



REPORT OF THE CANCER COMMITTEE

VOLUMES I & II

DIRECTOR GENERAL OF HEALTH SERVICES
GOVERNMENT OF INDIA MINISTRY OF
HEALTH & FAMILY PLANNING 1966

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REPORT OF THE CANCER COMMITTEE

VOLUME I

Members of the Committee on Cancer

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| 1. Dr. K. N. Rao, Director General of Health Services, New Delhi . . . | <i>Chairman</i> |
| 2. Dr. J. C. Paymaster, Tata Memorial Hospital, Bombay . . . | <i>Member</i> |
| 3. Dr. Amiya Kumar Sen, Chittaranjan Cancer Hospital, Calcutta . . . | .. |
| 4. Prof. P. N. Wahi, S. N. Medical College, Agra . . . | .. |
| 5. Dr. T. B. Patel, Director of Health Services, Gujarat, Ahmedabad . . . | .. |
| 6. Dr. S. Krishnamurthi, Cancer Institute (WIA), Madras . . . | .. |
| 7. Dr. B. Mukerji, Chittaranjan National Cancer Research Centre, Calcutta . . . | .. |
| 8. Dr. H. Syed Ali, Radium Institute and Cancer Hospital, Hyderabad . . . | .. |
| 9. Dr. S. Mukerji, Post-graduate Institute of Medical Educational & Research,
Calcutta | .. |
| 10. Dr. M. J. H. Writer, Assistant Director General of Health Services (Medical),
New Delhi | <i>Members
Secretary</i> |

REPORT OF THE CANCER COMMITTEE

1. Appointment of the Committee, Terms of Reference, Composition, Inauguration, Procedure and Methods

1.1. **Appointment of the Committee.**—The Government of India in the Ministry of Health and Family Planning, set up a Committee on Cancer under their letter No. F. 42-4/65-RISM, dated the 26th April 1965, to examine the question how and on what pattern the Cancer Hospitals at Ahmedabad, Bombay, Calcutta and Madras can be developed as Regional Cancer Hospitals and Research Centres. (Appendix 1).

1.2. Terms of Reference.

- (i) "To examine the present development of the Cancer Hospital, Ahmedabad ;
- (ii) To recommend its phased development ; and
- (iii) To report the immediate requirements, recurring and non-recurring expenditure, for the Third Five Year Plan and the later development during the Fourth Five Year Plan."

The Committee should also examine the working of the Cancer Hospitals at Bombay, Calcutta and Madras and recommend how the already functioning Cancer Hospitals could be developed into Regional Cancer Hospitals.

1.3. **Composition.**—The Committee was subsequently enlarged under the Government of India, Ministry of Health letters No. F.42-4/65-RISM of the 13th, 26th May and 3rd June, 1965 (*vide* page ii and Appendix 2).

1.4. **Inauguration, Procedure and Methods.**—The first meeting of the Committee was held on 29th and 30th May, 1965 (Appendices 3 & 4). Shri P. S. Naskar, Deputy Union Minister for Health, expressed the hope that the Committee would take a comprehensive view of the problems, facilities available for the detection, reporting and treatment of cancer cases and make recommendations for the well-rounded, integrated development of the cancer programme in a realistic and phased manner.

The Committee discussed the various aspects including the following :—

- (a) The Committee should visit the existing Cancer detection and treatment Centres and discuss the various aspects including the training facilities and financial position with officials and voluntary organisations ;
- (b) Questionnaire should be prepared and circulated to the Institutions ;
- (c) A realistic appraisal of the training centres and the personnel required for the Fourth Five Year Plan should be made ;
- (d) The report should bring out :
 - (i) The present facilities available in the country with special emphasis on the present development of the Regional Cancer Hospitals and certain Cancer Institutes ;

- (ii) Proposed Expansion of the programme ;
- (iii) The proposal for the Fourth Five Year Plan for the Cancer Programme ; and
- (iv) The requirement of the Cancer Hospitals with regard to building, personnel, equipment, research facilities, training facilities and educational programmes, budget proposals, grants-in-aid, etc.

The Committee visited Calcutta, Madras, Hyderabad and Ahmedabad where they visited the various Cancer Institutes, Medical Colleges and Hospitals and had discussions with the Directors of the Cancer Institutes, the Directors of Health Services, Health Secretaries, Universities authorities and Voluntary Organisations. The Institutes visited are in Appendices 5, 6, 7, 8, 9.

The Committee after visiting some of the Institutes met at the Centenary Hall, Madras University, Madras, on the 10th and 11th December, 1965. (Appendix No. 10.)

Dr. Sushila Nayar, Union Minister for Health and Family Planning, observed that Cancer programme was highly specialised requiring specially trained personnel, sophisticated equipment not available in the country and as such all resources available in the country should be mobilised and minimum standards, and criteria laid with a view to uniformity of procedure, etc. There should also be a free exchange of workers from one Institute to the other. Funds from all sources should be pooled and channellised through one Central Governing Body. She also desired that the Committee should continue to function as an expert body to advise the Government, Central, State, and local and voluntary organisations on all matters pertaining to cancer.

The Committee had requests from :

- (i) Department of Pathology, S. N. Medical College, Agra;
- (ii) J. K. Institute of Radium and Cancer, Kanpur;
- (iii) C. S. I. Hospital, Neyyoor;
- (iv) Medical College, Trivandrum; and
- (v) Safdarjang Hospital, New Delhi;

for starting Regional Cancer Research Centres in their Institutions.

2. Extent of the Problem

2.1. Prevalence.—There is no accurate information available on the extent of the problem. It is, however, believed that about 200,000 persons die annually of cancer. It is also believed that an increasing number of cases is recorded every year during the last 15 years. No doubt more and better diagnostic facilities, improved diagnostic procedures, growing awareness on the part of public etc. explain an increase in the cases reported but not fully. In fact it is believed that there is an increasing incidence of cancer in India. This fits in with the trend in the expectancy of life.

Unlike other diseases, it is difficult to measure with any reasonable degree of precision and accuracy the prevalence of cancer. One of the most important reasons is the difficulty of reliable diagnosis and paucity of diagnostic centres in the country.

Mortality data had been relied in the past as a measure of the Cancer problem. Important as they are, death statistics by themselves cannot define the problem adequately. As therapy becomes increasingly effective, the more curable types of cancer will appear less frequently in mortality records. Furthermore, medical certification of death cannot be viewed as a complete clinical history. In reporting the sequence of morbidity events leading to death, the number of persons dying with cancer is inevitably understated. This is the experience not only in this country but in advanced countries, too. Necropsy findings may give an accurate approach to the diagnosis but it only gives the prevalence of cancer at death. Moreover a very small fraction of total deaths is necropsied in India and as such the material is highly selective. An estimate can therefore be based on clinical and hospital records and on data contained in cancer registries. Cancer registry is, however, in its infancy. The reliance, therefore, has to be placed mainly on clinical and hospital records. In this there are also limitations as all cases do not come either under the qualified medical practitioners or medical practitioners with training in cancer and the diagnostic centres are very few and far between. Not all medical institutions including some of the district hospitals have reliable diagnostic facilities. Attempts at estimation of incidence in India have been very few and far between. The first concerted attempt was made in the thirties by Vishwanath and Grewal (1935) by examining the hospital and necropsy records in different States. This was followed by Khanolkar (1945) and by Mitra and Dasgupta (1960) who used the death registration records which are of apparently limited value. These reports do not give any correct estimate of the incidence rates according to age and sex, ethnic groups, social status, racial and geographical distribution of different types of cancer nor of the urban-rural differences. Investigations carried out so far indicate that in each year 85 people out of 100,000 developed cancer. (Paymaster).

The National Sample Survey Schedule collected the cancer data through non-technical personnel. This had its limitations. Seal and others (1955-58; 1961-63) attempted to collect cancer data from rural and urban areas through general health and morbidity surveys by trained medical personnel. Such organised sample surveys covering a whole population are necessary for a correct assessment.

In general, neoplastic diseases tend to occur more in an ageing population. Because of the high incidence of deaths from infectious diseases (bacterial or parasitic) and the relatively short life-span, a large segment of the population does not live to the age of high cancer incidence. Still, because of the large number of people involved, the number of patients with cancer at any one time is high. With increasing effectiveness of public health and preventive medical measures, one can foresee a time in the non-too-distant future when one will be forced to consider the problem of cancer in India much more seriously than is viewed today.

In India life expectancy has already risen from 35 to 45 years and is likely to rise further. This would mean that cancer will be a major public health problem.

2.2. Distribution by site.—Limited surveys have been conducted in India during the past few years. One such survey based on nearly 125,000 proved cases of cancer showed that

- (i) all types of cancer occurring in different parts of the body were prevalent ;

- (ii) that there was a greater frequency of oral cancer in Southern and Western India than in Europe and North America; and
- (iii) that smoking and chewing of tobacco had some casual relationship with the incidence of oral cancer.

Dr. J. C. Paymaster, Honorary Medical Adviser, Department of Atomic Energy, Government of India and the Chief Surgeon and Superintendent of the Tata Memorial Hospital, Bombay, has conducted a systematic study of distribution of cancer in India. Similar comparable controlled studies from the three other important cancer institutes and treatment centres in Agra, Calcutta and Madras are available. Findings and observations made by Dr. Paymaster appear to be typical and representative of cancer distribution in most parts of India, with perhaps minor modifications.

The entire digestive tract appears to be the most common site for the development of cancer. The oral cavity, pharynx and oesophagus are affected more frequently, whereas in many other countries the disease occurs in very large proportions in the parts of digestive tract below the level of the oesophageal orifice of the stomach. Oral cancer appears to be more common towards the South. Where oral cancer is less frequent, it is often balanced by an increase in cancer of the oropharynx or the hypopharynx. The base of the tongue in the oropharynx and the pyriform sinus in the hypopharynx are the sites most commonly affected. Men are more often affected with cancer in the oropharynx and in the hypopharynx, whereas women have more cancer in the oral cavity.

Local habits play a distinct role in the high rate of oral and pharyngeal cancer. An increased frequency of cancer in the oral cavity is more often associated with the habit of chewing of tobacco with betel leaf, betel nut and slaked lime than with other habits, whereas that of cancer of the oropharynx and of the hypopharynx with an increase in the frequency of tobacco smoking.

W.H.O. has established an International Reference for the study of the nomenclature of oral and oropharyngeal cancers in the Department of Pathology, S. N. Medical College, Agra. Study of the epidemiology of these tumours has also been undertaken at Agra with W.H.O. assistance. Results of these studies should be very interesting.

Further studies are required to clinch the type of correlation between the increased frequency of certain types of oral and pharyngeal cancer and an increase in prevalence of the smoking or the chewing of tobacco with other ingredients.

The distribution of cancer in the digestive tract varies greatly among different areas in India. It is difficult to account for the high rate of cancer of the oesophagus in Bombay; cancer of the stomach in Mangalore (Mysore State); cancer of the rectum and anal canal in Agra (Uttar Pradesh) and Hyderabad (Andhra Pradesh); and cancer of the liver and gall-bladder in Calcutta. It is interesting to note that there is a high percentage of anal cancer in India. In the state of Gujarat, where the people are by and large strict vegetarians and consume fair amounts of milk and dairy products, cancer of the stomach is infrequent.

(i) *Cancer in Women.*—The percentage of cancer of the breast in India is almost half that observed in the United Kingdom and in the Scandinavian countries, but is higher than that in Japan and the Soviet Union. In several

countries, percentage of cancer of the cervix is much lower than that in India and Japan. It is believed that in a given female population there is a numerical compensation between the percentage of women afflicted with cancer of the uterus and the percentage afflicted with cancer of the breast. This does not apply universally. In Israel, for instance, the rate of cancer of the uterus is definitely low; yet, at the same time, cancer of the breast is not particularly high. In the United States, the Scandinavian countries and the Soviet Union, the proportion of both these forms of cancer is almost equal. On the other hand, in the United Kingdom, the percentage of cancer of the breast is high and exceeds that of the uterus.

↳ In India, Italy, Japan, Spain and a few other countries, cancer occurs in much larger proportions in the uterus (cervix) in comparison with its occurrence in the breast.

Epidemiological studies on cancer of cervix carried on till now have shown the high incidence associated with age of marriage, age at first pregnancy, parity etc., An extensive study is being organised in the Department of Pathology, S. N. Medical College, Agra, under PL 480 grant.

(ii) *Cancer in Men*.—Although the total frequency of cancer of the male genital organs is less in India, Ceylon and China than in other countries, the proportion of cancer of the penis is high. Circumcision performed early in life seems to protect individuals against occurrence of cancer of the penis.

(iii) Malignant tumours of bone are infrequent, but Ewing's sarcoma of bone is observed with greater frequency in Bombay area.

(iv) *Cancer in Children (from birth to 14 years of age)*.—Cancer in infancy and childhood follow a slightly different pattern in India than in some Western countries. There is a pre-ponderance of cancer in the region of the eye.

Cancer of the skin and of the thyroid gland are of low prevalence, yet their frequency is higher in the State of Kerala than in the rest of the country.

It is observed, that a large proportion of cancer occurs in the easily accessible regions of the body such as the oral cavity, the pharynx, the breast, and the cervix. In such areas, diagnosis and treatment are not difficult problems, and secondly, certain forms of cancer are intimately associated with the habits, customs, and other exogenous factors pertaining to a particular population.

Magnitude

It thus appears that the cancer problem in India has certain dominant features. The general pattern of cancer incidence emerges from our Indian records.

In India, most of the cancer cases are detected late. Combination of ignorance and poverty plays a very important role in patient's neglecting the disease in its early stages and not seeking treatment even in city hospitals where services are free of charge. Moreover, India is a country of great distances and this also stands in the way of semi-urban and rural population from seeking expert aid, even if one is available.

Our task of cancer control and treatment, therefore, is formidable and challenging and must be faced with all seriousness.

3. Survey of Existing Centres of Cancer work

3.1. Though, according to the Terms of Reference, the Committee was required to examine and report on the question of the present development of Cancer Hospitals at Ahmedabad, Bombay, Calcutta and Madras, the committee decided to undertake a comprehensive survey of not only the existing Cancer Centres, but also the associated Medical Colleges and other Institutions where Cancer Programmes can be developed.

3.2. A questionnaire was circulated to the Directors of various Institutions (*vide* Appendix No. 11).

3.3. The replies received and the documents, reports and memoranda submitted by the Directors and Medical Superintendents of various Hospitals were studied. The Committee made a critical review of—

- (a) the expansion programmes with the costs of various Institutions ;
- (b) the staff position with present pays and allowances and grades ;
- (c) equipment position and whether they have any aid from the USAID ;
- (d) existing laboratories and progress and achievements of these laboratories ;
- (e) training being done, the number trained so far against each category of personnel and the number qualified ;
- (f) research (*vide* Appendices 12, 13, 14).

The Committee studied these carefully and tried to evolve a suitable budgetary estimate for the establishment of the Regional Cancer Centres and the pattern of grants-in-aid that could be given to other hospitals etc., interested in developing Cancer Wings and other ancillary facilities for cancer diagnosis, and treatment in different parts of India.

3.4. A brief description of some of the important Institutions where Regional Cancer Centres can be established is given below :

3.4.1. **Tata Memorial Hospital, Bombay, Maharashtra.**—The Tata Memorial Hospital was founded by Sir Dorabji Tata Trust in 1941 for the purpose of treatment and research in cancer and allied diseases. It continued to be managed and maintained by the Trust till 31st March, 1957 when it was handed over to the Government of India, Ministry of Health. Administrative responsibility of the hospital was subsequently transferred to the Department of Atomic Energy, Government of India, from 1st April, 1962.

The hospital was originally designed to accommodate 100 beds. A project to expand the building in order to secure more space was undertaken in the Second and Third Plan periods at a cost of nearly 20 lakhs. Besides, additional 50 beds for in-patients, other departments such as those of Radiology, Pathology, Operation Theatres, Out-patients' Department etc. were also expanded. The building project was completed early in 1962. In the year 1963, the Radiation Medicine Centre was established at a cost of about three lakhs. The purpose of this Centre is to conduct laboratory and

clinical research using radio-isotopes and also to treat patients who require this method of treatment and to teach the members of the medical profession the techniques and uses of radio-isotopes. A Cancer Detection Centre equipped from a donation of Rupees 1 lakh received from the Lions Club of Bombay has also been established. The following are the main departments :

- (i) Department of Surgery ;
- (ii) Department of Anaesthesia ;
- (iii) Department of Radiology ;
- (iv) Department of Pathology ;
- (v) Department of Nursing ;
- (vi) Department of Medicine (including chemo-therapy) ;
- (vii) Department of Social Service and Rehabilitation ;
- (viii) Department of Medical Records and Statistics ;
- (ix) Department of Administration.

3.4.2. Indian Cancer Research Centre, Bombay, Maharashtra.—The Indian Cancer Research Centre was inaugurated in December, 1952 out of the Department of Pathology of the Tata Memorial Hospital with the cooperation of the Government of India and the Sir Dorabji Tata Trust. During the twelve years, the following different sections have developed :

- (i) Applied Biology ;
- (ii) Experimental Embryology ;
- (iii) Human Variation and Statistics ;
- (iv) Endocrinology ;
- (v) Biochemistry ;
- (vi) Enzyme Chemistry ;
- (vii) Biophysics ; and
- (viii) Microbiology (including Electron Microscopy).

In 1965 the Governing Board appointed a Staff Structure Committee to review the work of the Centre and to suggest reorganization wherever necessary. The Committee scrutinised the research programme of the different Groups and Sections in detail and submitted the report in which it recommended the formation of the following Divisions and Units :

- (i) Biology Division (comprising Applied Biology, Embryology and Microbiology Groups) ;
- (ii) Chemotherapy Division (comprising the Bio-chemistry Group) ;
- (iii) Biochemistry Division (comprising the Enzyme Chemistry Group) ;
- (iv) Cancer Epidemiology and Statistics Division (comprising Human Variation and Statistics Group) ;
- (v) Biophysics Unit ;
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- (i) Department of Surgery ;
- (ii) Department of Anaesthesia ;
- (iii) Department of Radiology ;
- (iv) Department of Pathology ;
- (v) Department of Nursing ;
- (vi) Department of Medicine (including chemo-therapy) ;
- (vii) Department of Social Service and Rehabilitation ;
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- (v) Biochemistry ;
- (vi) Enzyme Chemistry ;
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- (iv) Cancer Epidemiology and Statistics Division (comprising Human Variation and Statistics Group) ;
- (v) Biophysics Unit ;
- (vi) Endocrinology Unit.

After 1962, the Department of Atomic Energy took over both this centre and Tata Memorial Hospital. At present there are two Boards of Management, one for the Research Centre and another for the Tata Memorial Hospital. However, there is a strong move to amalgamate both the managements as it is felt that much unnecessary expenditure and duplication of efforts could then be prevented. The hospital has about 150 beds (75% free and the remaining paying) and a very large number of out-patients attend the hospital daily for radiotherapy.

3.4.3. Cancer Institute, Madras.—The Cancer Institute, Madras, is a voluntary non-profit institution and managed by an Executive Committee. The Government of Madras makes a grant towards the maintenance of hospital beds (160 beds + 40 beds under construction) while the Government of India gives grant for development of research and training programmes in the institute. Funds are also obtained from many philanthropists and institutions. Appliances are modern with facilities for surgery, radiology, chemotherapy, hormone therapy, diagnostic pathology, cytology, biochemistry, biophysics and ancillary supporting therapy. The Research Department has facilities for studies in cell biology, radiation chemistry, physics, etc. It has also an animal house for experimental work. This centre could be developed into a Regional Centre in coordination with the Barnard Institute.

3.4.4. Chittaranjan National Cancer Research Centre, Calcutta, West Bengal.—It is a post-graduate training and research centre on cancer and allied subjects which the Govt. of India is developing since 1937 after entering into an agreement with the Deshbandhu Memorial Trust. The research projects in operation in the Chittaranjan Cancer Hospital at that time under the aegis of the C.S.I.R., I.C.M.R. and A.E.C. were taken over to form the nucleus of the Chittaranjan National Cancer Research Centre, and the Government of India agreed to bear all cost. At present this centre which is entirely devoted to fulltime research and training programmes, is completely financed by the Government of India. The Institute has a band of highly trained medical and non-medical scientists with good laboratory set-up, modern equipment and apparatus. Senior scientists are engaged in both fundamental and applied research and as teachers for post-graduate work of the Calcutta University. Its focus of interest is on fundamental and applied research aspects of Biology (including cancerology and tumour biology), Biochemistry (including endocrinology) Biophysics (including electron microscopy) and Experimental and Clinical Chemotherapy. The Research programme follows the broad pattern of the Indian Cancer Research Centre in Bombay with emphasis on chemotherapy, without however duplicating the problems.

Ruplal Nundy Memorial Cancer Research Centre, Chandernagore, has been added recently to the C.N.C.R.C., Calcutta, to work as a diagnostic centre with 20 beds in the rural areas. It also has a animal house for breeding animals for research purposes.

3.4.5. Chittaranjan Cancer Hospital, Calcutta, West Bengal.—The Chittaranjan Cancer Hospital undertakes hospital service for 161 patients, clinical investigations, laboratory diagnostic service, blood bank service, education and training programme, etc. The Institution is administered by a Managing Committee. The C.N.C.R. Centre is located in one floor of the Chittaranjan Cancer Hospital building and is in a position to avail of the clinical facilities of the C.C.H. and vice versa. Post-graduate courses for

M.S. and D. Phil (Radiology) are held in this Institution in collaboration with the Calcutta University. Refresher courses and other educational training programmes are arranged for doctors, nurses, laboratory technicians, etc.

The Committee, after reviewing the working of the two organisations, thought it desirable to have the two institutions controlled by one autonomous Governing Body with representatives from the Central Government, State Government and the voluntary agency which had supported the Cancer Hospital from the very beginning. The basic set-up of such a co-ordinated institution is considered suitable for the immediate establishment of a Regional Cancer Centre for the Eastern Zone of India. As the Chittaranjan National Cancer Research Centre is already a fully Central Government supported institution, a suitable formula may be evolved under which one integrated body could be created in the same way as the Bombay Cancer set-up (T.M.H. and I.C.R.C.).

3.4.6. Radium Institute and Cancer Hospital, Hyderabad (A.P.).—The establishment of the Radium Institute and Cancer Hospital was consummation of unremitting endeavour of the Indian Conference of Social Work, Hyderabad. The Committee organised a Raffle and collected a sum of Rs. 26 lakhs. The building was constructed and equipped and then handed over to the Andhra Pradesh Government.

The hospital has facilities for modern treatment of cancer by surgery radiotherapy, radium and chemotherapy. All the patients in the general wards are given treatment free of charge.

The Indian Conference of Social work have donated one lakh Rupees for the construction of a separate wing for housing the cobalt 60 units and the Radio-Isotope laboratories and the rest of the amount of the building has been sanctioned by the Government. The Cobalt 60 Unit 'Theratron CII' under the Colombo Plan Programme, is in operation from 1962. A well equipped radioactive Isotopes laboratory has also started. The necessary equipment has been purchased from the Atomic Energy Establishment, Trombay. The Institute is essentially a radio-therapy referral centre for other hospitals for radio-therapy. Major cancer surgery is performed in the two teaching hospitals and malignant gynaecological surgery in the Niloufer Hospital besides the operative surgery done at this Institute. The follow-up of the surgical cases was done by the surgeons of the above hospitals and the follow-up of radio-therapy cases in the Cancer Hospital.

3.4.7. Associated Medical Colleges and other Institutions where Cancer Programmes can be developed.

3.4.7.1. Cancer Research Unit, Department of Pathology, S. N. Medical College, Agra.—The Pathology Department of the S. N. Medical College, Agra, is engaged in cancer research programmes for a number of years. The two cancers exclusively studied are the cancers of the oral cavity and cervix. The studies have been carried out on human material and experimental animals. Biology on pre-cancerous lesions of the oral cavity and cervical dysplasia are being studied by cytomorphological, histochemical and cytochemical studies. Besides, the W.H.O. has also established the International Reference Centre for Oral Cavity Lesions and the N.I.H. is establishing a cervical cancer study centre. This is the only laboratory which has instituted a population screening programme for cancer of female genital tract in

Indian women. This department has a full-fledged laboratory of Cytology and besides working as an investigative laboratory, has also trained a number of cytologists. The departments of Radiology and Surgery are involved in cancer therapy. The set-up in Agra can be expanded and organised as Regional Centre. A suitable Cancer Wing can be easily established here which can work in collaboration with the J. & K. Cancer Hospital in Kanpur.

