cancer anytime during his life-time after 2 years from the date of enrolment. R.C.C. will also meet Bus/Railway fare from residents in Kerala for the first trip to the Centre and accommodation charges according to the rules of the Centre. If the Academic Forum after due consideration of various facts recommend advance treatment elsewhere in India or abroad such expenses will also be met by R.C.C. (subject to clearances individual cases by Reserve Bank of India).

The details given below as on 31-2-1990 reveal how far the scheme has been beneficial to the people of Kerala.

1. No. of persons enrolment in the scheme — 1,05,000
2. Membership fee invested in securities — 50
3. No. of persons benefited by the scheme — 1,10,10,000
4. Expenditure incurred on granting benefits to CCL patients — 1,27,637

The amount paid by a person may not be helpful to himself but it will help another in distress.

LIST OF STAFF

Director	— Dr. M. Krishnan Nair
Superintendent	— Dr. T. K. Padmanabhan
Secretary (Academic)	— Prof. A. Joseph

RADIOTHERAPY

Dr. M. Krishnan Nair	— Director & Professor
Dr. T. K. Padmanabhan	— Professor
Dr. F. Joseph	— Assoc. Professor
Dr. C. S. Kuttappan	— " "
Dr. B. Rajan	— " "
Dr. T. Gāngadevi	— " "
Dr. C. S. Rafeeka Beegum	— " "
Dr. P. G. Jayaprakash	— Asst. Professor
Dr. S. Parameswaran	— " "
Dr. V. Narayana Bhattathiri	— " "
Dr. Jayaprakash Madhavan	— " "
Dr. C. S. Madhu	— Tutor
Dr. A. Sudhakaran	— " "
Dr. P.R. Sasindran	— " "
Dr. Gireesan	— " "
Dr. K. Ratheesan	— Lecturer

DENTAL SECTION

Dr. L. Sudha	— Tutor
Dr. K. R. Nalinakumari	— Lecturer
Smt. Krishnambal M.	— Dental Hygienist

IMAGEOLOGY

Dr. K. Sasidharan	— Assoc. Professor
Dr. V. Padmanabhan	— " "
Dr. V. M. Pradeep	— Asst. Professor
Sri. Raghu Ram Nair, K.	— Lecturer
Dr. K. Ramachandran	— " "

Smt. Raheena Beegum	— Radiographer Gr. II (on long leave)
Smt. V. Sheela	— Radiographer Gr. II
Sri. Joe D'Cruz	— " "
Sri. T. Prasad	— " "
Sri. T. Radhakrishnan Nair	— " "

RADIATION PHYSICS

Dr. T. P. Ramachandran	— Assoc. Professor
Sri. P.G. Gopalakrishna Kurup	— " "
Sri. C. A. Davis	— Asst. Professor
Sri. Thayal Singh Elias	— Lecturer
Smt. B. Vimala	— Radiographer
Sri. N. Sadasivan Nair	— " "
Smt. Suseelamma	— " "
Sri. C. Viswanathan	— " "
Smt. M. Leela	— " "
Sri. P. Ramabhadran	— " "
Sri. K. P. Radhakrishnan	— " "
Smt. R. Suja	— " "
Smt. Susamma George	— " "
Sri. S. Sreenivasan	— Radium Technician

CYTOLOGY

Dr. N. Sreedevi Amma	— Professor
Dr. B. Chandratekha	— Assoc. Professor
Dr. Elizabeth K. Abraham	— Asst. Professor
Dr. Rajasekharan Pillai	— " "
Smt. J. Ambika Kumari	— Senior Scientific Officer
Sri. Ragunathan Nair	— Cytologist
Sri. K. Vijayagopal	— Junior Research Officer
Sri. P. Gopalakrishnan	— Research Assistant
Sri. R. Muraleedharan	— Cytotechnologist (on long leave)
Sri. K. Raveendran Pillai	— Cytotechnologist
Smt. Molykutty John	— Cytotechnologist
Smt. C. Radhamma	— Lab Technician Gr. I.
Smt. S. Najeeja	— " "
Smt. J. Omana	— U. D. Typist
Smt. G. Leelamma	— Lab Technician Gr. I

Smt. G. Lekha
Sri. P. T. Abraham

-- Lab Technician Gr. II
-- Cytotechnician

SURGICAL ONCOLOGY

Dr. Thomas Cheriyan
Dr. Gladys Jeevi
Dr. Paul Sebastian
Dr. Iqbal Ahamed
Dr. N. Sivaramakrishnan

-- Asst. Professor
-- Anaesthetist
-- Asst. Professor
--
-- Resident Surgical Officer

Dr. K. L. Jayakumar
Dr. Asha Kumar
Dr. Moly Joseph Joy
Sri. B. Hari Kumar

-- Resident Surgical Officer
-- Lecturer
--
-- Theatre Asst.