3.4.7.2. 'Cancer Wing' in New Delhi.—A 'Cancer Wing' exists at the Safdarjang Hospital in New Delhi. This is a suitable centre for further development as a Regional Centre. Highly qualified and technically trained staff are available, and ancillary facilities can be easily created.

3.4.7.3. Barnard Institute of Radiology, (Up-graded) of the Madras General Hospital, and Madras Medical College.—This premier Institute was started in the Madras General Hospital in 1920. Later on, new buildings were added and a self contained Cancer treatment and Training Centre with all specialised units such as, radiology, radio-therapy, physiotherapy, etc. were developed. It conducts courses for post-graduate training in D.M.R.T. and D.M.R.D. and in addition, it has facilities for laboratory studies in biochemistry, radio-isotopes, etc. Coordination with the Cancer Institute could be developed in the interest of Research, teaching and training.

3.5. The Committee also collected certain types of information from various sources about :

(i) Cancer treatment facilities available in the States.—There are 47 General Hospitals in the country where facilities for cancer treatment are available. They are as given in the tables.

Sl. No.	Name of the State	General Hospitals
1.	Andhra Pradesh	1. Visakhapatnam. 2. Hyderabad.
2.	Assam	1. Gauhati-2. 2. Dibrugarh. 3. Shillong.
3.	Bihar	1. Patna.
4.	Delhi	1. Delhi.
5.	Gujarat	1. Ahmedabad. 2. Bhavnagar. 3. Jamnagar.
6.	Kerala	1. Trivandrum. 2. Ernakulam. 3. Kozhikode.
7.	Madras	1. Madras-3. 2. Kanya Kumari. 3. Madurai. 4. Vellore. 5. Tanjore. 6. Pondicherry.

1	2	3	4
8	Maharashtra	1. Bombay.	
9	Mysore	1. Bangalore. 2. Mysore. 3. Mangalore. 4. Bellary.	
10	Orissa	1. Cuttack. 2. Burla.	
11	Punjab	1. Amritsar. 2. Gurdaspur. 3. Patiala. 4. Chandigarh. 5. Ludhiana.	
12	Rajasthan	1. Bikaner. 2. Jaipur. 3. Jodhpur. 4. Ajmer.	
13	Uttar Pradesh	1. Agra. 2. Lucknow. 3. Allahabad. 4. Varanasi. 5. Kanpur.	
14	West Bengal	1. Calcutta-4.	

Cobalt Beam Therapy Units

Under the Colombo Plan Capital Aid Programme, the Government of India have supplied 19 Cobalt Beam Therapy Units, to the following institutions :—

1	Andhra Pradesh	Radium Institute and Cancer Hospital, Hyderabad	1
2	Bihar	Medical College, Patna	1
3	Delhi	Safdarjang Hospital, New Delhi	1
		All - India Institute of Med. Sciences, New Delhi	1
4	Kerala	Medical College, Trivandrum	1
5	Madras	Christian Medical College Hospital, Vellore	1
		Cancer Institute, Madras	1
6	Maharashtra	Tata Memorial Hospital, Bombay	2
7	Mysore	Victoria Hospital, Bangalore	1
8	Orissa	S. C. B. Medical College, & Hospital, Cuttack	1
9	Pondicherry	JIPMER, Poadicherry	1

10 Punjab	Christian Medical College, and Hospital, Ludhiana	1
11 Rajasthan	S. M. S., Hospital, Jaipur	1
12 Uttar Pradesh	J. K. Institute of Radiology and Cancer Research, Kanpur	1
13 West Bengal	Chittaranjan Cancer Hospital, Calcutta Medical College Hospital, Calcutta	1 1
Units to be installed shortly are at:—		
Assam	Med. College, Dibrugarh	1
Gujarat	Shri M. P. Shah Cancer Hospital, Ahmeda- bad	1
Maharashtra	Miraj Medical College, Miraj	1

International Cancer Centre Project, Neyyoor

The Committee received a memorandum from the International Cancer Centre Project, Neyyoor, Kerala. This Centre has a Medical Division, a Tumour Registry and Education Division and has also undertaken research projects. It has some major equipment for radio-therapeutic work. The Committee felt that this Centre should be visited at a later date and considered for the development of a suitable ancillary Centre for Cancer work in due course.

4. Recommendations

4.1. Shri M. P. Shah Cancer Hosiptal, Ahmedabad, Gujarat.

The Committee in consultations with the Health Ministry agreed to an *ad hoc* interim grant of Rs. 2 lakhs to the Gujarat Cancer Society and another Rs. 3 lakhs by the end of the Third Plan, and future grants would be made on the recommendation of the Cancer Committee.

4.1.1. The Gujarat Cancer Society may complete the present project in hand in the shortest possible time, without however undergoing expenses on any new constructions, additional staff or equipment.

4.1.2. The Gujarat Cancer Society should hand over the buildings, equipment etc., to the State Government of Gujarat on completion. The Government of Gujarat should take them over as soon as possible. This will facilitate the integration of the B. J. Medical College and Hospital and this specialised hospital along with other specialised hospitals as Eye, E.N.T. Dental etc., situated in the same campus. The Cancer Hospital to take patient-care responsibility only when the basic services as nursing, kitchen, sterilisation etc., are available.

4.1.3. The establishment of the Cancer Research Centre should be fully financed by the Government of India, Ministry of Health on the analogy of the Chittaranjan National Cancer Research Centre, Calcutta. The integration of the Cancer Hospital and the Centre should be taken up at the appropriate time by the State Government and the Government of India. The type of management to be evolved may be left open till the Research Centre is established and a common pattern developed for Calcutta, Madras and Hyderabad.

4.1.4. No additional staff should be appointed by the Gujarat Cancer Society till the future of the Hospital is finalised. It should be noted that there would be an overall review of the staff needed and it is the responsibility of the B. J. Medical College, Ahmedabad to give specialist services to the patients in the Cancer Hospital. The Committee, however, recommends that, in the interest of economy, efficiency and good inter-relationship, the staff of the B. J. Hospital should be utilised to the fullest extent.

4.1.5. Cancer patients should not be levied any fee either in the out-patient or in-door for general ward patients.

4.1.6. The development should be phased progressively according to the resources available. As the Society is in a position to collect funds from philanthropists, it should be encouraged to function as an independent organisation with its own Governing Council even after the Cancer Hospital is taken over by the State Government or by a separate Board of Management.

4.2. The Committee enunciated the following recommendations for immediate acceptance by the Government of India in respect of the Cancer Hospitals and Research Centres for Calcutta, Madras, Hyderabad, Ahmedabad, etc., with special reference to the patient load, trained personnel, equipment, available facilities and potentialities for future development on a uniform All-India pattern.

4.2.1. **Urgency of the cancer problem.**—Cancer in India constitutes a health problem and should be tackled early and comprehensively through a multi-pronged collaborative attack by different groups of medical and non-medical scientists and health service personnel during the Fourth Plan, as a joint venture between the State and Central Governments and the Voluntary Organizations, their efforts channelled through one central agency so that the development programme follows a uniform and co-ordinated pattern.

4.2.2. **Method of Approach.**—A comprehensive coverage of the Cancer problem is possible through a five fold programme of Prevention, Diagnosis, Treatment, Rehabilitation and Research. Cancer consciousness through mass Health Education, should be awakened. Services to cancer patients, both indoor, and outdoor should be without charge except in paying wards.

4.2.2.1. **Control Programme :**

1. Establishment of Cancer Detection Clinics below district levels where clinical, simple endoscopic, histopathological and cytological examinations could be carried out. These clinics will collaborate with the better equipped and more advanced Centres at District and Central levels.

4.2.2.3. **Cancer Prevention Service :**

These will include recognition of "pre-cancerous lesions".

Doubtful cases will be referred to district hospitals or the Regional Cancer Centres.

4.2.2.3. **Control and Elimination of Occupational and Industrial Hazards :**

Steps to eliminate and protect industrial workers from carcinogenic pollution of industrial environment will be the responsibility of Regional Cancer Centres when constituted.

4.2.2.4. Therapeutic Programmes :

The programmes will be conducted by the :

- (1) Regional Cancer Centres (Hospitals) with facilities for surgery, radiotherapy, chemotherapy, Hormone therapy;
- (2) Cancer Research Centres ;
- (3) Cancer Wings in General Hospitals ;
- (4) Mobile Cancer Therapeutic Teams etc. and
- (5) Cancer Clinics.

4.2.2.5. Educational Programmes :

- (1) Health Education of the public ;
- (2) Orientation of the Medical practitioners ;
- (3) Postgraduate education centre and Rehabilitation centres.

4.2.2.6. Socio-economic programmes :

- (1) Provision of free beds ;
- (2) Provisions of livelihood assistance to families ;
- (3) Postgraduate education centre and Rehabilitation centres.

4.3. Establishment of Regional Cancer Centres (Regional-Oncological Institutes) :

4.3.1. The Committee unanimously agreed that the most effective way for the development of cancer work in India would be through the establishment of the Regional Cancer Centres, on the pattern, recommended by the W.H.O. The functions of a Regional Centre should be :—

- (1) To act as a centre for diagnosis, treatment and follow-up of cancer patients ;
- (2) to act as the centre for teaching and training in cancer for the different professional levels needed ;
- (3) to carry out research work in cancer in the region ;
- (4) to act as the Cancer Registry Centre for the region where all cancer records are collected for statistical elaboration and analysis for the purpose of determining the cancer morbidity and mortality, for the preventive campaign and for the further development of the network of cancer facilities in the region ;
- (5) to coordinate and lead the fight against cancer in the region through its peripheral cancer clinics, its cancer control and educational programme.

4.3.2. The Regional Cancer Centres should operate under the auspices of the Government of India, Ministry of Health, in areas where facilities for diagnosis and treatment already exist. The Regional Cancer Centre will operate as the Central directing agency of all cancer activity in its region.

Such a centre must have coverage of more than one state and should receive Plan Assistance and support from the Central Government. The development can be phased depending on the existing facilities and the finance available.

- (1) North-Eastern Regional Centre.
It will cover Assam, Bihar, Orissa and West Bengal.
- (2) Western Regional Centre.
It will cover Maharashtra (already under the Department of Atomic Energy of the Government of India), Madhya Pradesh, Goa, etc.
- (3) North-Western Regional Centre.
It will cover Gujarat, Rajasthan, etc.
- (4) South-Eastern Regional Centre.
It will cover Madras and Kerala.***
- (5) Central Regional Centre.
It will cover Andhra Pradesh and Mysore.
- (6) Northern Regional Centre.

It will cover Delhi, Punjab, Jammu & Kashmir and U.P. There may be certain centres which may not come into the category of the Regional Cancer Centres. For these, Central Government assistance may be given, however duplication of effort and consequent wastage of talent and funds should be discouraged.

4.3.3. Activities of Regional Centres.—(i) Diagnosis and Treatment of Cancer Patients. A well-staffed Cancer Hospital with a bed strength of 250 with separate beds allocated to Surgery, radio-therapy and chemotherapy (including hormones) and facilities for radio-diagnosis, radio-isotopes, and resuscitation service should be available. Ancillary units for dental surgery including prosthetic department, E.N.T. department, etc. are desirable.

(ii) Tumour Registry and Follow-up system with a statistical department.

(iii) Laboratory facilities for both routine investigations and research should be available in Pathology, Experimental Biology, Biochemistry and Medical Physics.

(iv) Research on fundamental and applied aspects of cancer problem : Research should include human and animal biology, cell biology including tissue culture, chemotherapy, both experimental and clinical, enzyme chemistry, genetics, micro-biology, medical biophysics and medical physics including various aspects of radiation therapy and nucleonics, radio-isotopes, etc. This may not be possible in all the Regional Centres and cooperation will have to be sought from various neighbouring established University departments, e.g. in Calcutta, Madras, Bombay, etc.

(v) Surveys of cancer morbidity and mortality, etc.

(vi) Cancer prevention with particular emphasis upon (a) mass examination, (b) health education and (c) industrial hygiene.

***One of the Members suggested that the whole of the west coast including Kerala may be covered by Bombay for the Western Regional Centre.

- (a) *Mass examination* : Mass examination (site-specific and comprehensive) on early cancer cases or symptom-free cancer cases will have to be taken up in Cancer Detection and Diagnostic Clinics in urban hospitals, district hospitals and later, in rural centres. Epidemiology and geographic distribution of cancer incidence will be worked out from such data.
 - (b) *Health Education* : Preventive measures are very much linked with health education. Government of India has a Health Education Bureau and each State has also a cell or a Section dealing with Health Education. These bodies will be requested to help in circulating authoritative information about cancer in urban and rural areas. Much more weightage should be given to cancer propaganda during the Fourth Plan.
 - (c) *Industrial Hygiene* : Industrial hygiene including cigarette smoking can also be taken up for further investigative work. Public health measures can be taken where indicated. Mass prophylactic service at industries for early detection of pre-cancerous disease and initial stages of cancer is essential.
- (vii) Training programmes of doctors, nurses, technicians, social workers, etc.
- (a) *Doctors* : Training of cancer specialists in Regional Cancer Centres should be planned in collaboration with Medical Colleges and Research Institutes in the region and must aim at reaching a high standard of efficiency, as is obtainable in post-graduate institutions or Universities. Courses of study could be organised, for example for diploma courses in Radio-therapy, Surgery and M.D. or Ph.D. in Oncology, the basic qualification being M.B.B.S. These specialists will be supported by adequate stipends during the training period. Non-medical scientists with M.Sc., may be encouraged to take advanced course in Biochemistry Pathology etc.
 - (b) *Nurses* : Registered Nurses may be given training in Cancer Hospitals.
 - (c) *Technicians* : Specialised training of 6 months to a year should be given to Technicians for X-ray work and for handling costly radio-therapy equipment.
 - (d) *Social Workers* : Special training in bio-statistics for these people may be necessary. This is very important for epidemiological study and will be in the nature of post-graduate training to already qualified Social Workers.
- (viii) Any other allied functions, as indicated from time to time by their Governing Bodies, to be set up for the purpose, e.g. this may include provision of convalescent homes and rehabilitation centres for cancer patients including facilities for physio-therapy and occupational-therapy, organisation of a blood-bank and patient-care programmes, etc., etc.

4.3.4. Constitution and Management of Regional Cancer Centres :

(a) *Governing Body* :

There should be one representative Governing Body consisting of about 9 to 11 members under the aegis of the Central Health Ministry.

The Chairman should be either the Union Health Minister or the Union Health Secretary or a scientist of international calibre nominated by the Ministry of Health. The tenure of the Chairman and non-official members may be for a period of 5 years.

Director General of Health Services, Government of India, New Delhi.	}	3 Central Govt.
Financial Adviser, Govt. of India, Ministry of Health, New Delhi.		
One prominent scientist in the cancer field to be nominated by the Govt. of India.		
State Health Minister	}	3 State Govt. (Num- ber can be adjusted depending on par- ticipating States).
Or State Health Secretary (one) Director of Health Services of the State in which the Centre is located.		
Two to be nominated or elected from the respective bodies offering assistance to the Regional Centres.	}	2 from Voluntary Agencies.
Director of Regional Centre would be the Member-Secretary of the Governing Body of Regional Cancer Centre.	}	1 Member-Secretary.
TOTAL		9

Two members to be coopted whenever necessary.

(b) *Director :*

The Director of the Regional Cancer Centre should be a Senior Medical Scientist familiar with Oncology, with high professional qualifications and mature research experience and leadership. He should be a full-time paid worker of the Regional Cancer Centre.

(c) *Central Hospital of Regional Cancer Centre :*

The Hospital attached to the Regional Cancer Centre should have an optimum bed strength of 250 and staffing pattern should be as follows :

Medical Superintendent:—

Deptt. of Surgery	. . .	1. Visiting Surgeons—(Surgical and Gynaecological) for In-patient. 2. Visiting Dental & E. N. T. Surgeon. 3. Resident Surgeon & Duty Staff.
Deptt. of Anaesthesia	. . .	1. Anaesthetist—Senior and Junior.
Deptt. of Radiology	. . .	1. Radiologist. 2. Asstt. Radiologist. 3. Radio-therapist.
Deptt. of Chemotherapy	. . .	1. Senior Chemotherapist and Physician. 2. Junior Chemotherapist. 3. Clinical Endocrinologist.
Deptt. of Pathology (includ- ing Blood Bank)	. . .	1. Senior Pathologist. 2. Helping Staff and Technician. 3. Blood Bank Officer.
Deptt. of Nursing	. . .	1. Nursing Superintendent. 2. Senior and Junior Nurses. 3. General Duty Assistants.
Pharmacy	. . .	1. Senior Pharmacist. 2. Helping Staff Pharmacists.

Deptt. of Social Service and Rehabilitation :
 Department of Medical Records and Statistics :
 Registrar and Hospital Administrator :

(d) *Training and Teaching of future Cancer workers :*

The Regional Cancer Centres should serve not only as centres for treatment of cancer patients but also develop research, diagnosis and organisation, and methods of cancer control. The centres should be staffed with trained personnel who should undertake teaching and training of workers in this special area of (cancer) oncology.

This objective can be best achieved if the Regional Cancer Centres are affiliated to the Universities at Post-graduate level. Degrees and Diplomas may be given in Oncology. Efforts should be made to get oncology recognised as a special subject for M.D., M.S., Ph.D., etc by the Universities. Refresher courses for medical practitioners should be arranged. Orientation courses should be arranged for nurses and technicians.

(e) *Staff Salary—Regional Cancer Hospital :*

The Committee unanimously agreed that the Central Health Services scales of pay and allowances and service conditions should apply to the staff of the Regional Centres.

(f) *Cancer Wings and Cancer Clinics :*

As the programme progresses, the Committee anticipated that there will be need in future for the establishment of special cancer wings in some of the suitable General Hospitals. Cancer clinics should be established in all Districts and suitable facilities provided. The Primary Health Centres and dispensaries should collaborate with the district clinics in all cancer control activities. Minimum standards for a Cancer Centre/Wing are given in Appendix 16.

(g) *Cancer Education :*

Cancer is a deadly disease which thrives on ignorance of the general population and it is the world opinion today that if early cancer cases are detected in time, there is a very good chance of elimination and cure in a large number of cases. The Committee felt that early efforts should be made, to bring knowledge of various facts and causation and incidence, to the public through pamphlets and other mass media of communication such as the radio, film, television etc.

As a first step, the Committee suggested that a pamphlet or a book-let be published in various languages for the lay public outlining the important aspects of cancer by the Central Health Education Bureau with the assistance of the staff of the Tata Memorial Hospital.

5. Finance

5.1. The Committee noted that all the important Cancer Hospitals in India such as, the Tata Memorial Hospital, in Bombay, the Chitaranjan Cancer Hospital in Calcutta and the Madras Cancer Institute, were started by Voluntary Organizations with funds from private donations and charities.

Later, the State and Central Government have come to their aid with grants for the maintenance of hospital beds, equipment and Research. Cancer is now a world challenge and all countries are supporting cancer research from their Government budgets.

5.2. In India it is absolutely essential that the Regional Cancer Centres should draw their finances from three sources (1) Central Government (2) States and (3) Voluntary agencies and private bodies. The States which do not have adequate cancer treatment facilities should be encouraged to participate in this programme through suitable contributions and by sending a representative to serve on the Governing Body of the Regional Cancer Centres. The funds should be operated by the Governing Body. Assistance from the centre would be geared to the expansion of activities. Aid in the shape of foreign exchange, equipment, apparatus, etc. should be sought from International agencies only, through the Health Ministry of the Government of India.

5.3. The Committee estimated Rs. 80 lakhs to be the probable cost of each Regional Centre which consists of research section and a hospital consisting of 50 research beds and others as service. The bed-strength of a Regional Cancer Hospital should be about 200 which is considered the optimum. The Tata Memorial Hospital and Indian Cancer Research Centre which are under the Management of the Department of Atomic Energy, Government of India, are taken as models with regard to cost etc. The cost of the Regional Cancer Centre without service beds is given in Appendix 15. It is considered that any Regional Centre that is already developed sufficiently and has certain equipment, would cost considerably less. The following centres are capable of being developed as regional centres:—

1. Bombay.
2. Ahmedabad.
3. Calcutta.
4. Delhi.
5. Hyderabad.
6. Madras.

Some of these centres are developed and have a fair amount of equipment. Some others require supply of equipment and additional accommodation. On an average it would cost about Rs. 80 lakhs per centre *i.e.* Rs. 4 crores, which may be spread out in two plan periods. As it is understood there is only a provision of Rs. 2 crores during the Fourth Five Year Plan, it is recommended that funds should be provided to each centre on the recommendation of the Cancer Committee.

5.4. The Committee noted with satisfaction that most of the State Governments consulted, have in realisation of the seriousness and urgency of the problem, agreed to bear the increasing cost of maintenance of cancer hospital beds and have requested the centre for help in connection with equipment and apparatus needed for radio-therapy, chemotherapy, etc. and Research and Training Centres. The Committee felt that in view of the present difficult situation in the country, aid-funds from Voluntary agencies are not likely to be forthcoming as before and, therefore, the financial lead will have to be taken more and more by the Central Government. The Service facilities Education and Research in this field should be immediately developed on a planned basis by the Central Government. The Committee felt that the Indian Research worker has a great role to play in Cancer Research prevention, diagnosis and treatment.

6. Acknowledgement

The Members of the Cancer Committee are deeply grateful to the Health Ministers of State Governments, Health Secretaries of State Governments, Vice-Chancellors of Universities, Officers of the State Health and Medical Services, Directors, Secretaries and Medical Superintendents of Cancer Hospitals, Societies and Research Centres for the facilities afforded and courtesies extended to the Committee during its visits to the various Institutions.

The Members of the Cancer Committee are also deeply indebted to Union Minister of Health and Family Planning for all the guidance given to the Committee from time to time and the Union Ministry of Health and Family Planning for affording the opportunity to study the cancer problem existing in the country and suggest measures for its prevention and control.

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APPENDIX I

(Immediate)

GOVERNMENT OF INDIA MINISTRY OF
HEALTH

No. F. 42-4/65-RISM

New Delhi 26th April, 1965

6th Vaisakha, 1887

To

The Accountant General,
Central Revenues,
New Delhi.

Subject: Regional Cancer Hospitals—Setting up of a Committee.

Sir,

I am directed to say that the President is pleased to constitute with immediate effect a Committee with the following composition to examine the question as to how the Cancer Hospitals at Ahmedabad, Bombay, Calcutta and Madras could be developed as Regional Cancer Hospitals:—

- (1) Dr. K. N. Rao, Director General of Health Services, New Delhi . . . *Chairman*
- (2) Dr. J. C. Pymaster, Director, Tata Memorial Hospital, Parel, Bombay . *Member*
- (3) Dr. Ashok Sen, Chittaranjan Cancer Hospital, Calcutta . . . *Member*
- (4) Prof. P. N. Wahi, Principal, Agra Medical College, Agra . . . *Member*
- (5) Dr. T. B. Patel, Director of Health Services, Gujarat, Ahmedabad . *Member*

2. The terms of reference of the Committee are to:—

- (i) examine the present development of the Cancer Hospital, Ahmedabad;
- (ii) recommend its phased development; and
- (iii) report the immediate requirements, recurring and non-recurring expenditure, for the Third Five Year Plan and the later development during the Fourth Five Year Plan.

The Committee should also examine the working of the cancer hospitals at Bombay, Calcutta and Madras and make its recommendations.

3. The Committee should submit the report on the Cancer Hospital, Ahmedabad, by the 30th June, 1965.

4. The non-official members will be paid travelling allowance and daily allowance in accordance with the provisions of S.R. 190 as amended from time to time. The official members will draw their travelling allowance and daily allowance for attending meetings etc., of the Committee from the source from which their pay is drawn.

5. The expenditure involved will be met from the sanctioned grant of the Ministry of Health.

Yours faithfully,

Sd/- K. Satyanarayana,

Under Secretary.

No. F. 42-4/65-RISM

Copy forwarded to :—

1. Department of Atomic Energy, Appollo Pier Road, Bombay.
2. Secretary to the Government of Uttar Pradesh, Medical (B) Department, Lucknow.
3. Secretary to the Government of Gujarat, Medical and Public Health Department, Ahmedabad.

It is presumed that there will be no objection to the appointment of Dr. Paymaster, Dr. Wahi, Dr. Patel on the Committee and to the meeting of their travelling allowance and daily allowance in this regard. In view of the urgency of the matter, it was not possible to obtain prior concurrence.

Sd/- K. Satyanarayana,

Under Secretary.

No. F. 42-4/65-RISM

Copy to :—

1. Members of the Committee.
2. The Director General of Health Services, New Delhi.
3. Tata Memorial Hospital, Parel, Bombay-12.
4. Chittaranjan Cancer Hospital, Calcutta.
5. Prof. P. N. Wahi, Principal, Agra Medical College, Agra.
6. Directorate of Health Services, Gujarat, Ahmedabad.
7. Chief Minister, Gujarat, Ahmedabad.
8. Prof. M. S. Thacker, Member, Planning Commission, Yojana Bhawan, New Delhi.
9. Shri S. P. Mahna, Deputy Financial Adviser, Ministry of Finance (Health), New Delhi.

Sd/- K. Satyanarayana,

Under Secretary

Copy to Grants and Cash Section/Budget Section/Hospitals Section.

APPENDIX 2

MINISTRY OF HEALTH (RESEARCH & I.S.M. SECTION) No. F. 42-4/65-RISM

Dated the 3-5-1965.

To,

The A.G.C.R.,

New Delhi.

Subject : Regional Cancer Hospital—Setting up of Committee.

Sir,

In partial modification of this Ministry's letter of even No. dated the 26th April, 1965, on the subject mentioned above, I am directed to say that Dr. Syed Ali, Radium Institute and Cancer Hospital, Hyderabad, will also be a member of the Committee mentioned therein, and Dr. M. J. H. Writer, Deputy Assistant Director General of Health Services (Medical), New Delhi will be the Member-Secretary.

2. Consequent on the modifications, amendments, etc., the composition of the Committee will be as follows :—

1. Dr. K. N. Rao, Director General of Health Services, New Delhi *Chairman*
2. Dr. J. C. Paymaster, Director, Tata Memorial Hospital, Parel, Bombay *Member*
3. Dr. Amiya Kumar Sen, Chittaranjan Cancer Hospital, Calcutta *Member*
4. Prof. P. N. Wahi, Principal, Agra Medical College, Agra *Member*
5. Dr. T. B. Patel, Director of Health Services, Gujarat, Ahmedabad *Member*
6. Prof. S. R. Mukerjee, Institute of Post-graduate Medical Education and Research, 244 Lower Circular Road, Calcutta-20 *Member*
7. Dr. S. Krishnamurthi, Director and Scientific Director, Cancer Institute (WIA), Madras-20 *Member*
8. Dr. B. Mukerjee, Director, Chittaranjan National Cancer Research Centre, 37 S. P. Mookerjee Road, Calcutta-26. *Member*
9. Dr. Syed Ali, Radium Institute and Cancer Hospital, Hyderabad *Member*
10. Dr. M. J. H. Writer, Dy. Assistant Director General, Health Services (Medical), New Delhi *Member-Secretary*

Yours faithfully,
Sd/- R. N. Sinha,
Under Secretary

IMMEDIATE

No. F. 42-4/65-RISM

Copy forwarded for information, with reference to this Ministry's endorsement of even number, dated the 26th April, 1965 to :—

1. Department of Atomic Energy, Apollo Pier Road, Bombay.
2. Secretary to the Govt. of Uttar Pradesh, Medical (E) Department, Lucknow.
3. Secretary to the Government of Gujarat, Medical and Public Health Department, Ahmedabad.
4. Secretary to the Government of West Bengal, Calcutta.
5. Secretary to the Government of Andhra Pradesh, Health Department, Hyderabad with a copy of the Ministry's letter of even No. dated 26th April, 1965 referred to above. It is presumed that there will be no objection to the appointment of Dr. Syed Ali on the Committee and to the meeting of his T. A. and D. A. in this regard. In view of the urgency of the matter, it was not possible to obtain prior concurrence.
6. Dr. K. N. Rao, Director General of Health Services, New Delhi.
7. Dr. J. C. Paymaster, Director, Tata Memorial Hospital, Parel, Bombay-12.
8. Dr. Amiya Kumar Sen, Secretary, Chittaranjan Cancer Hospital, 37, S. P. Mukerjee Road, Calcutta-26.
9. Prof. P. N. Wahi, Principal, Agra Medical College, Agra.
10. Dr. T. B. Patel, Director of Health Services, Gujarat, Ahmedabad.
11. Prof. S. R. Mukherjee, Institute of Post-Graduate Medical Education & Research, 244, Lower Circular Road, Calcutta-20.
12. Dr. S. Krishnamurthi, Director, Cancer Institute (WIA), Madras-20.
13. Dr. B. Mukerjee, Director, Chittaranjan National Cancer Research Centre, 37, S. P. Mukherjee Road, Calcutta-26.
14. Dr. Syed Ali, Radium Institute and Cancer Hospital Hyderabad with a copy of this Ministry's letter of even No. dated 26-4-65 referred to above.
15. Directorate General of Health Services, New Delhi with reference to their U.O. No. 16-31/65-MIV, dated the 31st May, 1965 (20 spare copies).
16. Prof. M. S. Thacker, Member, Planning Commission, Yojna Bhawan, New Delhi.
17. Chief Minister, Gujarat, Ahmedabad.
18. Director of Health Services Medical Services, Maharashtra, Bombay/Gujarat, Ahmedabad/Madras/Andhra Pradesh, Hyderabad/West Bengal, Calcutta. It is requested that necessary facilities such as Secretarial, Transportation, Accommodation in State Houses, etc. may be accorded to the Committee as and when necessary.

Sd/- R. N. Sinha,

Under Secretary (Establishment)

Copy to Grants & Cash/Budget/Hospitals/Medical Education Section.

APPENDIX 3

Proceedings of the meeting of the Committee of Cancer under the Chairmanship of the Union Deputy Health Minister held in Patiala House at 3 p.m. on 29th May, 1965.

Shri P. S. Naskar, Union Deputy Health Minister inaugurated the meeting. The following were present :

1. Dr. K. N. Rao, Director General of Health Services, New Delhi. *Convener*
2. Dr. A. K. Sen, Scientific Director, Chittaranjan National Cancer Hospital, Calcutta *Member*
3. Dr. S. R. Mukerjee, Prof. in-charge of the Deptt. of Experimental Medicine, Medical Sciences Post-graduate Institute of Medical Education and Research, Calcutta *Member*
4. Dr. T. B. Patel, Director of Health Services, Gujarat, Ahmedabad *Member*
5. Dr. B. Mukerjee, Director, Chittaranjan National Cancer Research Centre, Calcutta *Member*
6. Dr. S. Krishnamurthy, Director and Scientific Director, Cancer Institute, Madras *Member*
7. Dr. M. J. H. Writer, A. D. G(M) *Member-Secretary*

Dr. J. C. Paymaster, Director, Tata Memorial Cancer Hospital, Bombay and Prof. P. N. Wahi, Principal, Medical College, Agra regretted their inability to attend as they were abroad.

The Union Deputy Health Minister opened the meeting giving a brief outline of the need for a Committee on Cancer. He requested the members present to describe briefly the existing facilities in their Institution, the extent of the problem and the difficulties they were experiencing.

Dr. Amiya Kumar Sen considered that the object of the Cancer problem was in cure and prevention and that all scientists involved in this discipline should be under one roof. He stressed that research should be placed on the ground and carried out in conjunction with the actual treatment of cancer patients. He described that the cancer patient was not just one patient and the cancer hospital was not just one hospital. As stated by the Director General, treatment of cancer is a costly disease and it is not possible for State Governments to incur all expenditure nor it is possible for voluntary bodies to shoulder the burden. The difficulty that cancer workers were facing was, that the cancer patient had to be observed from the moment he was registered to the time of his death. This required a sound organisational set up apart from the treatment which was expensive. The socio-economic status of the country hindered treatment. The sources and facilities being limited, transport inadequate and the low state of nutrition of the patient prevented the patient from being treated by domiciliary methods. Hence arose the need of making arrangements for free treatment to improve first the nutrition and the extreme anaemia before the patient was in a state to benefit from treatment.

Present Position :**Attendance :**

1950	1200 new cases	3,000	old cases
1964	6000 new cases	15,000	old cases
1960—1964	63,765	2,26,208	
• { No of Beds	78 (1950)	161	(1964)
1950	650 Admissions p.a.		
1964	1500 Admissions p.a.		

***Indoor Admission :**

The Government of West Bengal and the Calcutta Corporation were paying for the maintenance of 30 and 10 beds respectively. The Dock Labour Board had 2 beds. Donors have donated several beds. Thus there were in all 70 non-paying beds.

Income :

1950-51	Rs. 88,000
1963-64	Rs. 6 lakhs

Additional income comes from public donations, *ad hoc* grants from Central and State Governments sub-vention from State Government and also from Calcutta Corporation for reservation of beds.

Expenditure :

It was Rs. 98,000 in 1950-51 and Rs. 6,77,000 in 1963-64. This comes to Rs. 4,200 per capita per year in 1963-64.

The break up was as follows for the main items :—

	Rs.
Salaries and Wages	2,60,000
Diet	2,00,000
Medicine	20,000
Laboratory	24,000
X-ray	11,000
Miscellaneous	1,62,000

Service rendered :

1. X-ray (Radio-therapy) 100-120 daily. This comes to [about 30,000 yearly.
2. Pathological Examinations 180 cases daily. 54,000 cases yearly.
3. Operations 1250 yearly.
4. No. of nurses including Matron, Sisters, Staff Nurses 58 (12-13 cancer patients per and 13 unpassed Nurses nurse. This was a heavy load on a nurse).

(Extracts from the Annual Report of 1964 [of the Hospital).

The difficulties facing Dr. A. K. Sen were those of staff, lack of sufficient beds, finance and facilities.

The three props of Cancer treatment programme were therefore, the hospital, research centre and the training of personnel and the programme would therefore consist of :—

1. Survey including epidemiological study.
2. Early detection of cases and a thorough follow-up (A cancer patient has to be followed from the moment he is registered till he is dead.).
3. Pre-treatment *i.e.* to improve nutrition and anaemia in cancer patient.
4. Treatment of cancer patients, where the aim is to minimise hospital stay.
5. Convalescence arrangement in hospitals etc.
6. Rehabilitation service as Plastic Surgery, Orthopaedic, Orthodontia etc.

Calcutta was the only centre in the Eastern Zone to which patients from Assam, Bihar, Orissa and even Burma were referred. It was possible for the Hospital to increase its beds by another 40. Pool Officers were interested in private practice and did very little for the hospital.

Without rehabilitation service, cancer treatment would be incomplete. Dr. Sen was of the view that research was ancillary to the hospital. Then the treatment of cancer would progress apace. If research was divorced from the hospital, then treatment of cancer would make no progress. Hence, the disease had firstly to be correctly diagnosed and a campaign promoted and maintained. Service should be free whether it be in the hospital, research centre or rehabilitation unit. The problem of cancer treatment should be laid on a different basis from other hospitals and must function zonal-wise with whole time staff and not allowed private practice. The zonal centres when established will have zonal committees to direct, implement, assess, and introduce new measures suitable to the local conditions. Dr. B. Mukerjee briefly narrated the three aspects of the work that was being done at the Chittaranjan National Cancer Research Centre, Calcutta, namely, early detection in cancer cases, developing laboratory procedures and doing research on animals. Smear slides were transmitted from Singur to the Centre. So far 270 cases were under study. The Centre had so far not asked for assistance from the Chittaranjan Hospital. He was sure that help for research when needed would be forthcoming. The Centre was mainly concerned with laboratory animals and research on them, experiment with new drugs which he was asked to get from abroad. He had a budget-non-recurring of Rs. 4.5 lakhs and a recurring of Rs. 3 lakhs.

Dr. Krishnamurthy of Madras stated that the authorities of the Cancer Hospital, Madras had told him to inform the Committee that they accepted the principle of the Cancer Hospital as a Regional Centre and had given their consent. He spoke of the Organisation of Cancer in a population which was being worked out with WHO Assistance. Prof. Wahi of Agra was associated with it. Coming to the Hospital, he said that the Government of Madras subsidised the hospital while the Govt. of India assisted Research. There were 160 beds, of which 130 were free beds and 30 paying beds. The second point he stressed was that the staff were full-time, except the dental surgeons. There were three well-equipped operating rooms. There were 5 units, one caesium, one deep X-ray and 3 Cobalt 60. They referred

cases to the General Hospital, Madras & C.M.C. & H., Vellore. The Hospital treated 80,000 cases a year, working three shifts a day of 19 hours, 8,000 cases were treated by drugs, some purchased and others received as gifts, but no patient got inferior treatment at any time. Because of the limited finances, no extensive fundamental research was being done. There were laboratories for biology, histo-pathology, psychology, biochemistry including fundamental biology; physics with medical physics and bio-physics etc. There were separate arrangements for the treatment of children and they had the only Children's Hospital in India. They were able to screen 10,000 patients and the incidence of Cancer according to their findings was 6 per thousand of which at least 2 were sensitive to tests but could not be proved that they were cancer cases. Research and treatment went together. Cancer was a disease of man and it was an integrated disease and treatment of men should be as an integrated whole and never separate. As regards budget, their total expenditure was Rs. 5.5 lakhs per annum, which included salaries. The Govt. of India contributed Rs. 2 lakhs, the Govt of Madras Rs. 1 lakh for the hospital and the balance was made good from regular donors. The Hospital was a modern Diagnostic, Treatment and Research Centre. It was because of this continual burden that the Institute was prepared to come in with the Government of India.

Dr. T. B. Patel of Gujarat then described the facilities of the Institute at Ahmedabad. There was provision for 60 beds and more during the year. The College Hospital beds of 100 were being used at present. The Hospital Section was yet to open but the Diagnostic Centre was functioning. As one Hospital would not be adequate for the whole state, there would have to be clinics opened. There was co-ordination with the Tata Memorial Hospital, Bombay in the setting up of the Cobalt 60 construction unit etc. They meant also to coordinate with I.C.M.R. on fundamental and epidemiological research, and screening of cases. The total cost of the Cancer Hospital was estimated at Rs. 28 lakhs which included the following constructions :—

<i>Sections</i>	<i>Present Position</i>
I.	
1. O. P. D. Administrative Block & Diagnostics Centre.	Completed and functioning.
2. Indoor Wards.	
(a) 70 beds.	Basement, ground floor and first floor would be ready by July, 1965, 2nd Floor will be constructed later at a cost of Rs. 2.80 lakhs to accommodate 60 beds. The hospital has not yet begun to take in patients.
(b) 5 Operation Theatres.	
(c) Air-conditioning Unit	Cost Rs. 2.8 lakhs. Tenders were invited
(d) Animal House	Cost Rs. 60,000. Tenders invited.
3. Isotope Building	Will be ready by September, 1965.
4. Kitchen	Do.
5. Sub-Station	Completed.
6. Gas Station	Do.
7. Water supply & drainage	Completed for items 1 & 2 above.
8. Electrification	Completed.
Rs. 28 lakhs were available for the above items.	

II. Equipments

The estimated cost was Rs. 26 lakhs.

- | | |
|---|---|
| 1. One televised 500 MA-X-Ray machine | Installed. |
| 2. One 300 MA X-Ray machine (Kine-Therapy). | Ready for installation. |
| 3. One 250 K V deep X-ray therapy stationary and pendulum type. | Installation work started. |
| 4. Contact therapy machine | Due in October, 1965. |
| 5. Caesium Bomb | Expected shortly as it is in transit. |
| 6. Cobalt Bomb | Not yet received. |
| 7. Spot Camera for televised Unit | Due in July, 1965. |
| 8. One 100 MA with Odalca | Received and ready to be installed. |
| 9. Laboratory equipment Rs. 670,000 | Received. Another Order for Rs. 15 lakhs is to be placed shortly. |
| 10. Central Sterilisation equipment costing Rs. 2.2 lakhs. | Most of it received and rest by June, '65. |
| 11. Furniture for hospital and departments | Ordered. |

III. Staff

The 8 major units—Surgery, Obst. and Gynaecology, Pathology, Bio-Chemistry, Radio-diagnosis, Radio-therapy Radio-physics, Anaesthesia and Research.

Staff selected will be in position during 1965-66. The expenditure on staff will be Rs. 8.8 lakhs in 1965-66 and Rs. 18.5 lakhs in 1966-67 when the hospital with 157 beds will be completed.

IV. General.

Of the three liabilities stated above, the Society have already collected Rs. 26 lakhs. Similarly for equipment, they have Rs. 10 lakhs and will collect another Rs. 10 lakhs which included the Government of India contribution of Rs. 2 lakhs. Thus the present needs of the Society were to provide funds for maintenance of the Institute including the Hospital for which Rs. 8.8 lakhs would be the six months expenditure and Rs. 18.5 lakhs for the ensuing year.

Other funds which will be required were for:—

- | | |
|--|---|
| 1. Research Block—Rs. 16 lakhs | This they expected the Govt. of India to finance. |
| 2. Staff Quarters—Rs. 4 lakhs | No funds. |
| 3. Addition of 150 more beds to bring the strength to 300, costing Rs. 40 lakhs. | No funds. |

Dr. S. R. Mukerjee emphasised the role of rehabilitation in the treatment of cancer patients. Nutrition was considered in the same context. Suburban hospital could be the answer. The Zonal Centre would supervise and co-ordinate the activities of all such institutions. With the changing pattern of population there was also change in the type of cancer. All this had to be studied constantly. Research and training must go on at the same time.

The Deputy Health Minister considered that the expenditure on cancer was out of proportion to the magnitude of the problem as compared with other health schemes. More thought, therefore, had to be given to the

subject. The extent of the problem had to be further studied, the existing facilities and the likely expenditure. It would, therefore, be necessary to get the details of hospitals from those members who were not present. It would also be necessary to include Hyderabad if it desired to come in. There should be more effective co-ordination between clinics, cancer clinics and medical colleges. It should be made possible to get statistical data and place research and training on a sound foundation. He desired that a booklet be got up for information of the lay public and the training of young doctors to detect the disease. Primary Health Centres should be the distribution agency for such pamphlets. The Committee should also take into consideration the provisions in the Fourth Plan and it was for the Committee to make recommendation on each Institute they visit.

Summing up, the Director General briefly stated that they were aware of the vastness of the problem of Cancer and its extent, the meagre existing facilities and the need for planning ahead in training personnel and associating the Centres of the State Governments and non-official agencies in the work. The need to link Regional Hospitals and District Cancer Clinics on a phased basis was necessary. He requested that the Members meet the next morning at 9 a.m. in his office to discuss further and to plan ahead. The inclusion of Dr. Syed Ali, Hyderabad as Member and Dr. Writer as Member-Secretary was also suggested and agreed to by the Committee.

APPENDIX 4

Minutes of the Meeting of the Committee on CANCER held under the Chairmanship of Dr. K. N. Rao, Director General of Health Services, Patiala House, New Delhi on the 30th May, 1965 at 9 a. m.

The following were present :—

- | | |
|---|------------------------------|
| 1. Dr. K. N. Rao,
Director General of Health Services,
New Delhi. | <i>Chairman</i> |
| 2. Dr. Amiya Kumar Sen,
Chittaranjan Cancer Hospital,
Calcutta. | <i>Member</i> |
| 3. Dr. T. B. Patel,
Director Health Services,
Gujarat, Ahmedabad. | <i>Member</i> |
| 4. Dr. S. Krishnamurthi,
Director & Scientific Director,
Cancer Institute, Madras-20. | <i>Member</i> |
| 5. Dr. S. R. Mukerjee,
99/1, Karaya Road,
Park Circus,
Calcutta. | <i>Member</i> |
| 6. Dr. B. Mukerjee,
Director, Chittaranjan National
Cancer Research Centre,
Calcutta-26. | <i>Member</i> |
| 7. Dr. M. J. H. Writer,
Assistant Director General,
of Health Services, New Delhi. | <i>Member-
Secretary</i> |

The Director General of Health Services stated that as the subject of Cancer Hospitals had been discussed at yesterday's meeting and the situation at Calcutta, Madras and Ahmedabad reviewed. Bombay had not been discussed as the Department of Atomic Energy in their letter No. 30 21 65-G, dated the 6th May, 1965 stated 'that it may please be noted that the working of the Cancer Hospital was under the administrative control of this Department viz., Tata Memorial Hospital, and to Dr. J. C. Paymaster, Superintendent, Tata Memorial Hospital, Bombay being appointed as one of the members of the Committee. They however had 'no objection to the setting up of the Committee. The Tata Memorial Hospital, Bombay, would be outside the purview of the Committee'. It was also agreed that the Radium Institute and Cancer Hospital be reviewed for the establishment of a Regional Hospital with co-operation of Dr. Syed Ali as Member of the Committee.

The Committee agreed that the Report to be submitted by the Committee should bring out the following :—

1. The extent of the problem.
2. The present facilities available in the country, with special emphasis on the present development of the Regional Cancer Hospitals and the Cancer Institute namely :—
 - (i) Chittaranjan Cancer Hospital and the Chittaranjan National Cancer Research Centre, Calcutta.
 - (ii) Radium Institute and Cancer Hospital, Hyderabad.
 - (iii) Madras General Hospital and the Cancer Institute, Madras.
 - (iv) Cancer Hospital, Ahmebadad, under development with the Research Institute.
3. The Fourth Five Year Plan Proposals for the Cancer Control in India ; and
4. The requirements of the above hospitals with regard to :—
 - (i) building (ii) personnel (iii) equipment (iv) research facilities (v) training facilities and educational programmes and (vi) budget proposals grants-in-aid, etc.
5. The Recommendations of the Committee :—

The Director General of Health Services desired that the D.G.H.S. Publication 'Specialised training Centres in India 1957' be circulated to the Members of the Committee and the data brought up to date. He also desired that a proforma be circulated. It was suggested that the previous proforma on facilities for the diagnosis, treatment and clinical training in cancer throughout the World as required by the International Union against Cancer Commission on Cancer Control Committee on Patient Care and Committee on Professional Educational may be circulated with the additional items Nos. 30 & 31.

The State Governments may be asked to give their comments also on the subject as was in their States.

As regards survey, Dr. K. N. Rao stated that Prof. Wahi would be most useful as he was doing work on oro-pharyngeal cancer. On his return from abroad sometime in June 9th, a small committee with him could go into this and a total comprehensive programme worked out. The Committee were aware that the training of an individual in Cancer Research takes nearly 6 years, 3-4 years at the Institute and another 3-4 years work abroad. With the limited facilities, the Committee would have to make the most of it. Tata Memorial Hospital, Bombay was doing fundamental research and this also should be done in the Regional Hospitals.

The itinerary of visits decided on were :—

1. Visit Calcutta
16-6-65 at 10 A.M.

Meeting to be held at the Chittaranjan Cancer Hospital, Calcutta. Director of Health Services to make arrangements to visit Cancer Units in City including Calcutta Medical College (Radio-therapy Department, and the Tunor Board.); C.N.C.R.C., Rehabilitation, etc.

2. Visit Madras
19-6-65 at 10 A.M. Meeting to be held at the Cancer Hospital Madras. DMS to make arrangements to visit Cancer Units in the city, including Rehabilitation etc.
3. Visit Hyderabad
21-6-65 at 10 A.M. Meeting to be at the Radium Institute and Cancer Hospital, Hyderabad. DMS to make arrangements to visit Cancer Units in the city including Rehabilitation, Convalescent Units etc.
4. Visit Ahmedabad
22-6-65 at 10 A.M. Meeting at B.J. Medical College, Ahmedabad Campus to visit the Cancer Hospital and the Cancer Research Institute, Ahmedabad and any other Cancer Unit that the Director Health & Medical Services would like to arrange including Rehabilitation and Convalescent Units etc.

The D. G. desired that the recommendations of the Health Survey and Planning Committee on Cancer and the Resolution of the W. H. Assembly be circulated to the Members also.

APPENDIX 5

Minutes of the Meeting of the Committee on Cancer held on 16th June, 1965 at 10 A. M. at the Chittaranjan Cancer Hospital and Chittaranjan National Cancer Research Centre, Calcutta.