PAEDIATRIC ONCOLOGY

Dr. P. Kusuma Kumari
Dr. S. Rajeev Kumar

-- Asst. Professor
-- Lecturer

CANCER RESEARCH

Dr. Prabha Balaram
Smt. P. Remani
Sri. Raveendran Ankathil
Sri. Thomas Abraham
Smt. B. Padmavathy Amma
Smt. C. Gangadevi
Smt. J. Usha
Smt. P. Renuka
Sri. Anil Kumar
Smt. A. Leela
Sri. K. Vikraman Nair

-- Assoc. Professor
-- Lecturer in Cancer Research
-- Scientific Officer
--
-- Technical Officer
(till 31-3-90)
-- Lab Technician Gr II
--
--
--
-- Animal House keeper-cum-
Attender
--

HOSPITAL CANCER REGISTRY AND MEDICAL RECORDS

Sri. P. Gangadharan

-- Assoc. Prof. of Cancer
Epidemiology (Statistics)

Dr. R. Sankaranarayanan
Sri. R. Raveendran Nair
Sri. S. Muraleedharan Nair
Smt. G. Padmakumari Amma
Smt. P. T. Latha
Smt. Anitha Nair
Smt. V. Jalajakumari
Sri. L. G. Amaladas
Sri. G. Rajasekharan Nair
Smt. Sreedevikutty
Sri. B. Sreekumar
Smt. D. Chandrika
Smt. T. Chandrika
Sri S. Rajayyan

-- Epidemiology (Medical)
-- Medical Records Officer
-- Medical Statistician
-- Senior Research Fellow
-- Social Investigator
--
-- Clerk
--
--
-- Typist
-- Coding Clerk
-- Coding Clerk
-- Clerk Typist
-- Technical Helper

MEDICAL ONCOLOGY

Dr. V. P. Gangadharan

-- Asst. Professor

Community Oncology

Dr. Babu Mathew
Dr. Ramani S. Wesley

-- Assoc. Professor
-- Lecturer

ADMINISTRATIVE OFFICE

Sri. K. Lekshmana Iyer
Sri. Joseph Stephen
Sri. K. R. Bhaskaran Nair
Sri. G. Sadasivan
Sri. C. Somasekharan Nair
Sri. S. Sukumaran Nair
Sri. G. Ganeswaran
Sri. N. Ramaswamy Iyer
Sri. S. V. Sasikumar
Smt. B. Lalitha
Smt. N. Beena
Sri. K. Sasikumar

-- Registrar
-- Finance & Accounts
Officer (till 31-5-1989)
-- Finance & Accounts
Officer (from 1-7-1989)
-- Administrative Officer
-- Financial Asst.
(till 31-12-89)
-- Cashier-cum-Accountant
-- Accountant
-- Office Assistant
--
--
--
--

Sri. Sudarsanan Pillai	—	Office Asst. (till 29-4-1989)
Sri. Sreedharan Nair	—	" (from 6-6-1989)
Smt. K. Rajalekshmi	—	"
Smt. R. Sudevi	—	Confidential Asst.
Smt. S. Mallikadevi	—	"
Smt. B. Savithri Amma	—	"
Sri. P. Krishnan Nair	—	Driver
Sri. P. Sreekumaran Nair	—	"
Sri. K.P. Krishnadas	—	"
Sri. Sasidharan Nair	—	"
Sri. M. Subair	—	Helper
Sri. P. Antony	—	"
Sri. K. Devaraja Panicker	—	"
Sri. G. Surendran	—	"
Sri. R. Anilkumar	—	"
Sri. C. Hari	—	"
Sri. K. Thankappan Chettyar	—	"
Sri. K. G. Balachandran	—	"
Sri. P. Gopakumar	—	"
Sri. P. S. Suresh	—	"
Sri. L. Balachandran	—	"
Sri. K. Sivankutty	—	"
Sri. S. Senan	—	"
Smt. P. Senthalekshmi	—	"
Sri. Sasikumaran Nair	—	Helper-cum-Watchman

NURSING

Smt. P.M. Aleykutty	—	Staff Nurse
Smt. S. Geetha	—	Staff Nurse
Smt. Saly Augustine	—	Staff Nurse (on long leave)

SECURITY

Sri. S. Vijayan Nair	—	Sergeant
Sri. K. Thankappan Nair	—	Security Guard
Sri. N. Achuthan Nair	—	"
Sri. B. Stellace	—	"
Sri. Somaskeharan Nair	—	"
Sri. Sukumaran Nair	—	"
Sri. Sahadevan	—	"

ENGINEERING WING

Sri. G. Raveendranathan Nair	—	Project Engineer (till 4.10.89)
Sri. A. Rajan	—	Maintenance Engineer (Electrical)
Sri. P. Rajagopal	—	Asst. Proj. Engineer
Sri. R. Asokan-Nair	—	Ist Grade Overseer
Smt. P. Susela	—	Confidential Asst.
Sri. A. R. Santhosh Kumar	—	Supervisor (Electrical)
Sri. N. Sasidharan	—	Supervisor (Electrical)
Sri. K. R. Rajendran	—	"
Sri. B. Rajeevan	—	"

EARLY CANCER DETECTION CENTRE, ERNAKULAM

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Smt. Mercy Joseph	—	Cytotechnologist
Sri. K. Sujathan	—	Cytotechnician
Smt. T. A. Ramani	—	UD Typist
Smt. L. Madhavikuttyamma	—	Staff Nurse
Sri. P. M. Abdul Rahiman	—	Helper
Smt. N. Santhakumari	—	Nursing Assistant

EARLY CANCER DETECTION CENTRE, PALGHAT

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Smt. C. Radha	—	Cytotechnologist
Sri. B. Anujan	—	"
Sri. A. Nataraj	—	Cytotechnician (on long leave)
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