1. The following members were present :—

- | | |
|-----------------------------------|-------------------------|
| 1. Dr. K. N. Rao | <i>Chairman</i> |
| 2. Dr. P. N. Wahi | <i>Member</i> |
| 3. Dr. Syed Ali | <i>Member</i> |
| 4. Dr. S. Krishnamurthi | <i>Member</i> |
| 5. Dr. A. K. Sen | <i>Member</i> |
| 6. Dr. T. B. Patel | <i>Member</i> |
| 7. Dr. B. Mukerji | <i>Member</i> |
| 8. Dr. S. R. Mukherjee | <i>Member</i> |
| 9. Dr. M. J. H. Writer | <i>Member-Secretary</i> |

Dr. Paymaster could not attend the meeting as he was out of India.

2. Dr. K. N. Rao, Chairman of the Committee on Cancer, explained the urgent need for early detection of Cancer as a Public Health problem and the importance of treatment of cancer. For this purpose an Advisory Panel on Cancer Committee had been constituted by the Government of India, Ministry of Health, to study the facilities that existed in Cancer Institutes, Medical Colleges and Hospitals. The Committee would visit Calcutta, Madras, Hyderabad and Ahmedabad. Another meeting would be held in the last week of July to study the data required during the visits and to get up priorities for treatment and diagnosis, training etc., for the Fourth Plan.

3. Dr. A. K. Sen, Secretary Chittaranjan Cancer Hospital was requested to inform the Committee, the functions, staff positions, Hospital and equipment facilities etc.

4. Dr. Sen informed the Committee that the Chittaranjan Cancer Hospital was run by a Managing Committee under the Deshbandhu Memorial Trust and funds were received from donation, public charity, Municipal Corporation, West Bengal Grant and from time to time ad-hoc grants from the Government of India.

5. The Chittaranjan Cancer Hospital started through private enterprise under the late Director Dr. Subodh Mitra and the late Chief Minister of West Bengal, Dr. B. C. Roy, was formerly opened by the Noble Laureate Madame J. Curie in 1950. The work in the Hospital was mainly diagnosis, treatment and follow-up of cancer patients and conduction of clinical and fundamental researches on cancer. The latter was under the sponsorship of the Atomic Energy Commission. In April, 1957, the Government of India took over the research wing of the Hospital known as the Chittaranjan National Cancer Research Centre, Calcutta. Clinical Research was conducted by the Hospital.

Cancer research on hormones and Rh factor was conducted under the sponsorship of the Indian Council of Medical Research. Courses of D.M.R.E., D. Dermat., D.L.O., M.S., and D. Phil (Path) were held under the auspices of the Post-Graduate College of Medicine, Calcutta University: Work for the D. Phil (Cancerology) was recognised by the Calcutta University. Twenty students working for the M. S. and D. Phil, have worked on different Cancer problems. Of these, 2 have qualified for D. Phil and 6 for M.S. The others were waiting for their examinations. Dr. A. K. Sen is the Head of Department of General Surgery and Cancer Research of the Post-Graduate College of Medicine of the Calcutta University.

There was a bi-annual publication of the Bulletin conjointly of the Hospital and the Centre. This was mainly to publish the works which were carried out in the two Institutions.

6. The Chairman desired to know whether the West Bengal grant was received direct or through the Chittaranjan Seva Sadan. In reply Dr. Sen said that the West Bengal Grant was received direct from the Government and not through the Chittaranjan Seva Sadan.

7. Dr. Wahi expressed a desire to have collected all data from Research and Teaching Institutions and Hospitals about the facilities, training, treatment etc. and to know the actual work that was being done for cancer.

8. Dr. Sen narrated that since the inception of the hospital and Centre by the late Dr. Subodh Mitra and even after it was taken over by the Government of India, the two institutions were under his Directorship. However, after his death, Dr. A. K. Sen took over charge of the both the Centre and Hospital till 1½ years later a new Director Dr. B. Mukerji was appointed for the Chittaranjan National Cancer Research Centre, Calcutta, the hospital remaining under the charge of Dr. Sen. Thus the Centre became separated and co-ordination became less between the Hospital and the Centre. This co-ordination according to Dr. Sen could be solved by more and more participation between the two Institutions—the hospital and the Centre. He further stated that during the term of Dr. Subodh Mitra and during his stewardship, fortnightly meetings were held with the staff of the Research Centre under their Chairmanship, when research programmes were discussed and chalked out. This could be revived.

The 6th floor has been built on the top of the existing hospital building where a twin operation theatre with Resuscitation and Recovery rooms etc. The whole floor was air-conditioned. This would be in addition to the existing operation theatre block of 3 theatres.

Dr. Sen agreed in principle to the setting up of a Regional Cancer Hospital at this Centre as a nucleus. So far as he could gather from the State Government, they would also support the idea.

9. The departments of the Cancer Hospital visited were :

1. Out-patients.
2. In-patients.
3. Radiology.
4. Physics.
5. Pathology.
6. Statistics.
7. Follow up of Tumour Registry.
8. Nursing.
9. Reference Library.

9.1. Out-patient.—During the period 1950-51 the hospital attended 45740 new cases of which 45% were found to be suffering from Cancer. The total number of new cases for the period 1964 was 5636 and old cases 14961. Only 60% of 1964 cases could be given specific treatment. The remaining cases were so advanced and given palliative treatment. There was a fair number of case also which did not come for treatment. Urgent cases were given priority. Specific treatment was given to those who were passed by the Cancer Board. No case was refused treatment but referred to other hospitals according to the type of case. Neighbouring countries as East Pakistan and Burma directed cancer cases for treatment to the Hospitals :

TABLE I

1. Bihar	5.5%
2. Orissa	2.5%
3. U.P.	2.2%
4. Assam	1.5%
5. Nepal	0.5%
6. M. P.	0.5%
7. Southern States	0.5%
8. Tripura	0.4%
9. Punjab	0.4%
10. Punjab	0.3%
11. East Pakistan	0.2%

Out door service consisted of General Surgery, Gynaecological, E.N.T. (excluding Ophthalmology), Dental and Biopsis.

9.2. In-patients.—Of the 161 beds 50 were maintained by the West Bengal Government, 10 by the Calcutta Corporation, 2 by the Dock Labour Board, 1 bed by Red Cross. There were 70 free beds besides the cabin and paying beds. In the reserved beds patients were admitted to paying beds and were not charged. Males and females were both admitted through the Cancer Board which met once a week. A new multi-storeyed building was under construction which will accommodate a minimum of 40 beds.

9.3. Radiology.—The services were :—

1. Diagnostic
2. Therapeutic including Radio-isotope.

There was the Tele Cobalt Therapy Unit received from the Government of India through the Canadian Government under the Colombo Plan. There were also the Million Volt-X-Ray therapy Unit, the Caesium 137 unit, the 250 KV X-ray Unit (three) and one Contact Therapy Unit.

The Diagnostic and Therapeutic functions of the Radio Isotope unit were carried out by the Hospital. Facilities were available for the use of P. 32, I 131, Au 198, Co 60 etc. The total amount of radium was 1500 mgm in tubes and needles.

9.4. Physics department.—The work was divided under four heads :—

- (i) Maintenance ;
- (ii) Calibration;
- (iii) Co-operation with the clinical departments in planning the dosage distribution in relation to the use of radium, X-rays and radioactive isotopes;
- (iv) Health physics and protection of personnel.

9.5. Pathology department.—The Central Pathology Laboratory consisted of (i) Clinical pathology department (day to day examination of blood urine, etc. (ii) Biochemistry department (iii) Histology department (Biopsy including aspiration biopsy and cytological work) were employed for uterine cancer. Exfoliative cytology to determine the incidence of carcinoma in unsuspected cases; Haematology, Museum, Blood bank and Follow-up section were the other departments visited. A charge of Rs. 15 for 300 c.c.s. of blood was made. A reserve of 10 bottles was maintained. Poor patients were given blood free. The Cancer Hospital also supplied blood to the adjoining Women and Children Hospital.

9.6. Statistics.—The work was divided into :—

- (i) compilation (ii) Follow-up (iii) Analysis.

In the first year, 80% of the Cancer cases were followed up and in the subsequent years the percentage fell year by year.

9.7. Follow-up of Tumor Registry had been established.

9.8. Nursing department.—There were 58 nurses, 13 being unqualified. A proportion of 1 nurse to 12/13 cancer patients was considered too many and inadequate. Cancer patients needed more attention and care.

9.9. Reference Library.—The library had 2531 books and 1404 volumes and subscribed to 137 journals. The Dewey Decimal Classification system was in operation. Dictionary Catalogue on cards was also maintained.

9.10. Survey.—(a) The Hospital had conducted a survey of women patients above 25 years of age. 8000 cases were screened.

(b) During the period 1957-1960 (Sen and Chandra 1960) 384 children were examined in the out patients Department of the hospital of whom 89 children (0-12 years group) *i.e.* 23.2% were suffering from malignant diseases. The ratio of malignant to non-malignant was 1 : 4 *i.e.* out of every 5 children, one had cancer. During the same period 8351 positive malignant cases of all groups were examined. Thus the percentage of children from 0-12 years of age among all malignant tumours was 1.06.

The commonly effected sites were eyes, brain, bone, lymphoid tissues and soft somatic tissue. The most common type of cancer was the Retinoblastoma. In the next quaternary period from (1961-64), 100 cases of the cancer were detected in children below 12.

The incidence of cancer in children was increasing in relative importance although the number of cases remained small. Petter (1960) observed that only 1.5 to 1.8% of all cancer cases in the population occurred in the first 15 years of life. He also stated that less than 2% of cancers of all age groups appeared in children.

Chittaranjan National Cancer Research Centre, Calcutta

The Centre was taken over by the Govt. of India from the Deshbandhu Memorial Trust in 1957. It was primarily the research division of the Chittaranjan Cancer Hospital. Research activities of the Centre had expanded and with the addition of a new building, further expansion was possible.

The Director, Dr. B. Mukerji stated from charts that major outposts in the campaign against cancer were the doctor's office, the clinic and the hospital through drugs and lifesaving equipment. The other outpost was that, of scientific research to study the possible causes and cures of cancer. The Centre tried to diminish the gap between the scientific scholar research and the clinician on cancer in an environment which stimulated productive exchange of ideas.

1. Cell Research.—This department was mainly charged with the study of the biology of normal and malignant cells in their phases of growth and function. The Gaspersson ultra violet microspectro-photometer was used by the researcher for the quantitative study of RNA & DNA and protein in normal and malignant cells interferometry was used for the study. The succinic dehydrogenase activity was established and was measured in different biological phases of normal and malignant stratified epithelia. The number of quantitative measurements of mitochondrial polarity and other characteristics in the different biological phases of normal stratified epithelium of human cervix was also being made. Electron microscopic studies on cell of animals as mice rats, hamsters were being conducted.

2. Biophysics.—Radiobiological problems are being worked out on radioprotective chemicals. R. B. E. was determined in the cobalt 60 gamma rays and 100 kv x-rays with respect to 250 kv x-rays using radio-active iron incorporation in circulating erythrocytes as the criterion. Photoradiographic technique was being utilised.

3. Chemotherapy.—The work was eventually on carcinogenesis with drugs of synthetic and plant origin. Circinolysis was being studied.

4. Biochemistry.—The sulphhydryl content of tissues was utilised to measure the SH content of normal and cancerous tissues. Adenine 8-C-14 was used for investigating the metabolism of nucleic acid.

5. Experimental Cancerology.—The immunological behaviour in transplantation of cancer, the role of x-ray and cortisone were under study.

6. Immunobiology.—Leukemia in C57BL mice by whole body radiation was under investigation, to establish (e) Leukogenic agents through serial passages and work on 57BI mice to induce Leukemia after the cortisone was being tried out.

7. Tumour Virology.—Collection of operated tumours, making cell free filtrates and testing such filtrates for tumourigenic factor on experimental animals, tissue culture, organ culture and egg culture was progressing apace.

8. Animal House.—The animal House was being set up at Chandernagore for experimental purpose and for breeding experimental animals—as mice, hamsters and rats—Table 2.

TABLE 2

Animal House at Chandernagore 1965
(Date 16-6-65)

Animal	Last week's total stock		Death		Birth		Present total stock	
	Male	Female	M	F	M	F	Male	Female
I. Mice	741	1,043	..	..	40	56	781	1,099
1. C 3 H	22	15	..	1	..	..	22	14
2. C 57 BL	6	7	..	..	..	..	6	7
3. Swiss(Pairs)	10	12	..	..	..	..	10	12
4.	329	499	..	..	19	35	348	532
5. DB 2	7	7	..	..	..	..	7	7
6. Swiss(Cal)	351	492	..	..	21	21	372	513
II. Hamster	3	4	..	..	..	..	3	4
III. Rats	62	69	..	..	..	..	62	69

Dr. S. Krishnamurthy left in the afternoon for Madras.

Prof. Wahi, Dr. T. B. Patel, Dr. S. R. Mukherjee and Dr. Writer visited the Post-Graduate Institute of Medical Education and Research, Calcutta (S. S. K. M. Hospital). They met the Director-Professor M. M. Mukherjee, the Plastic Surgeon and Director of the Institute. He stated that they would be opening 125 beds by about the end of September, 1965 which would be devoted to plastic surgery, neuro-surgery and orthopaedic surgery. They had specialised surgeons in plastic, chest, neurology and abdominal surgery. He was definitely of the opinion that if a Regional Hospital was to be established it should be established in close proximity of a teaching institute where the maximum facilities were available for the use of cancer patients and where teaching and research could go side by side. The members were also of the same view as held by the Director-Professor M. M. Mukerji.

Dr. T. B. Patel and Dr. Writer then visited the Ramkrishna Mission Seva Prathisthan, Calcutta and were shown round by Dr. Rannes Chakravarty who was a highly talented and enthusiastic research worker in the chemotherapy field of cancer. He had a few beds in this hospital but scattered in the various wards.

17-6-65

Prof. Wahi, Dr. B. Mukerji, Dr. Syed Ali and Dr. Writer visited the Rupal Nandy Memorial Centre for Cancer, Chandernagore, which was 26 miles from Calcutta. The site and the buildings were ideal. The buildings were being fitted up. The members were definitely of the opinion that this would be a suitable Centre for both experimental and clinical Chemotherapy with the District Hospital Margain of 125 beds adjoining it. It was also considered that the Chemotherapy Centre should be entirely separate from the District Hospital as the functions were entirely different. The hospital was visited by the Members and were shown round by Dr. Sen Gupta, the D.M.O. The hospital was maintained in a very poor condition. There were floor cases. Electricity had failed since the previous night and water was not available. The Director, Dr. B. Mukerji was trying to set up 30 beds being the contribution of the West Bengal Government. He was of

the opinion that the population of two neighbouring cities, Chinsura and Hooghly would be three lakhs, and the setting up of an early Cancer Detection Centre most suitable in an area of this type. Dr. D. M. Nundy who was also present considered that the work should be started as early as possible. He stated that in the early stages and even in the later stages of the disease chemotherapy method was an adjunct to surgery and radiation. Transfer of cases when suitable, to the main referral hospital and Centre in Calcutta for radio-therapy, operation etc. could be effected. An ambulance was provided for the Centre. Exfoliation cytology and biopsy could be carried out at Chandernagore. Communication was easy as the G. T. Road was within 20 yards of the Centre. The establishment of a early Cancer Detection Clinic and a Chemotherapy Centre would go far in the research, control and treatment of cancer with a strengthened animal house set-up. If necessary deep therapy facilities could also be provided at this centre. The need for extending the facilities to remote areas by mobile units was to be planned also. Training could be held at this centre. Prof. Wahi considered that the Unit of geographical Pathology should be established. It was necessary to strengthen the staff, equipment etc. at the Centre.

On return from Chandernagore, the Members then visited the Calcutta Medical College and Hospital and were shown round by Dr. Sarbadhikari and other members of his staff. Dr. Sarbadhikari was very enthusiastic about the setting up of a Regional Cancer Hospital and stated that he would find place for cancer patients by having a cancer wing of 100-150 beds. It would cost the Central Government about 5-6 lakhs of rupees. The new THORATON-B Cobalt 60 unit was being installed. The college hospital had 1400 beds of which 400 were given to surgery comprising of general surgery, thoracic surgery, gynaecology, E. N. T. not including ophthalmological surgery.

1. **Equipment.**—The following equipment were available in the department :—

1. Maximar 250 KV	5 machines
2. Stabilipan 200 KV	1 machine
3. Contract therapy 45 K V	1 machine
4. Short Wave	2 machines
5. Radium	338.5mg in needles and tubes.
6. Theratron 'B' Tele Cobalt Unit with 3600 RIHM Source :	Being installed, expected to be ready in a month's time.

2. **Department.**—The radiotherapy department consists of the following sections :—

(a) Outpatients-Registration of patients reporting in 1964-65

Total attendance	24718
No. of new cases	1223
Malignant	755
Non-Malignant	468

(b) Indoor beds : Male-12; Female-16.

4-5 new cases are admitted daily; more than 60% are treated surgically.

(c) **Physics Section** This Section is responsible for radiation dosimetry, physical aspects of treatment planning, radiation protection overall supervision of maintenance of equipment, design of applicators and other accessories, radioactive isotopes.

(d) **Pathology** Uptil now the Central Laboratory of the Medical College Hospitals used to do this work. Now a separate Histopathology and Haematology unit has been sanctioned and is being organised.

3. Personnel

1. Professor	1
2. Reader	1(in-charge of the department)
3. Lecturer	1
4. Clinical tutor	2
5. House Surgeons	2
6. Registrar	1
7. Physicists	1
8. Scientific Asstt.	1 (vacant)
9. Mouldroom Technician	1 (vacant)
10. Staff Nurse	1
11. X-Ray Assistants	17
12. Wardboys	5
13. Sweepers	1

4. Work being done :

(a) **Treatment** :—This department is responsible for radiotherapy of patients reporting directly to the department or referred by other departments. The patients are processed through two different boards, one for Gynaecological cases and the other for rest of the cases.

The Surgical/ENT and Gynaecological departments are represented in the respective boards. After registration and initial investigation the patients are referred to the boards where the treatment policy is determined. After undergoing treatment according to the policy the patients are fitted into the follow-up system. Standard irradiation techniques with variations wherever necessary to suit the individual requirements of patients are followed. The radio-isotope laboratory is being equipped and within a short while the therapy and investigations with radioisotope will be introduced.

(b) **Teaching** : This department takes part in both under-graduate and post-graduate teaching, theoretical and practical classes and clinical demonstrations in Radiotherapy and Radiological physics are held for D.M.R.E. D.M.R.T. and D. Dermat. courses etc.

APPENDIX 6

Proceedings of the Cancer Committee held at 4.30 p.m. on 18-6-1965 at the Office of the Director of Medical Services, Madras.

The following were present :

1. Dr. K. N. Rao, Director General of Health Services, New Delhi.
2. Dr. (Kumari) A. B. Marikar, Director of Medical Services, Madras.
3. Dr. (Mrs.) H. M. Sharma, Director of Public Health, Madras.
4. Professor P. N. Wahi, Principal, Agra Medical College, Agra.
5. Dr. T. B. Patel, Director of Health Services, Gujarat, Ahmedabad.
6. Dr. S. Krishnamurthi, Director and Scientific Director, Cancer Institute (WIA), Madras.
7. Dr. B. Mukherjee, Director, Chittaranjan National Cancer Research Centre, Calcutta.
8. Dr. Syed Ali, Director Radium and Cancer Institute, Hyderabad.
9. Dr. M. J. H. Writer, Asstt. Director General of Health Services, (Medical), New Delhi.
10. Dr. P. Damodaran, Assistant Director of Medical Services, (Medical).

The Director General of Health Services explained the objects of the Cancer Committee. He said that in view of the large number of cancer cases in the country, Cancer had become a major problem. Early cases were not detected and a large number of cases remained undetected, as no well established detection centres were in the country. The Committee was concerned with the large incidence of Cancer in the State and had come to discuss and determine ways and means to treat early cases of Cancer by instituting Regional Cancer Hospitals and Diagnostic, Research and Detection Centres for early detection, training, research and treatment. Dr. Rao mentioned the various places to be visited by the Committee to determine the existing facilities in various cancer hospitals at Calcutta, Ahmedabad, Madras, Hyderabad and make recommendations for detection and treatment of cancer cases.

Dr. Rao mentioned that the cancer hospital at Ahmedabad was built by private donation spending about 50 to 60 lakhs of rupees for building and equipment but now the Society desired that the Government of India maintain and run the hospital as they were unable to do so. The hospital had yet to function. The Tata Memorial Cancer Hospital had been integrated with the Atomic Energy Commission, incorporating the research programme. The Chittaranjan Hospital in Calcutta is also to be integrated with the C.N.C.R.C. Centre as treatment and research should go together. At Hyderabad, another Cancer Centre had been established.

The Director of Medical Services Madras stated that there were 3 Govt. Centres which were fairly well equipped for treating cases of Cancer. In the Barnard Institute of Radiology, Govt. General Hospital, Madras there was a cancer ward with facilities for detection and treatment. The other two government Institutions were the Government Stanley Hospital and the Hospital for Women & Children, Madras. She also mentioned that there was one Cancer Centre at Madurai which was fairly well equipped for treatment and another centre would be developed soon at Thanjavur. Besides these, there were all well-developed cancer centres one at Adyar, another in Vellore and the third in Kanyakumari District which were all private organisations. There were also some private clinics here and there.

The Director General of Health Services desired information whether there were any cancer detection centres established in Madras State or mass screening of cases done and Professor Wahi wanted to know whether any statistics of cancer had been collected. The Director of Medical Services informed that there was no separate well-established cancer detection centre and no statewide statistics available, but statistics of cases who attended the various hospitals were the only data available. No systematic survey of cancer cases was done, though a simple survey of cancer was done in one district by the Cancer Institute, Adayar, No 'mass screening' was done.

The Director of Public Health was asked to state whether there were any health education centres and health education bureau for cancer prevention. She said there was no separate scheme exclusively for cancer prevention but health education was given in the three regional centres on general health education including cancer prevention. A mobile exhibition on cancer was being got ready to tour places.

Dr. Krishnamurthy said that in view of the large number of cases of cancer, Madras state should have more treatment centres to treat the large number of patients who come to the cancer hospitals. He was not in favour of setting up more detection centres. Professor Wahi, WHO Adviser on Cancer emphasised that mere treatment of advanced cases on cancer who come to the hospitals was not very important for various reasons. He said that concentrated efforts should be made to detect early cases by cytological examinations by opening more detection centres to pick up the early cases which could be effectively treated and cured. He also explained the nature of work done in Agra where a Cancer Team collected information and obtained slides from the medical practitioners of the area concerned with full co-operation of the medical officers and the public. The cancer team were able to contact the early cases of cancer through the medical officers for treatment. This procedure had resulted in detecting large numbers of early cases in rural areas and a marked reduction in the incidence of cancer cases in the advanced stages. He stressed that cancer research had been neglected so far in our country. He felt that the I.C.M.R. should come forward granting funds and promoting researches in cancer centres.

Dr. Krishnamurthy said that the existing centres of cancer hospitals should have Tumor Pathologist, Cancer Surgeon, and Radiotherapist for diagnosis and treatment. But Dr. Wahi was not in favour, as in his State such a team does not exist though good work on these lines is being carried out with willing co-workers in this field.

The Director General of Health Services finally summarised the essential requirements for setting up regional cancer centres to control and study cancer problems.

1. There should be public health education and measures should be taken to prevent cancer.
2. Establishment of detection centres in every regional centre, district headquarter hospitals and large taluk hospitals.
3. There shall be a research centre for chemotherapy.
4. Research Centres.
5. To prevent the misuse of radium and other treatment by those untrained in their use, there shall be education and training of variety of persons for these centres. Training of oncologists should be the ultimate aid.
6. There shall be free movement of staff from institute to institute.

He mentioned that there shall be a rehabilitation centre for cancer patients to rehabilitate them vocationally. A Logopaedic Centre at Bangalore would be established shortly and hoped that this centre when established would be utilised fully for rehabilitation of cancer cases. He also mentioned that a separate ward shall be established in each centre for treating cases of leukaemia of different age groups and other malignant conditions. Another suggestion made by him was that all cancer patients should be given free treatment in the hospitals and no fee should be charged for laboratory examinations and for detection of cancer cases. Middle class people are unable to pay the heavy charges for the diagnosis and the prolonged treatment. They failed to come to the hospital in the early stages on account of this paying system. If the treatment is given free, many cases will come to hospital for detection and treatment in the early stage and number of cases can be treated early without allowing them to pass to the advanced incurable stage. He had seen venereal diseases cases not reporting for investigation and treatment because of the levy of a charge. This hampered State and National Programmes and the 'mean's test' could now be discontinued. The Director Medical Services stated that the charge was so small to the actual cost that it should not come in the way. The Committee would be considering this 'test'. Lucknow was to be covered by the Committee on Cancer. The Director General of Health Services thought that I.C.M.R. should help Medical Colleges to do research. Tata Memorial Hospital was doing fundamental research. Universities could be involved through their Basic Medical Sciences.

Dr. B. Mukerjee said that modern treatment of cancer is confined not only to radiation but it is a combination of radiation and surgery, a combination of drugs and radiation. Such chemotherapy centre also should be established and developed. The chemotherapy of cancer plays a very important role in cancer problems. This is one of the future promising solutions for simple treatment of cancer. He also said that the research in this aspect was neglected and the I.C.M.R. should come forward to grant some aid for promoting research work on chemotherapy. Professor Wahi while supporting his statement said that recently in the Tata Memorial Institute, a research worker had discovered in Cobra venom a non-toxic substance which had the power of lysing cells. Such important discovery should be profitably used in treating cancer cases. He said more and more research work had to be carried out in this field to open more avenues for simpler treatment of cancer. Dr. Wahi was of the view that there should not be many service personnel in different specialities in the cancer treatment centres and the undergraduates are not likely to get proper orientation and training in such centres during their student days.

While agreeing with the views expressed by the Committee, Director of Medical Services spoke about the difficulty experienced in her State and were taking a realistic view of the situation here. There were not enough medical officers who came forward to take up appointments in certain unattractive posts like Radiology and particularly in non-clinical subjects. Medical officers were not attracted to these posts as they were getting less remuneration when compared to a practising physician or surgeon in service. However Director of Medical Services said that all efforts would be made to attract the medical officers to serve in the regional cancer centres and to take up the research programme in the regional centres envisaged by the Cancer Committee constituted by the Government of India.

The Director of Medical Services then mentioned about the voluntary Health Services and the well established Cancer Institute at Adayar to which most of the medical officers of the Government General Hospital were the consultants of this Institute. She also said that this Institute had been recognised for post-graduate training by the University of Madras for Ph.D.

Dr. K. N. Rao said that if regional centres are established they should have a uniform pattern of staff and a Governing Body. The Director of Medical Services said that it will not be difficult to have uniform set up in such centres. The Director of Medical Services finally thanked the members of the Committee for visiting the State to study the facilities in the Cancer Institution for establishing regional cancer centres and for the useful discussion she had with them. She hoped that regional cancer centres for the control of cancer would soon be implemented in the Fourth Five Year Plan.

The meeting concluded with a vote of thanks by the Chairman of the Regional Cancer Committee, Dr. K. N. Rao, Director General of Health Services, New Delhi.

APPENDIX 7

Proceedings of the Cancer Committee Meeting held at Hyderabad on 21st June 1965 under the Chairmanship of Dr. K. N. Rao, Director General of Health Services on the Radium Institute & Cancer Hospital, Hyderabad.

The Committee visited the Radium Institute and Cancer Hospital, Hyderabad, on the 21st June, 1965. Dr. Syed Ali, Director and Prof. of Radiology, was also a member of the Committee. The Committee was very much impressed with the excellent organisation of this Institute, specially, the therapy side. The Institute has developed into one of the most important centres for cancer diagnosis and therapy in this country and has been doing excellent service to the patients. However, during the few years it has been in existence, it has not developed into a research centre. The Committee feels that time has now reached when the development of the cancer research programme should be encouraged.

Clinical Research :

The Institute collects large amount of clinical material and this should be fully utilised for developing clinical research. The recording section, which has been organised taking considerable pains, should be further strengthened diagnostic clinic for Exfoliative Cytology should be set-up. This clinic should be staffed with a trained cyto-pathologist and cyto-technicians, which would provide facilities for early diagnosis of cancer of all internal visceræ, e.g. examination of vaginal smears for cancer of the female genital tract, urine for cancer of urinary tract, sputum for cancer of lung, and gastric aspirates for cancer of the stomach etc. etc.

It is also suggested that a start should be made at this Institution for mass detection programme, and in the early stages, this could be usefully limited to the population screening for cancer of the genital tract in the female.

With the increase of cancer patients, specially, by detection in early stages, it would be obviously necessary to provide facilities for therapy. The Committee suggested the addition of the following equipment:—

1. Radioactive Caesium Unit—One
2. Radioactive Cobalt Unit—5000 Curies—One
3. Bevatron—One and
4. Deep X-Ray machines 250 kV.—Two

Chemotherapy

The Chemotherapy is being used at this Institution for the treatment of various malignant disease with or without combination of radiotherapy and surgery. There are at present 6 female cases, accommodated in a separate unit, who receive Chemotherapy, while the male patients on Chemotherapy are kept in the respective male wards. The Committee was informed that

Dr. V. V. Subha Rao, Surgeon at the Institute, would be going abroad under the Colombo Plan to gain practical experience of the latest advances in chemotherapy and perfusion technique. The following drugs are being used :—

- | | |
|--------------------------------|---------------------|
| I. Alkylating | 1. Leukeron |
| | 2. Endoxan |
| | 3. Nitrogen Mustard |
| II. Hormones | 1. Androgens |
| | 2. Oestrogens |
| | 3. Cortisocateroids |
| III. Antimetabolites | 1. Methotrexate |
| IV. Miscellaneous | 1. Myleran |
| | 2. Urethane |

It is suggested that this unit should be further strengthened by the addition of staff and equipment. It is also suggested that sooner or later experimental work on Chemotherapy should be started as a part of research programme at this unit.

Physics Laboratory :

The Physics Laboratory of this hospital was started in 1956 and has the following sections :—

1. Physics Laboratory.
2. Radium Department and Store Room.
3. Cobalt Department.
4. Deep Therapy and Diagnostic X-Ray Deptt.
5. Mould Section, and
6. Health Physics.

The Physics Laboratory is mainly occupied with hospital service. Its further expansions as research laboratory should be considered.

Radio-Isotope Laboratory :

There is a well equipped radio-active isotope labortory. The Radio-active isotope are being used for the diagnosis and treatment of malignant diseases and in many other tracer techniques. The following equipment, supplied by the Atomic Energy Establishment is available in this Laboratory :—

1. Gamma ray Spectrometer (under repairs)
2. Well type Scintillation Counter
3. Gyger Muller Counter.
4. Annular G. M. Counter
5. Isotope Calibrator.
6. Contamination Monitor and
7. Radiation Survey Meters.

It is further suggested that a separate building should be constructed for the Radio-active Isotope Laboratory for the ever expanding Hospital service—diagnostic and therapeutic as well as research. This laboratory would need further additions of equipment.

Biochemistry Laboratory :

The Biochemistry Laboratory of the Institute is organised for hospital service and it is neither engaged in any research nor is it possible to carry on any research with the present set-up. This laboratory will have to be supplied with additional equipment as well as staff. A good Biochemistry laboratory is absolutely essential for cancer.

Pathology Department :

The department of pathology also needs re-organisation both from the point of equipment and staff, if any research work is to be carried on. The department also needs a laboratory of Bacteriology and Virology. As already suggested, a laboratory of Cytology should be started. Both staff and equipment should be provided for this expanded programme.

General :

The Committee had occasion to discuss matters relating to cancer cases with the various specialists in charge of the service specialised hospitals around this institute and noted with pleasure the co-operative effort put in by all in tackling cancer problems. The Committee feels, that in view of the central location of the institution catering to the needs of large number of patients, the rapid increase in the incidence of the disease, the temperature and congenial climate of Hyderabad, the inherent potentialities for extensive and rapid development of the Institute and the excellent administrative attention paid and the team spirit exhibited by the staff, effective Governmental financial assistance is needed to develop the Institution on the lines suggested above.

APPENDIX 8

Interim Report of the Cancer Committee on the Shri M. P. Shah Cancer Hospital, Ahmedabad

In pursuance of the terms of reference of the Ministry of Health, *vide* letters No. F. 42-4/65-RISM dated 26th April '65 and 3rd June '65, the Committee held preliminary discussion at Patiala House, New Delhi, on the 29th and 30th May '65 and subsequently visited the Chittaranjan Cancer Hospital, Calcutta, the Chittaranjan National Cancer Research Centre, Calcutta, the Cancer Hospital and Institute, Madras and Radium Institute and Cancer Hospital, Hyderabad during the period 16th June to 21st June, 1965. The detailed programme of visits of the Committee is given in Appendix 4.

2. The Cancer Hospital at Ahmedabad was visited on the 22nd June, 1965. All members except Dr. J. Paymaster and Dr. S. R. Mukherjee visited the Cancer Hospital under construction, the Civil Hospital and the Medical College, and had discussions with the Health Minister, Gujarat, the Members of the Gujarat Cancer Society, and the teaching staff of the B. J. Medical College, Ahmedabad.

3. **History and Development.**—Since the establishment of the Gujarat State, it became necessary to establish cancer treatment facilities at the capital to meet the needs of the cancer patients of the State. The Government of Gujarat decided to develop facilities for treatment of cancer in the various teaching hospitals in Ahmedabad and other medical college hospitals. The Gujarat Cancer Society was established on the 2nd April '61 by the Inner-Wheel Club of Ahmedabad. The Society collected Rs. 25,000 immediately to fight cancer and donated it to the Wadilal Sarabhai Hospital under the management of the Municipality.

Under the inspiring leadership of Nawab Mehdi Nawaz Jung, Governor of Gujarat and the then Chief Minister, Dr. Jivraj Mehta, the Secretary set about the organisation of a cancer hospital at Ahmedabad. The Society consulted various experts in this connection and had the benefit of the experience of the Tata Memorial Hospital, the Atomic Energy Commission, the Radium Institute and Cancer Hospital, Hyderabad and the W.H.O. in the planning of a Cancer Institute in the State to provide cancer treatment and facilities for research. The Government of Gujarat sanctioned the site in the B. J. Medical College campus on a nominal rent and also donated a grant of Rs. 1 lakh to the Society and offered a further grant of Rs. 2 lakh for every Rs. 25,000 grant. *The grant were to be made on the understanding that the Cancer Hospital when completed, would be handed over to the Government.* The Society collected Rs. 8 lakhs. The Government of India sanctioned a grant of Rs. 5 lakhs in the Third Plan, out of which, a sum of Rs. 3 lakhs had already been received by the Society from the Ministry of Health. The Society had also the good fortune of receiving a donation of £55,000 from Shri M. P. Shah of East Africa which was utilized for foreign exchange component for the purchase of equipment. The Planning Commission had also generally approved of the Scheme informally.

4. Building.—The Hospital is located in the compound of the existing Medical College and Civil Hospital. The development of the hospital in stage I is as follows :—

- (1) Out-patient department ;
- (2) Diagnostic treatment, Dispensing, Surgical, Radio Physics section.
- (3) Isotope Unit and
- (4) Kitchen.

4.1. Out-patient Department Building.—It is housed in a square block 162' × 52' in two floors having the main examination room on the ground floor and housemen quarters and Administration office on the 1st Floor of the main hall. This has been opened and is partially functioning.

4.2. Diagnostic treatment, dispensing, Surgical & Radio-Physics Building.—This consists of the basement, ground and 1st floor. X-ray Diagnostic Rooms, X-Ray Radio Therapy and Radiological Physics Section are situated in half the area of the basement and the ground floor. Operation theatres are located in the 1st floor. There is accommodation for 54 patients in two wards in the 1st floor. In addition, in the Radium Therapy rooms, there is accommodation for 10 patients on the ground floor. This building can take two more floors. When the second and the third floors are completed, there will be accommodation for 100 patients at each floor.

4.3. Kitchen is under construction and is expected to be completed in a few months.

4.4. Isotope Unit is under construction.

4.5. Stage II of the Programme is to be taken up subsequently which covers additional floors on the diagnostic treatment block, blocks of wards, research unit, animal house, nurses hostels, isolation hospital and staff quarters. The Nurses' hostels are being given a low priority which is likely to lead to difficulties in the proper functioning of the hospital unless the B. J. Medical College Hospital Nurses' Home provides the accommodation. The lack of staff quarters is also likely to effect the efficiency of the hospital. The total cost of the project non-recurring is anticipated to be Rs. 1.43 crores. The remaining cost depends on the staff themselves and the number of beds opened. The Committee is in agreement with the phasing (pages 14-15).

5. Equipment.—The following is the list of equipment that has already been received.

- 5.1. (1) Diagnostic X-ray equipment :
 - (i) 300 M.A. X-ray machine and accessories with automatic device.
 - (ii) 500 M.A. X-ray machine with image intensifier and television facilities.
 - (iii) 25 M.A. Portable X-ray Unit.
 - (iv) Mass Miniature

(2) Therapeutic Machine :

- (i) 250 kV Deep X-ray Therapy-machine with moving beam facilities.
 - (ii) 250 kV Deep X-ray Therapy.
 - (iii) 100 kV X-ray Therapy.
 - (iv) 1 Contact Therapy.
- (3) Dark-room equipment.**

5.2. The following equipment has already been ordered and is expected shortly :

- (1) Caesium 137 unit.
- (2) Equipment of the various Sections like Surgical, Anaesthesia, Blood Bank and Biochemistry.
- (3) Measuring Equipment for Isotopes.
- (4) Chemicals for Pathology etc.

5.3. A cobalt therapy plant is expected under the Colombo Plan through the good offices of the Ministry of Health.

6. Staff.—Certain staff appointments were made by the Society.

7. Other Matters.—The Gujarat Cancer Society proposes to inaugurate the hospital before the end of July '65. The hospital still requires to be equipped both in the wards and in the therapy rooms and operation theatres. There is at present no arrangement for diet facilities for patients unless the B. J. Medical College Hospital assists. The Committee, therefore, suggests that the actual functioning of the hospital with patient care responsibility may only be taken up after the basic arrangements are complete even though the Institute is formally opened in July '65. Diagnostic and investigation services may be taken up in collaboration with the Hospital.

8. Finances.—Donations so far received amount to Rs. 29,92,502. The Government of India have given exemption of customs duty to the tune of Rs. 7 lakhs. A sum of Rs. 8.49 lakhs is due from donors who have already promised this amount and a further donation of Rs. 1.5 lakhs is expected.

A sum of Rs. 9.35 lakhs has been paid so far for buildings and a further sum of Rs. 12.17 lakhs is to be paid. A sum of Rs. 6.83 lakhs has been paid towards equipment and the amount to be paid for orders already placed is Rs. 3.00 lakhs. Expenditure on the construction of the Kitchen and the Isotope building is yet to be incurred.

9. Management.—It may be noted that the Gujarat Cancer Society has an understanding with the Government of Gujarat to hand over the hospital to the Government of Gujarat. The General Secretary, Gujarat cancer Society, in his letter No. CS2A/LC. 1,739 dated the 17th February '65

to the Director of Health and Medical Services, Gujarat suggested the following set up :—

- (i) The Cancer Hospital may be run as a National Hospital for cancer treatment and research fully governed and administered by the Central Government ;

OR

- (ii) The Cancer Hospital may be run by a Board of Management to which representatives of (a) Central Government (b) State Government and (c) Gujarat Cancer Society, are appointed ;

OR

- (iii) The Cancer Hospital may be run by the Gujarat Cancer Society in the beginning with a full grant-in-aid from Central Government till such time as the Central Government takes over the hospital.

9.1. The above suggestions are examined here-under :—

(i) The question of running of the Cancer Hospital as a Regional Hospital for cancer treatment and research fully governed and administered by the Central Government has to be further examined in the list of the Plan provision in the Fourth Plan. Whether it will be possible to take over this hospital or other cancer hospitals as well in the country which will serve as regional centres has to be considered after fully knowing the financial implications. It is not possible at this stage to consider this matter further.

(ii) The Cancer Hospital to be run by a Board of Management. The analogy of the Chittaranjan National Cancer Research Centre and the Chittaranjan Cancer Hospital may be considered in this connection. The Govt. of India is at present financing the Chittaranjan National Cancer Research Centre through a Governing Body. The Chittaranjan Cancer Hospital is being run by a Managing Committee under the Deshbandu Trust and financed by the West Bengal Government through grants. The full integration of the Chittaranjan Cancer Hospital and the Chittaranjan National Cancer Research Centre is under consideration.

(iii) The Cancer Hospital to be run by the Gujarat Cancer Society. This proposal could be considered if the State Govt. does not undertake to take over the hospital and run it as originally contemplated. If the Gujarat Cancer Society has to run the hospital, grants for recurring expenditure have to be given by the State Government and grants for equipment, additional buildings, research, training and education provided by the Centre. The recurring cost is expected to be at the rate of Rs. 5,000 per bed. If the bed strength of the Hospital is 100 the recurring expenditure would approximately be Rs. 5 lakhs a year.

10. Recommendations.—(1) In view of the fact that the hospital is still incomplete and there is a great amount of construction yet to be completed, it is felt that the Gujarat Cancer Society may be permitted to complete the building and equipment programme in the shortest possible time.

(2) In the light of the understanding between the State Government and the Gujarat Cancer Society that the Cancer Hospital would be handed over to the State Government after completion, it is recommended that the State Government may be permitted to take over the Hospital. This will greatly facilitate the integration of the B. J. Medical College Hospital and this specialised hospital along with the other specialised hospitals like Eye etc. This will also add to the integration of the Cancer Clinics in the various District and Medical College Hospitals with the Cancer Hospital situated in

the campus of the B. J. Medical College Hospital. Further, the staff of the Medical College Hospital, like Surgeons, Physicians and other specialists, would be available for consultant services to the Cancer Hospital. The Committee felt that the Hospital should take patient care responsibility only when basic services like Nursing, Kitchen, sterilisation etc. are available even though it may formally be opened in July, 1965.

(3) The Committee recommends the establishment of a Cancer Research Centre fully financed by the Ministry of Health on the analogy of the Chittaranjan National Cancer Research Centre, Calcutta. The question of integration of the Cancer Hospital and the Cancer Research Centre could be taken up at the appropriate time by the State Government and the Central Government, and the type of management to be evolved may be left open for some time till the Research Centre is established and a common pattern evolved for Calcutta, Madras, Hyderabad and Ahmedabad.

(4) *Staffing of the Hospital*—The Committee recommends that no additional staff should be appointed by the Gujarat Cancer Society till the future of the hospital is finalised. It should, however, be noted that there should be an over-all view of the staff needed and of the responsibility of the B. J. Medical College Hospital in giving specialist service to the patients in the Cancer Hospital. The Committee, however, recommends that, in the interest of economy and efficiency, at this stage the staff of the B. J. Medical College Hospital should be utilised to the fullest extent.

(5) It is recommended that Cancer patients should not be levied any fee either in the out-patients Department or in the indoor department for general ward patients.

(6) The Committee examined the present programme and the future development programme carefully and is of the view that the development should be phased progressively according to the resources available. As the Society is in a position to collect funds from philanthropists, encouragement should be given to the Cancer Society to function as an independent organisation with its own Governing Council even after the Cancer Hospital is taken over by the State Govt. or by a separate Board of Management.

(7) The Committee further recommends that the question of the establishment of regional Cancer Research Centres with research beds in the associate Cancer Hospitals may be considered as soon as the Plan provisions in the Fourth Plan is known. This Committee would, however, consider this from all aspects and make recommendations in its final report.

The question of this institution becoming a centre for screening of the population for cancer detection on the lines of the Agra Project will also be fully discussed in this report.

The Committee is grateful to the Gujarat Cancer Society, the Government of Gujarat and the Director of Medical and Health Services, Gujarat, for the courtesies extended and the opportunity and help offered to study the growth and development of this institution which has such unique features in that it is located in the B. J. Medical College Hospital campus where all the facilities for education, research and service are available.

APPENDIX 9

Minutes of the Meeting of the Sub-Committee on Cancer on the Shri M. P. Shah Cancer Hospital, Ahmedabad, held on the 21st and 22nd August, 1965, at Ahmedabad.

1. The Health Ministry desired that a Sub-Committee on Cancer consisting of Doctors J. C. Paymaster, T. B. Patel, M. J. H. Writer and Prof. P. N. Wahi again visit the Shri M. P. Shah Cancer Hospital, Ahmedabad, and give a comprehensive Report on the development of the Hospital with year-wise phasing with details on developments and to submit a Report by the end of August, 1965. Thus the Report would help formulate the future development of the Hospital.

2. Doctors Paymaster, Patel and Writer met at the Shri M. P. Shah Cancer Hospital on the 21st morning and continued their discussions to the next day. Prof. P. N. Wahi, had expressed his inability to attend this meeting.

3. It was brought to the attention of the Members of the Sub-Committee that it should examine the present programme of the Hospital and development should be phased progressively according to the resources available. Bearing this in mind the Committee made the tour of the Hospital noting the various departments, the staffing pattern, equipment and services that could be rendered by this particular Hospital.

4. Radiology Department

4.1. The following equipment were received and installed :

4.1.2. X-RAY (Diagnostic)	(1) 500MA (Make Phillips)	—Rs. 19153.04 (£12,453 transport ± television. Octroi and installation)
	(2) 300 MA (Make)	—Rs. 68,000 + transport ± installation (£5108)
	(3) 100 MA (Escorts) Odelca Camera	} Rs. 96,670
	(4) 30 MA Portable (Escorts)	

4.1.3. DEEP THERAPY MACHINES

250 KVA (Stationary) Phillips		£ 5817.18
250 KVA (Pendulum)		£ 7783.7
Superficial therapy Contact Therapy	}	£ 2444.12
Total cost, transport and Octroi		£ 19992.16
Caesium Unit (Siemens)		£ 121000.00

4.1.4. One Cobalt machine will be received shortly as intimated telegraphically by the Government of India under the Colombo Plan. As regards the 250 KVA Pendulum, its installation will take from two to three months if not more. Similarly, the Caesium has been received and it will take at least four to five months to be installed and ready for use.

4.1.5. The question of buying Radium needles and Capsules was deferred as Cobalt 60 capsules and needles and applications of this radio-active material are available in the country from the Atomic Energy Establishment, Trombay, Bombay.

It was noted that some lead sheets for the purposes of protection from radiation have arrived. They were ordered in connection with radium.

Received	To be received	
1. One MM 361 feet	454 sq. feet	} Sheets received but not the bill for them.
2. Three MM 51 "	34 "	
3. Six MM 51 "	555 "	

4.1.6. Recurring expenditure on films per year would be about Rs. 10,000. This includes the cost of developing material, Barium, etc.

4.1.7. **Isotopes.**—As the subject is highly specialised and equipment yet to be obtained and the building under construction is likely to be completed by the end of this year, the Committee is of the opinion that Isotope work could be taken up at a later stage, i.e. in the fifth year of the Fourth Five Year Plan. The staff that would be required should be highly trained preferably at the Atomic Energy Commission, Trombay. The training would be necessary for one year. If trained personnel are available from the Atomic Energy Establishment, they would be more preferable.

4.2. Staff

4.2.1. It will be observed that the present staff is inadequate in view of the machines and patient load that they have to operate on. The staff position is given below :—

4.2.2.

Designation of Staff	Staff at present available	Additional staff required
I. Radiologist	1 (Part-time)	1 (Full-time only).
II. Radiographers . . . . .	..	3
III. Electronic Engineer . . . . .	..	..
IV. Radio Diagnostician . . . . .	..	2
V. Radio Therapist	1	3
VI. Radio Physicist	1	1
VII. Technicians	3	6
VIII. Nurses . . . . .	..	3
IX. Ayahs	1	2
X. Ward Boy	1	2
	7 1 (Part-time)	Total staff to be required. 22

5. Pathology & Biochemical Departments

5.1. The attached lists (Statements) 1 to 6 give in detail the equipment received and that still required to be obtained. It was considered that the equipment statement No. 7 should be obtained from East European countries and not from Dollar or Sterling areas. Though most of the equipment was in position it had to be fitted in the Laboratory.

5.2. The power supply had been given but the cost of electricity was being charged even though not in use at the rate of 1,000 per month. It was expected that with the high rate of electricity (Rs. 9 per Kilo Watt) an amount of Rs. 50,000 per annum could be expected.

5.3. 12 Microscopes were with the Hospital and the need for more did not arise. One Autoclave, 6 sterilizers (small), 2 incubators, 1 Drying Oven have been installed in the Laboratory. Tender for chemicals, drugs and stains worth Rs. 19,000 were invited and in the process of finalisation and the items will be supplied in three months. This supply was for six months only.

5.5 Staff

Designation of staff	Staff at present available	Additional staff required
Pathologist	1 (Part-time)	As far as possible full time Pathologist be appointed. If not available then two part-time be considered.
Asstt. Pathologist . . . . .	..	1 (preferably trained in histo-pathology).
Lab. Technicians . . . . .	..	4
Biochemists	2	
Lab. Assistant . . . . .	..	4
		Total Staff required 12 (full time)

6. Surgical Department.

6.1. The Committee was informed that Dr. B. K. Sinha recently arrived had brought with him a number of surgical instruments to the value of \$7860.14 from U.S.A. (statement No. 5). These instruments will be used for O.P.D. and diagnostic endoscopy and some surgical procedure in the region of head and neck. The list of instruments put up by the Society for consideration by the Committee were to be considered. (Statement No. 7).

6.2. There were 4 main operation theatres which were in the process of being fitted. These theatres could be used primarily for emergency operations that would be required during the period of radio-therapy treatment, viz. tracheostomy, gastrostomy and other minor surgical procedures.

6.2.1. The second theatre could be utilised for endoscopy work which meant investigation of bronchus, larynx, oesophagus, stomach, bladder, sigmoid, etc. The third theatre will be used for general surgery. The fourth main theatre could be utilised in rotation. The small theatre on basement would be for Cobalt applications.

6.2.2. The Committee suggested that the door jams of the theatres should be protected by stainless steel sheets, so as to avoid damage to the wood of doors. Door hinges should allow opening of doors wide open.

6.2.3. It was also observed by the Committee that air-conditioning units as at present envisaged would not be effective. It was, therefore, suggested that the architect and the engineer explore the possibility of air-conditioning units on each floor. The engineer may look into the question of static electricity in the operation theatres, X-ray diagnostic and therapeutic rooms.

6.2.4. Sterilisation units for high speed instrument sterilisation bowl and other instruments, besides four other sterilizers were in position and would be installed within the week.

6.2.5. Scrub rooms were still to have sanitary fittings put in.

6.2.6. Four tables for the four operation theatres though ordered, only one had been received so far and the others would be received one each in the months of September, October and November, 1965. The cost of each table would be Rs. 11,310.

6.2.7. Heart-lung machine was also expected in September, 1965. The Cost was Rs. 25,000 of which Rs. 9,000 has been given in advance.

6.2.8. Shadowless lamps have been provided.

6.3. It was considered that 60 beds (50 general and 10 Fowler's) would be provided. The linen is more than adequate and the clothes for the patients and operation theatres have been ordered and will be obtained shortly.

6.4. Staff

	Present Strength	Additional staff required
Surgeons	2	..
Asst. Surgeons . . . . .	..	2
		Total Staff to be required 10.
Registrars . . . . .	..	2
House Surgeons . . . . .	..	4

It was considered that no speciality need be practised at this stage i.e. in the first two years of the Fourth Plan.

7. It was considered by the Committee that each Unit will ensure that detailed and complete records of all cases examined and treated by the Unit will be maintained.

7.1. An effective Record Department is a necessity for the Cancer hospital. Staff proposed are:—

Medical Record Keeper and Statistician	1
Asst. Statistician	1
Clerk (U.D.C.)	1
Peon	1

8. It was pointed out by the General Secretary of the Gujarat Cancer Society that it would be cheaper if the 2nd floor was constructed at this time as he not only had entered into contract but at a later stage it would definitely be more expensive due to price increase. This the Committee considered was a good point and therefore, it was proposed that second floor be constructed which could partly accommodate ten independent paying beds and partly for housing the matron. These beds could be of the type used for private patients. Thus the Hospital would be able to give facilities to all persons.

9. **Blood Bank.**—The Hospital keeps a reserve stock of blood in its frigidaires and replenishes it from the Civil Hospital stock. No money is charged but obtained free from voluntary donors and from relations of patients. It was stated that one of the High Court Judges in Gujarat, Shri B. J. Devan gave blood 7 times in 2 years.

10. **Library.**—Books and Magazines have been ordered and for which subscriptions have been paid (Two lists attached Statement No.). The total cost of magazines comes to Rs. 6,181.50. As for books it comes to Rs. 30,000 of which Rs. 10,000 has been paid. The rest would be received by the end of September, 1965 and money then paid. There were no back members. They have to be obtained as early as possible. A trained qualified Librarian needs to be appointed.

11. Department of Anaesthesia

11.1. The items for the Anaesthesia Department (Statement No. 4) had been ordered and some were to be received shortly. List of items (statements 5 and 6) Oxygen and Nitrous Oxide Cylinders have been purchased. As the hospital had no defibrillator of its own, it could make use of the one from the Civil Hospital.

11.2. Staff

Designation of staff	Present strength	Additional staff required
Anaesthetist	1	..
Asst.	1	Total staff required 3.
Resident .. . . .	..	1

12. General Physician

A cancer hospital definitely requires the services of an experienced physician who will help the staff in assessing the patients for surgical procedures and be in charge of the medical aspects and treatment of malignant diseases. Cases of leukaemia, Hodgkins disease, lymphosarcoma etc. may require medical treatment. Later on he may be assisted by an Assistant. An F.C.G. may be obtained when the Assistant is appointed as by that time the work will have well progressed. In the meantime, the equipment of Civil hospital be used.

13. Nursing and Ancillary Staff

On the basis of one fully trained nurse for 2.5 beds, we would require a total 24 nurses. Sisters would be necessary to supervise the work of these nurses and we would require four sisters to supervise their work. For the out-patients and endoscopy and others, three more nurses and one sister would be required. For operation theatre we would require 2 sisters and 8 nurses. So we would require a total 65 nurses and 12 sisters for the hospital. Thus the 8 hours shifts, leave and sickness can be taken care. One Matron would also be required to take charge of the entire nursing division. The nursing staff would, as far as possible, be accommodated in the Nurses' Hostel, except the Matron.

13.1. The need for social workers both Government and voluntary, was actually felt by the Committee. It is necessary that Social workers, well-qualified and with at least 5 years experience, should be deputed for this work, after training at the Baroda Training School or at the Tata School of Sociology where field work training would be intensified. Four Social workers are the minimum requirement for this hospital.

13.2. Since a cancer hospital would be dealing chiefly with highly precise and expensive electronic equipment, it would be in the interest of the hospital, the Government and the public that an Electronic Engineer be appointed. It is suggested that one such Engineer may be deputed, if available from the Atomic Energy Establishment, Trombay, for a period of two years at the Institute for such work. The Electronic Engineer should be able to train, in consultation with the Physicists, the local personnel.

13.3. The class IV staff would be in the ratio of 1 : 4 beds for ward boys and 1 : 8 beds for sweepers. On this basis, 15 ward boys and 8 sweepers would be required for the hospital wards.

13.4. There would be one Head Mali and one Assistant Mali to look after the garden.

13.5. There should be two sweepers for the pathology department, two sweepers for operation theatre and two sweepers for the out-patient department.

14. Kitchen and Diet

14.1. The Kitchen is under construction and it is expected that it will be completed by the end of the year. With the use of the 60 beds and later by introduction of ten paying independent beds, it will be necessary that the kitchen be properly equipped and staffed. The equipment has been ordered for Rs. 38,000 which includes cooking ranges.

14. Kitchen and Diet

- One Dietitian
- One Kitchen Supervisor
- One Chief Cook
- One Assistant Cook
- Three massalchis.

15 As the hospital will be having a big staff both Class I and others—medical and para-medical—it will be necessary to have a full-time Medical Director for the hospital who would be paid Rs. 2,000 and who would be on contract for a period of five years

16. Administrative Staff

16.1. The Director will be supported by the following staff :

1. Administrative Officer (Medical)	1
2. Head Clerk	1
3. Stenographers	2
4. Accounts Officer deputed from Gujarat Government	1
5. U.D.Cs.	3
6. L.D.Cs.	2
7. Peons	2

16.2. Services

1. S.D.O.(P.W.D.)	1
2. Sanitary Inspector	1
3. Electrician	1
4. Security Officer	1
	1 Total staff of 20
5. Computer	1
6. Carpenter	1
7. Lift-boys	2

17. The Governing Council may consist of—

1. D. G. or Additional D. G., Government of India.
2. Financial Adviser to Ministry of Health, Government of India.
3. Deputy Secretary, Ministry of Health, Government of India.
4. Financial Adviser to Health Minister, State of Gujarat.
5. Director of Health & Medical Services, State of Gujarat.
6. Two officers of the Gujarat Cancer Society.
7. One other representative, appointed by the Government of India.
8. One of the senior-most Vice-Chancellors of the Universities of Gujarat.
9. Director of Cancer Hospital as Member-Secretary.

17.1. Sub-Committee**Hospital Committee**

1. Director
2. Heads of Departments.
3. Matron.

One of the Heads of Department will be a Member Secretary. It will meet once a month and to discuss internal policy matters on management and purchase of equipment, administration, medical record maintenance etc.

18. Donations received will be credited to a special head of account 'Patients Welfare Fund' and will be operated by the Governing Council through the Director. The General Secretary is trying to obtain donation to the value of Rs. 11.5 lakhs, of which Rs. 6.5 lakhs are firm promises on specified dates.

19. Finance

As indicated in our opening paragraph, funds being limited as they were, the Committee considered that the Central Government may take over the institution as it stands and allow the Society to complete the remaining buildings namely, Isotopes, Kitchen and the entire second floor. It will

be observed from the statement given below that certain buildings as (i) O. P. D., (ii) Inpatients Units, (iii) Radio-Isotope unit, (iv) Kitchen, (v) Store will be ready by about December, 1965 and amounts which will be paid by the Society would be in the neighbourhood of Rs. 12 lakhs.

Construction	Amount paid in Rs.	Amount to be paid in Rs.
1. O.P.D. Building		98,000
2. In-patient		3,75,000
3. Radio Isotope unit	12,000	2,90,000
4. Kitchen and Store		2,34,000
5. X-Ray equipment	3,59,247.27	10,000
6. Deep-therapy	3,59,473.14	10,000
7. Surgical equipment	80,000.00	60,000
8. Anaesthesiology	13,734	85,000
9. Pathology	34,939.63	50,000
	9,72,848.84	12,12,000

This amount is promised as firm donations.

20. Furniture, Lifts etc.

Furniture for the entire hospital is considered reasonable. It will be mostly steel. Instead of three lifts, it was considered that one lift will suffice. The cost would be approximately Rs. 1 lakh inclusive of installation etc.

21. Reference letter No. CS Con/1160, dated 5th August, 1965 to the Health Minister, Dr. Sushila Nayar by the General Secretary, Gujarat Cancer Society, Shri Jitendra Mehta, it was estimated that the running of the hospital would come close to the neighbourhood of about Rs. 6 lakhs per annum. The amount is not considered adequate.

21.1. Since the transfer of this institute may take time and may not be possible to do so before the beginning of the next year *i.e.* 1966-67, no expenditure is envisaged during this period except the payment of Rs. 8 lakhs by the Government of India as requested for by the Society.

21.2. The recurring expenditure each year for the first two years of the 4th plan would be Rs. 8 lakhs per annum and Rs. 12 lakhs per annum for the next three years of the Fourth plan as the research centre is not to be established in the IVth Plan. This can be considered in the last year of the IVth Plan as stated earlier. As regards non-recurring expenditure for the IVth Plan, an estimate of Rs. 2 lakhs per annum seemed adequate.

22. Dr. Paymaster stated that his services could be made available to the Hospital if it so required. He may be able to visit the hospital once a fortnight or so. This the Committee appreciated that in spite of the great and heavy demands made on him, Dr. Paymaster could still find time to help a young hospital.

23. The Committee also considered that it would be very helpful if the members of the staff of the Hospital could visit the Cancer Hospital, Bombay for at least two to three weeks to learn new methods and to try out their findings in the light of modern teachings.

24. Free travel either by bus or train should be obtained by the State Governments for cancer cases and their one accompanying relative. This would be a great help to the poor and needy and the middle income group.

25. It was considered paramount that the Cancer Hospital maintain very close and cordial relations with the neighbouring hospitals and draw the public towards them without upsetting the trend existing at present. Only good service and prompt dealing with all types of cases can good neighbourly relationships be kept. The Gujarat Cancer Society is the Organisation for this function.

26. As Gujarat is famous for its magnificent voluntary contributions in money and kind, it is proposed that the Gujarat Cancer Society continue in its good work in obtaining donations and educating the public on Cancer. The voluntary agencies will be the major factors in promoting the spread of information on cancer.

Recommendations

In view of the position detailed in the preceding pages the Committee recommends :

(1) That the present hospital with additional staff and equipment proposed be allowed to function for a period of two years in the Fourth Plan after which an assessment would be made for additional beds, staff, equipment, etc. if considered necessary.

(2) That the Research Wing be not started till the last year of the Fourth Plan. Similarly, Isotopes work may not be started in the Fourth Plan but in the last year of the Fourth Plan when the Research Unit starts functioning.

(3) The Second floor which will be under construction should be utilised partly for providing 10 independent paying beds fully equipped with intensive therapy treatment and partly for accommodation of the Matron.

(4) That the Sisters and Nurses be accommodated as far as possible in the Nursing Hostel of the B. J. Medical College.

(5) Since the Hospital is equipped for Radio-Diagnosis and Radio-Therapy, its facilities could best be utilised for the purposes of treatment and training of personnel as technicians, Nurses, etc. The staff could periodically visit the Tata Cancer Hospital for discussion and studying procedures.

(6) An early Cancer Detection Unit could function effectively as soon as Cystologists are available in large numbers.

(7) Since Cancer of the Head, Neck, and cervix would require full time attention of the entire staff, the Committee recommends that the staff of the Civil Hospital should participate in the major surgery (Specialist services). They would be given facilities at the Cancer Hospital for the performance of such procedures.

(8) In view of the earlier recommendation that Cancer patient should not be levied any fee either in O. P. D. or indoor Department of the General Ward, it is considered that the patient admitted in the paying ward may be charged a tariff rate which can be worked out by a Sub-Committee.

(9) The Ministry of Health, Government of India and the State of Gujarat may jointly shoulder the responsibility of financing and administering the Shri M. P. Shah Cancer Hospital, Ahmedabad.

Acknowledgement.—The Committee records its deep appreciation for the courtesys and facilities extended by the Governor of Gujarat the Government and the Trustees of the Gujarat Cancer Society during the visit of the Sub-Committee to Ahmedabad.

Sd/- T. B. Patel,

Member 22-8-65

Sd/- M. J. H. Writer,

Member Secretary.

Sd/- J. C. Paymaster,

Member 22-8-65

GUJARAT CANCER SOCIETY
M. P. SHAH CANCER HOSPITAL, AHMEDABAD
GOODS RECEIVED

Department of Pathology	Quantity
1. Binocular Research Microscope	4 Nos.
2. Kleertom Medical Microscope	6 "
3. Hot plated HP2	2 "
4. Analytical Balance with weights	3 "
5. Haemometer	10 "
6. Enamel Trays 18" x 12"	6 "
6a. Enamel Trays rectangular	10 "
7. Cork Sheets for dissection 14" x 36" x 26"	6 "
8. Water Bath cylindrical	1 No.
9. Wooden slide boxes (box of 100)	24 boxes
10. Water still model 08" capacity 1 gm	2 Nos.
11. Water bath general purpose (gomson)	1 No.
12. Slide cabinet for Microslides	2 Nos.
13. Loop stands aluminium	6 "
14. Porcelain tiles (grouping)	12 "
15. Copper Racks for Washerman	6 "
16. Glass marking pencil	24 "
17. Stop watches	2 "
18. Inspissator	1 No.
19. Enamel Bucket with covers	10 Nos.
20. Tripod stands	12 "
21. "L" shape Moulds for paraffin blocks	24 "
22. Knife sharpening stone	1 No.
23. Post Mortom Instrument Box	1 Box
24. Natural glass tube 6" x 1/4"	10 Gross
25. Natural glass test tubes 5" x 1/4"	10 "
26. Glass bottles N.M. 100 ml stoppered	5 Nos.
27. Glass bottles N.M. 250 ml.	25 "
28. Glass bottles N. M. 1500 ml	25 "
29. Stoppered glass bottles N. M. 1000 ml.	25 "
30. Stoppered glass 2500 ml.	15 "
31. Glass bottles W. M. stoppered 100 ml.	25 "
32. Dropper bottles T. K. pattern 125 ml.	50 "
33. Glass beakers 100 ml.	25 "
34. Glass beakers 10 ml.	25 "
35. Glass beakers 500 ml.	25 "
36. Glass beakers 250 ml.	25 "
37. Glass beakers 1000 ml.	10 "
38. Conical flasks 100 ml.	37 "

Department of Pathology	Quantity
39. Conical flasks 250 ml.	10 Nos.
40. Conical flasks 500 ml.	12 "
41. Conical flasks 1000 ml.	22 "
42. Burettes 50 ml.	15 "
43. Burettes 100 ml.	15 "
44. Volumetric flasks 100 ml.	20 "
45. Volumetric flasks 250 ml.	20 "
46. Volumetric flasks 500 ml.	20 "
47. Glass funnels 3"	25 "
48. Glass funnels 2"	25 "
49. Glass funnels 4"	25 "
50. Wasserman tubes 3" x 3/8"	17 "
51. Graduated pipette 25 c.c.	20 "
52. Graduated pipette 20 c.c.	12 "
53. Graduated pipette 10 c.c.	12 "
54. Graduated pipette 5 c.c.	12 "
55. Graduated pipette 2 c.c.	12 "
56. Graduated pipette 1 c.c.	12 "
57. Graduated pipette 0.2 c.c.	12 "
58. Kahn pipette 0.2 c.c.	24 "
59. Watch glasses 2"	50 "
60. Watch glasses 3"	20 "
61. Watch glasses 4"	25 "
62. Weights from 1 gm to 1000 gm	1 Set
63. Laboratory general purpose balance capacity 3 Kg	1 No.
64. Mortar and pestle 6"	3 Nos.
65. Chemical balance	1 No.
66. Reagent bottles 1000 c.c.	49 Nos.
67. Reagent bottles 500 c.c.	50 "
68. Reagent bottles 250 c.c.	50 "
69. Reagent bottles W.M. 250 ml.	24 "
70. Porcelain jars 6" x 6"	12 "
71. Volumetric pipette 20 c.c.	20 "
72. Volumetric pipette 10 c.c.	20 "
73. E.S.R. tubes	12 "
74. E.S. R. westergreen tubes	12 "
75. Graduated tubes (Centrifuge)	4 Dozen.
76. Ungraduated tubes (Centrifuge)	4 "
77. Petri dishes 3"	4 Nos.
78. Petri dishes 5"	12 "
79. Petri dishes 6"	3 "
80. Natural glass tubes 5" 5/8" (Rimless)	6 "
81. Measuring cylinder 10 c.c.	12 "
82. Measuring cylinders 50 c.c.	12 "
83. Measuring cylinders 100 c.c.	12 "
84. Round bottom flask 100 c.c.	24 "
85. Round bottom flasks 500 c.c.	12 "

Department of Pathology	Quantity
86. Round bottom flasks 1000 c.c.	12 Nos.
87. Evaporating glass dishes 9 cm.	24 "
88. Micro cover glasses circular Box of $\frac{1}{2}$ oz	12 Boxes.
89. Centrifuge machines	3 Nos.
90. Micor cover glasses square	12 Boxes.
91. Micro cover glass rectangular $\frac{1}{2}$ oz.	12 Boxes.
92. Test tubes heavy wall rimless	2 gross.
93. Microscope slides 3" x 1"	11 "
94. Colony counter (Indian)	1 No.
95. Watergreen E.S.R. Stand	2 Nos.
96. Wintrobe E.S.R. Stand	2 "
97. Blood cell calculator 6 unit approx.	1 No.
98. Diamond pencils.	6 Nos.
99. Asbestos wire gauze 6" x 6"	24 "
100. Ultra hot air oven 18" x 18"	1 No.
101. Suction unit pump	1 "
102. Culture tubes 5" x 5.8"	60 Dozs.
103. Ultra incubator chamber	1 No.
104. Ultra all metal incubator	1 "
105. Test tubes racks wooden cap 12 test tubes	12 Nos.
106. Test tubes racks wooden cap 36 test tubes	12 "
107. Folin tubes (Blood sugar tubes)	24 "
108. Burettes 1 cc.	10 "
109. Durham tubes	71 "
110. Coplins jars 5 10 slides	144 "
111. Volumetric flask 50 ml.	20 "
112. Volumetric flask 1000 ml.	10 "
113. Double burner gas cylinder with burshane	1 No.
114. Kahn tubes	233 Nos.
115. Measuring cylinders 250 cc.	12 "
116. Measuring cylinders 500 c.c.	12 "
117. Glass funnel 6"	25 "
118. Speciman jars (glass) with Backlite covers	12 "
119. Haemo-meter	1 No.
120. Telcor multipurpose water bath with thermostatic control	1 "
121. Measuring cylinders 1000 ml.	71 Nos.
122. Kochis steam sterilizer : Electrical 250 watts size : 20 x 12 x 12	1 No.

GOODS RECEIVED SHEETS
LABORATORY DRUGS

Description	Quantity
1. Acid citric	500 gms.
2. Acid tartaric	500 "
3. Acid trichloroacetic crystals	500 "
4. Albumin	1 gm.
5. Alum pottash (Bottle of 450 gms.)	1 lb.
6. Ammonium oxalate	500 gms.
7. Ammonium purpurate	5 "
8. Ammonium sulphate (Bottle of 500 gms.)	3 Packets & bottles.
9. Balsam canada	1 lbs.
10. Barbitone	200 gms.
11. Benzidine	100 "
12. Benzidine sodium	100 "
13. Benzoic acid	450 "
14. Cholestrine	100 "
15. Chloro-auric acid (gold chloride)	1 gm.
16. Cuprisulphate	500 gms.
17. Di pottassium hydrogen orthophos phate	500 "
18. Dimethyle yellow	25 "
19. Dinitrol benzol	500 "
20. Ferri ammonium sulphurate	500 "
21. Fuchsin acid	500 "
22. Ferri chloride	25 "
23. Fuchsine basic	25 "
24. Gentian violet	30 "
25. Giemsa's stain	25 "
26. Glucosed' (dextrose)	500 "
27. Glucose powder	{ 12 Packets (220 gms.) 8 Packets (220gms.)
28. Gum ghatti (one tin of 454 gms.)	1 tin.
29. Haematoxylin	25 gms.
30. Indicator paper	1 roll.
31. Iodine B.P.	450 gms.
32. Creatinum	10 "
33. Leishman's stain.	25 "
34. Liquid paraffin	1 gallon.
35. Lithiam sulphate	250 gms.
36. Litmus paper blue	4 boxes.
37. Litmus paper red	6 "

Description	Quantity
38. Lysol	450 gms.
39. Malachite green	25 "
40. Mercuric chloride	500 "
41. Methylorange blue	25 "
42. Methyloranum red	5 "
43. Molybdate phosphorus	100 "
44. Molybdic acid	200 "
45. Molybdenian	500 "
46. Nitrium fluoride	500 "
47. Nitroprussidenitrium	100 "
48. Sodium Nitroprusside . . . . .	..
49. Oxalic acid	500 "
50. Phenol indo 2.6. dichlor phenol	5 "
18 A Eosin yellowish.	25 "
19 A Evans blan fluka	59 "
51. Phenol (Acid carbolie)	500 "
52. Phenyl Hydrozine hydrochlor . . . . .	..
53. Phenyedisodium Orthophosphate	100 "
54. Picric acid	500 "
55. Pottas dihydrogen orthophosphate	500 "
56. Pottas Oxalate	500 "
57. Pottas Dichromate	450 "
58. Pottas ferrocynide	500 "
59. Pot. Permanganate	500 "
60. Pottas dihydrogen	500 "
61. Satramine	25 "
62. Silver nitrate	100 "
63. Sodium Acetate . . . . .	..
64. Soda Bicarbonate . . . . .	..
66. Soda carbamate a packet of 50 gms (5 Packet + 5 bottles)	10
67. Sodium citrate (500 gms)	5 packets
68. Sodium ferrocyanide (p. 500 gms)	500 gms.
69. Sodium hydroxide tablets	500 "
70. Sodium hydroxide pellets	450 "
71. Sodium Nitrate	500 "
72. Sodium Molybdate	500 "
73. Sodium phosphate	500 "
74. Sodium sulphate.	500 "
75. Sodium sulphite	500 "
76. Sodium Tungstate	500 "
77. Sodium chloride	450 "
78. Starch soluble	500 "
79. Sublime sulphur	450 "
80. Sulphanil	500 "
81. Sulphanil salicylic	100 "

Description	Quantity
82. Thymol crystals	450 gms.
83. Thymolphaline	5 "
84. Titriple (E.D.T.A. Disodium salt)	100 "
85. Trans andosteron	1 gm.
86. Uranyle acetate	25 gms.
87. Zinc sulphate	500 "
88. Acid acetic (bottle of 500 ml)	5 bottles.
89. Acid lactic	500 gms.
90. Acid nitric B.P. (500 gms)	6 litres.
91. Acid Nitric (commercial)	25 gms.
92. Acid sulphuric	10 lbs.
93. Acetone (500 ml)	10 bottles
94. Ammonia solution	500 gms.
95. Benedict solution (Bottle of 450 gms)	5 bottles.
96. Bromide	250 ml.
97. Ether solvent (bottles of 454 gms.)	5 bottles.
98. Glycerol	500 ml.
99. Formaline	27 Kgms.
100. Methanol (Bottle of 500 ml)	10 Bottles.
101. Oil cedarwood	1 bottle.
102. Orthophosphoric Acid.	250 ml.
103. Toluene	450 ml.
104. Xylene (Bottle of 500 ml)	10 Bottles.
105. Paraffin wax (tin of 1 Kg.).	10 Kg.

GOODS RECEIVED
SURGICAL DEPARTMENT

Description	Quantity
1. Surgical Blades (pkt. of 6)	2 pkts.
2. Surgical B.P. Blades No. 11	1 pkt.
3. Surgical Blades (pkt. of 6) No. 12.	1 "
4. Surgical Blades (pkt. of 6) No. 15	1 "
5. Surgical Blades (pkt. of 6) No. 20	2 Kts.
6. Surgical Blades (pkt. of 6) No. 21	2 "
7. Surgical Blades (pkt. of 6) No. 22	2 "
8. Handles for surgical blades No. 3	31 Nos.
9. Handles for surgical blades No. 4	2 Nos.
10 Dressing forceps s.s. 5" blades plain	4 "
11. Dressing forceps s.s. with teeth	4 "
12. Dressing forceps s.s. 6 with teeth plain.	4 "
13. Dressing forceps s.s. 6 with teeth	4 "
14. Dressing forceps s.s. 7 with plain	2 "
15. Dressing forceps s.s. 7 with teeth	2 "
16. Dressing forceps 2.8 wit tuch	2 "
17. Allis Tissue forceps s.s. surgical	6 "
18. Bab cock tissue forceps	2 "
19. Towel Clips	4 "
20. Needle holders Mayo's Heggard's 7½"	2 "
21. Needle holders Sims	2 "
22. Langenback Rt. angled Retractor small	2 "
23. Langenback Rt. angled Retractor small s.s.	2 "
24. Creney's retractor s.s.	2 "
25. Jeminy mouth gag s.s.	1 No.
26. Lanes Retractors.	4 Nos.
27. Cheek Retractors	2 "
28. Skin Hook	2 "
29. Head mirror with fibre Band Gowllands	2 "
30. Uterine Volsellum forceps (keeth)	2 "
31. Uterine Curette double ended (sharp & Blunt)	1 No.
32. Metal female catheters N. pid.	2 Nos.
33. Lacl's Tongue depressor	6 "
34. Uterine Sponge Holding Forceps	4 "
35. Suction Tips Frazers	2 "
36. Nasal Speculum Thudicum	2 "
37. Cheatle's forceps s.s. surgical	2 "
38. Cheatle's forceps	1 No.
39. Laryngel minos Gowllanas	8 Nos.

Description	Quantity
40. Handles for above mirrors	4 Nos.
41. Tracheal Dilator's s.s. surgical	2 "
42. Nasopharyngeal mirrors s.s. plain Thomsons	2 "
43. Rubber Tracheotomy tubes (assorted)	12 "
44. Tonsil scissors Metzenhan 7½" s.s. surgical	1 No.
45. Tonsil surgical scissors	1 "
46. Sims Vaginal speculum	12 Nos.
47. Anterior vaginal wall retractor s.s. surgical	2 "
48. Vaginal speculum cusco chromium plated	2 "
49. Uterine sound s.s. surgical	1 No.
50. Tracheotomy tubes Jackson's with Pilot.	4 Nos.
51. Sims forceps 6" s.s. surgical	1 No.
52. Sims Harvey 7" s.s. surgical	1 "
53. Bone scoop walkman double s.s. surgical	1 "
54. Ear speculum (Seroton) set of No. 3	1 Set.
55. Rectal speculum Kelley adult size No. ptd.	1 No.
56. Rectal speculum Kelley children No. ptd.	1 "
57. Chloroform Mark N. Ptd. Adult size	1 "
58. Chloroform Mark Children size	1 "
59. Piranssion's Aamners Taylors surgical.	3 Nos.
60. Scissors st. 6" s.s. surgical	4 "
61. Aural Dressing forceps s.s. surgical	1 No.
62. Venesellian sals complete in khaki pouche	2 Nos.
63. Metal adapters	4 "
64. Spools cotton thread No. 10 with if, coots	3 "
65. Lanes tissue forceps 7" s.s. surgical	2 "
66. Mosquito artery forceps curved s.s. surgical	8 "
67. Kelley artery forceps curved s.s. surgical	8 "
68. Kelly's artery forceps with full serrations curved surgical	268 "
69. Kocher's Artery forceps curved 5½" oo.	28 "
70. Tubes catguts, plain size s.s.	8 "
71. Tubes catguts, plain size '0'	4 "
72. Suture needle packet of 6 each surgical assorted s.s. English.	16 "
73. Suture needles (pkt. of 6) straight cutting No. 1. English Make	2 Pkt.
74. Powder insufflator german	1 No.
75. Polyethylene tubing assorted 10' each	4 Coils.
76. Mayo's scissors curved 6"	2 Nos.
77. Fine scissors st. 4"	1 No.
78. Mayo's Scissors curved 6"	2 Nos.
79. Fine scissors curved 4"	1 No.
80. Mayo's scissors st. 9"	2 Nos.
81. Mayor's scissors st. 9"	2 "
82. pucture needles	2 "
83. LP. Nasales leur mount assorted	6 "
84. B.P. apparatus	1 No.

Description	Quantity
85. Apron Jacket	1 No.
86. E. N. T. Lamp	2 Nos.
87. Proctoscope	2 "
88. All glass syring 2 cc.	24 "
89. All glass syring 5 cc.	24 "
90. All glass syring 10 cc.	24 "
91. All glass syring 20 cc.	12 "
92. Hypodermic needles assorted	12 "
93. E. I. Kidney tray 10"	20 "
94. E. I. Urinal male	3 "
95. E. I. Bowl 16 Cm.	20 "
96. E. I. Bowl 20 Cm	20 "
97. Mackintosh duckback	16 Meters.
98. Sticking plaster	12 Nos.
99. Bandage cloth	18 Meters.
100. Absorbent cotton	10 Pkts.
101. Long cloth 60 cm x 16 yds.	10 "
102. E. I. Rectangular Tray 8" x 10"	10 Nos.
103. Bone cutter 6"	1 No.
104. Scalpel 6"	1 "
105. Surgical Rubber gloves 6"	12 Nos.
106. Surgical Rubber gloves 7"	12 "
107. Surgical Rubber gloves 7½"	12 "
108. Instrument sterilizer 17 x 6" x 8"	12 "
109. Suction Unit with trolley	6 "
110. Rubber type suction apparatus	1 No.
111. s.s. Sterilizer drums 14' x 10'	12 Nos.

Sterilizers—National Steel Equipment

	Total
	Rs.
112. High Pressure—Steel 20 x 44 No. 5 (five) 16,740 each	83,700
113. Instruments sterilizers—24 x 10 x 12 No. 4 (four) 3,231 each	12,924
114. High Speed Instrument—16 x 24 No. 2 (two) 18,145 each	36,290
115. Bowl Sterilizers—28 x 24 No. 2 (two), 4,472 each	8,944
116. Hot & Cold sterilizers—40 Litres No. 2. (two) 6,116 each	12,232
117. Bulk sterilizers—4' x 4' x 5' No. 1 (one) 53,200 each	53,000
All received	2,07,290+
118. One Mattress Sterilizer (ordered)	10,000
Rs. 10,000 paid (advance) as against. Rs. 57,000 for mattress sterilizer.	
119. Steam boiler (not ordered) to be obtained.	
120. <i>Operaton Table I.G.E.</i>	
(1)—received.	
(3)—to be received.	
Total : Rs. 11,310 each.	

GOODS RECEIVED
Anaesthesia Department

Description	Quantity
1. Boyle apparatus	2 Nos.
2. Absorber water canister	2 Nos.
3. Soda Lime	1 Tin 4 Kg.
4. Air ways water with tubes	
5. Air ways water with tubes No.1	9 Nos.
6. Air ways water with tubes No. 2	5 "
7. Air ways water with tubes No. 3	12 "
8. Air ways water with tubes No. 4	12 "
9. Air ways water with tubes No. 5	1 No.
10. Air ways water with tubes No. 1A	1 "
11. Air ways water with tubes No. 1B.	1 "
12. Air ways water with tubes No. 1C	1 "
13. Air ways London hospital size	
14. Air ways London hospital size 1	8 Nos.
15. Air ways London hospital size 2	6 "
16. Air ways London hospital size 3	8 "
17. Brushes Magill size No. 1	8 "
18. Brushes Magill size No. 2	8 "
19. Brushes Magill size No. 3	8 "
20. Clipper	3 "
21. Needles assorted	3 "
22. Connections magill oral	
23. Connections magill oral size No. 1.	14 "
24. Connections Magill oral size No. 2	14 "
25. Connections Magill oral size No. 3	14 "
26. Connections Magill oral size No. 4	14 "
27. Connections magill oral size No. 5	13 "
28. Connections magill oral size No. 6	10 "
29. Connections magill oral size No. 6A	13 "
30. Connection magill oral size No. 6B	12 "
31. Connections magill oral size No. 12A	1 No.
32. Connections magill oral size No. 12B	1 "
33. Connections magill oral size No. 7	1 "
34. Connections magill oral size No. 8	1 "
35. Connections magill oral size No. 9	1 "
36. Connections magill oral size No. 10	1 "
37. Connections magill Nasae size No. 10	1 "
38. Connections magill orals size No. 11	1 "
39. Connection magill oral size No. 12	1 "
40. Connections magill Infant Size 00	13 Nos.

Description	Quantity
41. Connections magil Infant Size 00	9 Nos.
42. Connections Suction union of 4 sizes	1 No.
43. Connection of RowBotham 4 sizes	1 "
43A. Connections of Cobbes 4 sizes	1 "
44. Ayres, T Piece 2 sizes	1 "
45. Magill forceps adult	8 Nos.
46. Magill forceps child	1 No.
47. Laryngoscope Mackintosh with spare blade	7 Nos.
48. Mackintosh infant	1 No.
49. Mackintosh extralarge	1 "
50. Spray Rowbotham	1 "
51. Tube magill oral size 00	1 "
52. Tube magill oral size 0	1 "
53. Tube magill oral size 1	1 "
54. Tube magill oral size 4	1 "
55. Tube magill oral size 5	1 "
56. Tube magill oral size 10	1 "
57. Tube magill oral size Nasal 2	1 "
58. Tube magill oral size 3	1 "
60. Tube magill oral size 5	1 "
61. Tube magill oral size 6	1 "
62. Tube magill oral size 7	1 "
63. Tube magill oral size 8	1 "
64. Tube magill stream Lined cuff 7	1 "
65. Tube magill stream Lined cuff 8	1 "
66. Tube magill stream Lined cuff 9	1 "
67. Tube magill stream Lined cuff 10	1 "
68. Tubes size 00	1 "
69. Tubes size 0	1 "
70. Stillte tube	12 Nos.
71. Gag Ferguson (Plain) jaw	1 No.
72. Gag Ferguson backward jaw	8 Nos.
73. Adjustment valve gauge	1 No.
74. Adjustment valve and flow meter	X Nos.
75. Adjustment valve without gauge	1 No.
76. Poly mask inhaler adult	5 Nos.
77. Poly mask inhaler	1 No.
78. Plastic tubing for poly mask	20 Nos.
79. Key spanner and oxygen coupling	6 "
80. Cylinder 'full'	1 No.
81. Cylinder 'in use'	1 "
82. Cylinder empty	1 "
83. Oxygen cylinder 612 litres	4 Nos.
84. Nitrous oxide cylinders 1650	2 "
85. Trolley stand for cylinders	6 "
86. Oxygen cylinders (on loan)	2 "

Description	Quantity
87. Nitrous Oxide cylinders (1950)	2 Nos.
88. Inhaler B.L.B.	3 ..
89. Trolley stand for cylinders	5 ..
90. Face pieces No. 1	4 ..
91. Face pieces No. 3	5 ..
92. Face pieces No. 4	6 ..
93. Cards Nosworthy (Packet of 100)	5000 ..
94. Fluotec (raprifex Mark II)	1 Set.
95. Rubber tubing A/S	100 Meters.
96. Hammers connel	B. No.
97. Inhaler B.L.B. or Nasal	5 Nos.
98. Inhaler B.L.B. or Adult	17 ..

STATEMENT NO. 5

Equipment Brought From U.S.A

1. 57000 Jackson Set	650.00
1. 55750-1 Square punch.	37.60
4. 55767 ABCD Laryngeal tubes @ 9.60	38.40
3. 55767 ACD Laryngeal tubes @ 8.00	24.00
1. 55766 A Laryngeal tubes	9.60
1. 55752-1 Square punch	40.00
1. 55752-2 Grasping Forceps	30.00
1. 55753-5 Oval punch	43.20
1. 55136 Universal Handle	29.60
1. 620 Forceps Handle	26.00
1. 302 Frankfeldt snare	45.00
1. 55771-A Laryngeal Rongeur	10.40
1. 55771-B Laryngeal Rongeur	16.80
1. 55776-A Square Punch	17.00
1. 55779A Punch Square	27.20
1. 55779B Oval Punch	17.20
1. 55779B Oval Punch	26.00
1. 55785 Square Cordes Punch	17.20
1. 55792A Oblong Rongeur	12.80
1. 55792B Oblong Rongeur	16.80
1. 55791A Outting Cup	14.00
1. 55791B Outting Cup	16.80
1. FCB 100A 220V Power Supply	406.80
1. 4810 Resectoscope	328.50
1. 150 FO Foroblique Telescope	508.50
1. F08128 B Brown Buerger	423.00
1. Bundle	76.00
1. 231 S11 Flexible Steam Forceps	28.00
1. 232 S11 Flexible Steam Forceps	28.00
1. McCarthy Ministure FO Cystoscope	493.20
	not yet received
6. Size 14 Miller Abbott Tubes 7	40.50
6. Size 16 Miller Abbott Tubes 7	40.50
6. Size 14 Harris Tubes	64.80
6. Size 16 Tubes	6.75
2. 699-B Blackemore Tubes	41.60
100 ft. PE 329 Tubing	22.06
100 ft. PE 280	18.55
100 ft. PE 240	15.63
100 ft PE 200	14.17
100 ft PE 160	12.70
100 ft PE 140	12.70
100 ft PE 50	12.70

100 ft PE 10 Tubing	12.70
2 cases intercaths	82.36
50 12 Fr. Disp. Levin Tubes	21.25
50 16Fr. Disp. Levin Tubes	21.25
12. 42-00 25 Flex. Conn.	41.37
2. 488 LNR 18G x 2-3/64 conn.	29.22
2. 24-1445 Martin Tubes size 8	25.30
2. 24-1445 Martin Tubes size 10	31.70
2 24-1445 Martin Tubes size 12	35.30
1 Double A.C.M.I. Battery Box	60.00
1. doz. 2003 SP 5. Fr. Ureteral Catheters	19.90
1. Set 37 cases; 314 fops; 301,317,319, 330, 288,304, 700 725A, 302.	230.40
2. 997 Wp;diatric heads	169.20
1. 460 A. Hea llight 220V	30.40
1. 774 Controller 220 V	12.80
2. 610 Laryngoscope	28.80
1. 260 w/263 Bivalve Speculum.	20.80
1. 302 Inflating Bulb	3.20
1. 727 Cord	5.60
1. 431 Transilluminator	6.00
1. 404 Rotating Laryngoscope	9.60
1. 504 Tongue Blade Holder	8.00
1. 777 Penlight	4.80
3. 4 Bulbs	3.96
12. 2 Bulbs	19.20
12. 9 Bulbs	21.60
6. 3 Bulbs	7.92
1. 14" Physicians Bag no charge	
2. 220-205 Payr. Pyl Clamp	67.50
2. 220-210 Payr. Pyl Clamp	76.50
3. 270-95 Adson Forceps	29.70
3. 270-100 Adson Forceps	31.50
2. 220-245 Furniss Clamps	81.00
1. 210-05 Randall Forceps	13.95
1. 210-10 Randall Forceps	13.95
1. 210-15 Randall Forceps	14.70
1. 210-20 Randall Forceps	14.70
Set of 3 220-260 De Martel Wolfson Clamps	43.50
4. 290-108 Lahey Clamps	63.00
1. 280-45 J. Hopkins Clamps	4.35
1. 280-50 Hopkins Clamps	4.95
1. 280-55 Hopkins Clamps	4.95
2. 310-76 Richardson Retractors	19.50
2. 310-81 Richardson Retractors	19.50
3. 310-86 Richardson Retractors	19.50
1 Set of 20 310-35 Parker Retractors	6.00
1 Set of 2 310-65 Parker Retractors	6.00
2 290-285 Harrington Retractors	36.00
2 290-287 Harrington Retractors	36.00
2 310-197 Deaver Retractors	27.00

2	310-202	Deaver Retractor	. . . . .	31.50
2	310-203	Deaver Retractor	. . . . .	33.00
1	310-405	Balfour Retractor	. . . . .	42.00
1	310-420	Balfour Retractor	. . . . .	42.75
1	Set of 9	205-58 Bakes Dilators	. . . . .	24.30
1	205-180	Doublet sphinc	. . . . .	38.25
4	205-15	Deastradin Scoops 1/17, 1/21, 1/24, 1/27	. . . . .	32.40
2	210-53	Elevator Forceps	. . . . .	48.00
1	399-245	Lowley Forceps	. . . . .	21.00
1	399-250	Young Forceps	. . . . .	22.20
12	220-60	Allis Adair Forceps	. . . . .	133.20
2	270-185	Gigli Saws	. . . . .	1.32
2	270-190	Gigli Saws	. . . . .	1.50
2	270-195	Gigli Saws	. . . . .	2.10
2	pra.	270-205 Handles for Gigli Saws	. . . . .	6.00
1	290-34	Ruskin Rongeur	. . . . .	51.75
1	290-33	Ruskin Rongeur	. . . . .	38.25
9.	253-515	Arm Carettes 1/000, 1/00, 1/0, 1/1, 1/2 1/3, 1/4, 1/5, 1/6	. . . . .	73.30
3.	250-520	Army Gouge 1/6, 1/10, 1/14 mm.	. . . . .	20.25
3.	253-515	Army Orted 1/6, 1/12, 1/18 mm.	. . . . .	17.55
3.	250-510	Army Chisels 1/6, 1/12, 1/18 mm.	. . . . .	17.55
2.	250-360	Sille Liston Forceps	. . . . .	108.00
2	250-790	Putti Rasps	. . . . .	35.40
2	310-360	Ralks Retractor	. . . . .	13.50
1.	255-45	Weitlner Retractor	. . . . .	20.00
2.	370-05	Trach. Retr. 1 prong	. . . . .	6.30
2.	370-12	Hupp Retractor	. . . . .	11.10
1.	MX16-300	Von Petz Apparatus	. . . . .	280.80
6.	Hca.	MX16-302 Clips for above	. . . . .	31.50
4.	373-24	Tubes Jackson 2/0, 2/00	. . . . .	36.00
6.	370-25	Jackson Tubes 2/1, 2/2, 2/3	. . . . .	54.00
9.	370-30	Jackson Tubes 3/4, 3/5, 3/6	. . . . .	87.75
8.	373-35	Jackson Tubes 3/7, 3/8, 3/9	. . . . .	96.00
1.	360-35	Trousseau Bougie	. . . . .	17.25
12.	350-90	Laryngeal Mirrors 2/1, 2/2, 2/3, 2/4, 2/5, 2.6	. . . . .	14.40
3.	280-05	Block Clamalo 1/sm, 1/med., 1/lg	. . . . .	67.50
1	280-06	Potts Smith Clamp	. . . . .	31.50
1.	280-07	Potts Smith Clamp	. . . . .	31.50
1.	280-08	Potts Smith Clamp	. . . . .	31.50
2.	280-105	Satnisky V.C. Clamp	. . . . .	43.50
2.	250-470	Gerzeg Mallet	. . . . .	19.50
2.	225-30	Wolfson Spur Crusher	. . . . .	37.50
1.	260-25	Stille Drill	. . . . .	70.75
3.	300-95	Hackman Retractors	. . . . .	112.50
3.	350-361	Metzenbaum Scissors	. . . . .	33.75
3.	350-360	Metzenbaum Scissors	. . . . .	24.75
3.	350-365	Metzenbaum Scissors	. . . . .	21.38
6.	205-100	Mixer Forceps	. . . . .	61.20
6.	MX7-200	Mixer Forceps	. . . . .	49.65
6.	150-195	Rochester Ochsner Forceps	. . . . .	60.30
6.	150-190	Rochester Ochsner Forceps	. . . . .	46.80
6.	150-185	Rochester Ochsner Forceps	. . . . .	38.70
6.	150-165	Rochester Ochsner Forceps	. . . . .	40.50
4.	220-155	Doyen Forceps	. . . . .	48.00
4.	220-160	Doyen Forceps	. . . . .	51.00
2.	220-200	Payer Pyl Clamp	. . . . .	61.20

Copy of Quotation from Oxygenaire (London) Ltd.

Your Ref. : SAM/S. 7/1312P

Our Ref : TR/YP

To

The General Secretary,
The Gujarat Cancer Society
Amrut Park,
Saurashtra Society,
Ahmedabad-7, INDIA.

Dated 19th Feb., 65.

QUOTATION

Dear Sir,

We thank you for yours enquiry of the 13th February, 1965 and have pleasure in submitting for your consideration a quotation for Oxygenaire equipment as detailed hereunder :—

	Price
	£ s. d.
Mark V Refrigeration/Oxygen Tent Supplied complete with canopy, built-in humidifier, drip feed bottle hooks, etc.	250 0 0

Accessories

	£	s.	d.
Safety regulator	13	2	5
Oxygen analyser	7	7	0
Spare acanopy	8	8	0
Packing and FOB London charges	12	0	0
Shipping, freight and insurance charges/London Bombay	19	8	9
Delivery 5 weeks			
Payment Terms <i>Letter of credit</i>			

Yours faithfully,

S/d T. Rac, Administrative
Officer

(Sales and Service)

Copy of Proforma invoice from the Britain Oxygen Co.

To

The General Secretary,
The Gujarat Cancer Society,
Amrut Park, Saurashtra Society,
Ahmedabad-7, India.

Ref : BRJ/VB/Q. 40081,
dt. 1st March, 1965.

S. No.	Quality	Unit Price	Total Price
1.	1 Oxygen Electromatic Control Panel Ref. 297865	£ 266 11 0	£ 266 11 0
2.	1 Oxygen Service Point Panel	25 15 0	25 15 0
3.	26 Oxygen Self sealing valve 82691	2 0 0	52 0 0
4.	1 Nitrous Oxide Service Point Panel	52 15 0	52 15 0
5.	1 Nitrous Oxide Electromatic Control Panel Ref. 297867	266 11 0	266 11 0
6.	8 Nitrous Oxide self sealing valve 82692	2 0 0	16 0 0
7.	1 Vacuum pump complete Ex. B2 Ref. 294614	403 14 0	403 14 0
8.	31 Vacuum self sealing valve 91546	2 0 0	62 0 0
9.	660 Feet $\frac{1}{2}$ " bore Copper tube	1 3	41 5 0
10.	4 Mk. III Circle Absorber complete	70 10 0	282 0 0
11.	6 Set of 15 sizes Magill oral tube	2 2 6	12 15 0
	6 Set of 9 sizes Magill Nasal tube	1 5 6	7 13 0
	6 Set of 10 sizes Magill cuffed tube	4 15 0	28 10 0
	6 Set of 10 sizes Magill streamlined cuffed tube	4 15 0	28 10 0
12.	2 Macintosh Spray	2 8 0	4 16 0
13.	1 Beaver Mk. III Respirator 331009	255 0 0	255 0 0
14.	2 Wright Respirometer 371603.	39 0 0	78 0 0
15.	1 Cyclator Type P.T. Mk. II. Ref. 331394/330913/ 330960	138 7 6	138 7 6
16.	2 Set of 6 sizes Oxford non-linking cuffed tubes.	3 9 0	6 18 0
	2 Set of 12 sizes Carlons tube	48 0 0	96 0 0
17.	5 Theatre suction unit ward	61 0 0	305 0 0
	26 Ward suction unit ward	37 0 0	962 0 0
	F.O.B.		3,627 10 0

Delivery : 6 months from receipt of order.

Payment : Cash against documents in London.

Clause : This offer is made subject to our attached general conditions of sale, except that it is open for acceptance within a period of 90 days from the date of this Pro-forma Invoice.

for. THE BRITISH OXYGEN COMPANY LIMITED

(Sd.) B. R. Jones

EXPORT DEPARTMENT—MEDICAL SECTION

THE GUJARAT CANCER SOCIETY

Tender for Surgical Instrument

INSTRUMENTS TO BE PURCHASED

General Surgical Instruments

1. Bard Parker Knife Handle (assorted sizes)	10 in each size
2. Bard Parker Knife-blades (assorted sizes)	150 packets
3. Dissecting forceps	
Long toothed	10
Plain	10
Medium toothed	20
Plain	20
Small toothed	10
(plastic) plain	10
4. Sponge holding forceps	20
5. Instrument holding forceps	6
6. Syringe holding forceps	6
7. Mitchell clips removing forceps	4
8. Mitchell clips applying forceps	5
9. Mosquito clamp (Curved)	8 dozen
(Straight)	4 dozen
10. Kelly clamp with box joints	
5" Curved	10 dozen
Straight	2 dozen
7" Curved	8 dozen
Straight	2 dozen
11. Allis clamps	25
12. Babcock clamps	25
13. Kocher Clamps (different sizes) Straight 5"	1 dozen each
Curved	4 dozen
14. Suture scissors Straight	12
Curved	4
15. Dissecting scissors 11" Curved	4
Straight	6
7" Curved	6
Straight	6
5" Curved	6
Straight	6
16. Pointed scissors Long	1
Medium	1
Short (plastic)	2
17. Mac Indo's Scissors 9"	6
18. Deavers retractors (different sizes)	2 sets
19. Doyen's retractor (different sizes)	2 sets

Copy of Proforma invoice from the Britain Oxygen Co.

To

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Short (plastic)	2
17. Mac Indo's Scissors 9"	6
18. Deavers retractors (different sizes)	2 sets
19. Doyen's retractor (different sizes)	2 sets

20. Rt. Angle Retractor (different sizes)	2 sets
21. Malleable retractor (different sizes)	10 sets
22. Malleable retractor with cable and bulb	2
23. Hock retractor (rack) with 2 & 3 prongs.	6 pairs.
24. Self retaining retractors including Thyroid (assorted sizes)	10
25. Needle holders (assorted sizes)	5½" 12

Platinum Jaw

Tungston Cartridge Jaw	7½" 12
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G.I.

26. Towel clips small	35
large	35
27. Suction Tips different sizes	12
28. Intestinal clamps	
Straight	6
Curved	6
29. Stomach Clamps	4
30. Intestinal crushing clamps	4
31. Duodenal clamps	2
32. Mikulicz Enterotome	2
33. Towel clips small	40
34. Cholecystectomy clamp large	25
35. Stone holding forceps (different sizes)	2
36. Trochar and cannula (different sizes)	2 each

E.N.T.

37. E.N.T. Lamps	12-6
38. Head band with reflector	12
39. Mouth Gag. (Doyens) Adult (Children)	10
40. Mouth Gag. (Loyd Devis)	2
41. Mouth Gag forceps plate	2
42. Mouth Gag (Denis)	2
43. Screw wedge mouth gag	2
44. Tongue depressors	20
45. Laryngeal mirrors (different sizes with handles)	20
46. Nasopharyngeal mirrors	20
47. Light Transformer	2
48. Metal Ear Syringe with Straight nozzles	2
49. Tuning Forks	12
50. Tracheal dilator	4
51. Tracheotomy tubes metal (different sizes)	12
Polythene or rubber	36
52. Mouth Gag retractor	6
53. Mastoid retractor	4
54. Check Retractor	4
55. Tonsil Pillar Retractor	4
56. Nasal Speculum (different sizes)	12
57. Eustichian Catheters	12

Dental

58. Dental forceps set	1 set
59. Dental Elevators	1 set
60. Tooth Elevators	1 set

Chest

61. Rib Retractor (Finochetto)	
Adult size	2
Child size	1
62. Davidson Scapula Retractor	1
63. Lung Retractor	2
64. Baily Gibbon rib approximator	2
65. Rib Periosteum retractor (Overhold, Pattern) No. 1, 2, 3, 4, 5	2 sets
66. Doyen rib respiratory	1 set
67. First Rib shears	1
68. Rib shears (Doyen type)	2
69. Sternum shears	1
70. Lebsches sternal knife with hammer	1
71. Lung Holding forceps	2
72. Price Thomas Bronchus Clamps	2
73. Sarot Bronchus Clamps	2
74. Bronchial Needle Holder (Platinum jaw)	2
75. Harken aortic Clamps (different curves)	3
76. Best Rt. Angle clamps	4
77. Rt. Angle forceps (overhold type)	1 set
78. Reinhoff aneurysm needles (Rt. & Lt. Curved)	1 set
79. Tobbs Dilator	1
80. Bracks Dilator	1

Bone

81. Gigli Saw	3
82. Amputation knife	2
83. Amputation Saw	2
84. File	2
85. Bone leavers with serrations (Small & Large) Pairs	6
86. Wire Cutter	6
87. Sequestrum forceps Curved	2
Sequestrum forceps Straight	2
88. Laminectomy punch (different shapes)	1 set
89. Laminectomy retractor	2 pairs

Skin

90. Skin Grafting knife with handle and spare Blade	1 set
91. Skin Hooks	8

Vascular

92. Arterial Scissors	2
93. Arterial needle holders	2
94. Aneurysm needle	6 pairs
95. Vein Retractors	2 pairs
96. Bull dog clamps (different sizes)	24

Gynae

97. Skull Elevator	1
98. Dura Elevator	1
99. Hegars Dilator	1 set
100. Cusco Vaginal Speculum (different sizes)	12
101. Curd's speculum	1
102. Sims speculum	4
103. Uterine probe (different sizes)	12
104. Uterine forceps	12
105. Volsellum	12
106. Uterine curettes (different sizes)	12
107. Punch forceps	2
108. Wertheims clamps	2
109. Pedicle clamps	6
110. Healey's clamps	2
111. Anterior Vaginal wall retractor	2
112. Lateral Vaginal wall retractor	2
113. Morisson's kidney retractor	6
114. Bladder retractor	1
115. Set of Dilators 3/6 to 15/18 sizes	2 sets.
116. Metal Catheters (different sizes)	24
117. Prostatic Catheters	6
118. Wheelhouse's staff	2
119. Stylet for self retaining catheters	6
120. Bladder neck spreader	2
121. Blunt dissector	2

General Surgical Supplies

Simple operating table for radium work	1
General Examination Table	6
Gynaec. Exam. Table	3
Foot stools	12
Weighing Scales (salter spring balance)	6
Sterillizer for syringes	6 (14')
Dressing Drums (14' x 16')	7 dozen
(9' x 11')	5 dozen
Stethoscopes	12
Blood pressure Instruments	12
Blood pressure Instruments with stands	4
Direct venous pressure apparatus (B. D.)	2
Tourniquet with Esmarch bandage	2
Rubber Tourniquet	2
Rubber Catheters. Male 1 gross each	
Rubber Catheters. Female (assorted sizes)	
Self retaining Catheters	12
Foley's Catheters	12
Rubber Tubings (different sizes)	100 each
Flatus Tube	12

Ryle's Tube	24
Broncho-gram Catheters	12
Hot water Bags	6
Mackintosh	100 meters
Higginsons' Syringe	6
Nail Cutters	12
Spognosten	2 dozen packets.
Percussion Hammer	12

Suture Materials

Needle assorted sizes	1 gross each
Needle Round plain Cutting	
Needle Straight plain Cutting	
Catgut (different sizes)	
Plain	
Chromic	
Atraumatic with neelde	

Linen

Silk—atraumatic with needle	
Dermalon with and without needle	
Deknatal (arterial) silk	
Wire—Plain	
Wire—Beaded	

List of Text Books—Biochemistry

1. General Biochemistry Fruton and Simmonds.
2. Data for Biochemical Research.
Dawson R.M.C. Elliot D.C. Elliot W.H. and Jones K.M.
3. Recent Advances in Biochemistry.
Goodwin T.W.
4. Enzymes
Boyer P.D. Lardy H. and Myrback K. Volumes 1-8
5. Methods in Enzymology
Colowicks P. and Kaplan N.O. Vol. 1 to 7.
6. Proceedings of the Fifth International Congress of Biochemistry (Vol. 5) Moscow 1961.
7. New Biochemical Separation.
Jame A. T. and Morris L. J.
8. Methods in Biochemical Analysis by Glick David Vol. 1 to 12
9. Introduction to Modern Biochemistry by Karlson P. (1963)
10. The Immunochemistry of Cancer by Eugene D. Day.
11. Clinical Biochemistry by Cantarow A. and Trumper M.
12. Nucleic Acid 5. 3 Volumes.
Davidson and Chargaff.
13. Micro-Analysis in Medical Biochemistry by King E.J. and Wotton I.D.P. (4th Edition).
14. Methods in Micro-Analysis.
Vorley—1964.
15. Miller (6th edition) Testbook of clinical Pathology.
16. Hand Book of Chemistry (Latest edition).

Journals

1. Biological Abstracts.
2. Physiological Reviews.
3. JOHNS—Physics of Radiology, 2nd ed. 1961.
4. LODGE—Recent Advances in Radiology, 4th ed. 1964.
5. PATERSON—Treatment of Malignant Diseases by Radiology, 2nd ed. 1963.
6. ROBERTSON—Radiologic Physio. 3rd ed. 1956-61 Rep.
7. SHANKS—Text book of X-ray Diagnosis, 3rd ed.
Vol. I Central Nervous System 1957.
Vol. II Cardiovascular and Respiratory System 1962.
Vol. III Alimentary Tract etc. 1958.
Vol. IV Bones and Joints and Soft Tissues 1959.
8. SUTTON—Arteriography, 1962.

Surgery Including Operative Surgery and Allied Subjects

1. BALLEY & LOVE—Short Practice of Surgery, 12th ed., 1962.
2. DAS—Clinical Methods in surgery including Differential Diagnosis, 6th ed. 1961.
3. PYE'S—Surgical Handicraft, 2 Vols. 18th ed. 1962.
4. ROSE AND CARLESS—Manual of Surgery, 10th ed. 1960.
5. UDUPA—Principles of General surgery 1961.

Treatment

1. DUNLOP—Textbook of Medical Treatment 9th ed. 1964.

List of Books

1. Special procedures in Roentgen Diagnosis by Beranbaum.
2. Tumours and tumorous conditions of the Bone and Joint Jaffry and Mayour.
3. Clinical urography Emmet.
4. Radiological Examination of the small Intestines by Golden.
5. Osseous system Archer.
6. Clinical Radiology Examination of Acute Abdominal Disorder Epstein.
7. Borders and of Normal and Early Pathology in Skeletal Roentgenology, Kahler A.
8. Roentgenology diagnostic progress Vol. James.
9. Intra-Vascular Catheterisation Sanders Zimmermann.
10. The Spine Rad; text and Atlas Epstein.
11. Synopsis of the roentgen signs Meichan.
12. Obstetrical Roentgenology.
13. Neuro radiology workshop.
14. Angiographic Localisation of Intra-cranial masses Elken Riemen Saender Thomas
15. Clinical Radiology of the Oesophagus Brombart.
16. Radiology of the heart and great vessels Coole.
17. Human spine in Health and disease Harbert Junghans.
18. Aortography Starling.
19. Myelography year book Medical Publication Shapiro.
20. Osseous system K.W. Archer.
21. Atlas of the Roentgenographic Measurements, Ceab Lusterd Theodore E. Keats.
22. Pelvimetry by Thomas Charles.
23. Intra-venous cholangiography Wue.
24. Principles of Radiographic Exposure and Processing Fuchs.
25. Roentgenology of the intracranial Meningiomas Traub.
26. Mediastinum Leigh & others.
27. Interpretation of the Tomogram of the head Davis and Loebel.
28. Vertebral and carotid angiograms, Place.
29. Radiography of the infants and children Darling (Thomas).
30. Tropical Roentgenology Hienomen.
31. Fundamentals of the chest Roentgenology Felson.
32. Elements of the cardiography Chamberlin Coulshed Radiologic clinic of North America W. B. Saunders Philadelphia Radiologic specialties 155, 1957.
33. Encyclopedia of Orologica Diagnostic Radiology Sprung Verlag Berlin Congo Heiberg.
34. Gynaecologic Radiology Joan Dalsee.
35. Clinical Urography Emmet (W. B. Saunders.)
36. Bone Changes in Haematological disorders John E. Mowry.

Medicine

1. BAUMONT—Recent Advances in Medicine Paperback 1961
2. CASH—Physiotherapy in some Surgical Conditions 2nd ed. 1959. 61 Rep.
3. Cecil & LOEB—Text book of Medicine, 11th ed. 1963.

One Vol. ed.

Two Vol. ed.

4. CLAYTON—Electrotherapy and Actinotherapy 4th ed. 1962.
5. DAVIDSON—Principles and Practice of Medicine 7th ed. 1964.

6. DAFFY & MILLER—Progress in Clinical Medicine.
7. MACDONALD—Occupational Therapy in Rehabilitation 1960-61 Rep.
8. MANSON BARR—Tropical Disease, 15th ed. 1960-61.
9. MERCK—Manual of Diagnosis and Therapy 10th ed. 1962.
10. PHYSICIAN'S HANDBOOK—Lange's Handbook Series—12th ed. 1962.
11. PRICE—Textbook of Practice of Medicine, by various contributors, 9th ed. 1956 Rep. 1959. Medicine (Contd.).
 1. SHI KLOCK—Diseases of the Liver and Biliary System, 3rd ed. 1963.
 2. SPAIN—Complications on Modern Medical Practice, 1963.

Neurology and Allied Subjects

14. BRAIN—Diseases of the Nervous system 6th ed. 1962.
15. CHURCH & McDONALD—Correlative Neuroanatomy and functional Neurology, 11th ed. 1962.

Pharmacology and Allied Subjects

1. DILLING—Clinical Pharmacology, 20th ed. 1960.
2. GOODMAN & GILMAN—Pharmacological Basis of Therapeutics 2nd ed. 1963—Rep.
3. GOFF—Medical Pharmacology, 1961.
4. J. J. HOSPITAL GROUP OF BOMBAY—Pharmacopoeia—1963.
5. K.E.M. HOSPITALS BOMBAY PHARMACOPOEIA—2nd ed.

Radiology

1. CLARK—Positioning in Radiography, 8th ed. 1964.
2. CAFFEY—Pediatric X-Ray Diagnosis, 4th ed. 1961.
3. DAVIS—Pediatric Radiology, 1961.
4. FULSON—Fundamental of Chest Roentgenology, 1960.

LIST OF BOOKS

1. A.F.E.T. Isotope Catalogue.
2. Radiation Dosimetry—Hine and Brownell.
3. Physicals of Radiology—Johns H.E.
4. Radiation Hygiene Hand Book—H. Blatz.
5. Health Physics Instrumentation—Handloser.
6. Nuclear Radiation Detection Price W.J.
7. Applied X-rays—Clark.
8. Nuclear Radiation—Detector—Sharp, J.
9. The treatment of the Malignant Diseases by Radium and X-Rays—R. Paterson.
10. X-ray their origin, dosage and practical applications M.E. Schall.
11. Radioactive isotopes in Medicine and Biology—Wiltshire.
12. Medical X-Ray Technique—J. G. Vander Plats.
13. N.B.S. Hand Book No. 48, 64, 73, 76, 69, 42, 65, 58, 65.
14. Regulation for safe transport of Radioactive isotopes I.A.E.A. Safety series No. 1, 6 & 7.
15. Further Handbook of Industrial Radiology—W.J. Wiltshire.
16. Clinical Uses of Radioactive Isotopes—Field and Seed.
17. Clinical Radiation Therapy—Kaplan.
18. Therapeutic use of Artificial Radioisotopes—Paulo & F. H. Yin.
19. Fundamental of Radio Biology—Baoq & Alexander.
20. Radiation Hazards and Protection—Barnes and D. Taylor.

21. Radium Dosages—Pattern and Parker.
22. Physical foundations of Radiology—Lasser & Quimby.
23. Radiation Protection—Wekoff, Braestrups, Weyl & Wauer.
24. Radiological physics—Yong M.E.J.
25. Radioactive Waste Disposal—Saddington and Templeton.
26. Radioactive Waste Their treatment and Disposal—C.S. Collins.
27. Environmental Radioactivity.
28. Peaceful uses of Atomic Energy—Vol. 14 General Aspects.
29. The planning of Radio Isotopes lab.

LIST OF BOOKS

Dietetics and Nutrition

1. BOGERT—Nutrition and Physical fitness. 7th ed. 1960-61 rep.
2. JOLLIFFE—Clinical Nutrition 2nd ed. 1963.
3. MITCHELL—Food in Health and Disease, 6th ed. 1960-69.
4. PATWARDHAN—Nutrition in India, 2nd ed. 1963.
5. PATWARDHAN—The Nutritive Value of Indian Foods and the Planning of satisfactory Diets, 1963 (I.C.M.R. No. 42).
6. Cox & PEARSON—Chemical Analysis of Food. 5th ed. 1962.

Ear, Nose & Throat Diseases.

1. MALI—Diseases of Ear, Nose and Throat. 6th ed. 1961.

Endocrinology

1. BOTELLIA LLUSIA—Obstetrical Endocrinology 1961.
2. DANOWSKI—Clinical Endocrinology, 4 Vols. 1962.
3. ESCAMILLIA—Laboratory tests in Diagnosis and Investigation of Endocrine Function 1962.
4. KURPERMAN—Human Endocrinology, 3 Vols. 1963.
5. TURNER—General Endocrinology 3rd ed. 1960.

Eye Diseases

1. PARSONS—Diseases of the Eye 14th ed. Edited by DUKE ELDER.

Gynaecology and Obstetrics.

1. Text book of Gynaecology, 2nd ed. 1963.
2. EDEN & HOLLAND—Manual of Obstetrics, 12th ed. 1963.
3. MASANI—Textbook of Gynaecology 4th ed. 1963.
4. SHAW—Text Book of Gynaecology 8th ed. 1962.
5. TEN TEACHERS—Diseases of Women 10th ed. 1959.
6. TEN TEACHERS—Midwifery 10th ed. 1961.

Medical Jurisprudence

1. MEHTA—Medical Law and Ethics in India, 1963.
2. MODI—Medical Jurisprudence and Toxicology, 14th ed.

LIST OF BOOKS

1. Fascicles of Tumour Pathology of Armed Forces Institute of Pathology.
2. Histo of Pathology skin —Liver
3. Tumours & tumorous conditions of bones & joints —Jaffe

4. Bone Tumours	—Gegcheckter & Copeland
5. Leukaemia Cutis	—Samuel M. Bluefar
6. Cancer of Skin	—John Bilisaris
7. Haematology	—Whillby—Britto Wintrobe
8. Text Book of Pathology for Physician	— Boyd
Surgeon	— "
General	— "
Year Book of Cancer	— Robbins
Text Book of Pathology	— Evans
Histological Appearances of tumours Tumcut	— Evans
Oral Cancer	— Rov Bourgoyne
Cancer by Ravari	— 7 volumes
Cancer Progress	— 1963
Proceeding of International Cancer Congress	— all
Oral Cancer Tumours of Jaw Sharp Bullock	— Hazel.
Surgical Pathology	— Illingworth
Approved Laboratory Technique	— Kolmer
Clinical Laboratory Methods & Diagnosis	— Gradwohl
Clinical Pathology	— Miller
Micro Analysis	— King
Biochemistry	— King
Biochemistry	— Varley
New Book of Cancer	— all
Cancer all	— Cowdry
Cancer of Female Reproductive organs	— Sherman
Cancer of Female Genital Tract	— Joe Meigs
Atlas of Exfoliative Cytology	— Papanicolaou
Atlas of Haematology	— Sandoz
Advances in Cancer Research Vol. I—IV	
Histological Technique	— Carleton
Histological Technique	— Dailly—2 Vol.
Histo Chemistry	— Pearce
Colour Atlas of Oral Pathology	— Coloy

LIST OF BOOKS

Cardiology and Electrocardiography

1. FRIDBERG—Heart, Kidney and Electrolytes, 1962.
2. FRIDBERG & DONOSO—Medical Electronics in Cardiovascular Diseases, 1963.
3. FRIDBERG—Radioisotopes in Cardiovascular Diseases, 1960.
4. STROUD—Cardiovascular Diseases (2 Loose-leaf Vol.), 5th ed. 1957-59.
5. TAUSSIG—Congenital malformations heart, 2nd ed. 1958.

Children Diseases and Pediatrics

1. BARNES—Manual of Pediatric physical Diagnosis, 2nd ed. 1961.
2. DESANCTIS & VARGA—Handbook of Pediatric Medical Emergencies, 3rd ed. 1963.
3. GELLIES & KAGAN—Current Pediatric therapy, 1964.
4. KIESEWETTER—Pre and post-Operative care in the Pediatric surgical patient
5. SCHELDUN—Diseases of Infancy and Childhood, 5th ed. 1962.
6. WILKINSON—Recent Advances in Pediatric Surgery, 1964.

Diabetes Mellitus

1. JOSLIN—Treatment of Diabetes Mellitus 11th ed. 1964.
2. MOSS—Fundamentals of Diabetes Management—1962.
3. NUNES—Manual of Diabetes for the House Officer, 1963. Diagnosis including Clinic & Laboratory.

Methods

1. ADAMS—Physical Diagnosis, 4th ed. 1958.
2. DAS—Clinical Methods in Surgery, including Differential Diagnosis, 6th ed. 1961.
3. FRENCH—Index of Differential Diagnosis of main symptoms by various contributors, 8th ed. 1960.
4. VAKIL & GOLWALLA—Clinical Diagnosis, 3rd ed. 1961.

Dictionaries—Medical & Surgical

1. BLAKISTON—New Gould Medical Dictionary with Thumb Index, 2nd ed. 1956.
2. DORLAND—Illustrated Medical Dictionary, 23rd ed. 1957 with Thumb Index, Asian Ed.
3. TABER—Cyclopedic Medical Dictionary including Digest Medical Subjects with Thumb Index, 9th ed. 1962.

APPENDIX NO. 10

Proceedings of the Meeting held by the Director General of Health Services, Patula House, New Delhi, on the 7th October, 1965 at 11.30 A.M. to decide and take suitable measures for the opening of the Shree M. P. Shah Cancer Hospital, Ahmedabad and its administration.

The following were present :—

1. Dr. K. N. Rao, Director General of Health Services, New Delhi Chairman.
2. Dr. T. H. Patel, Director of Medical & Health Services, Gujarat, Member. Ahmedabad.
3. Professor P. N. Wahi, Principal, Medical College, Agra . Member.
4. Shri M. K. Kutty, Deputy Secretary, Ministry of Health.
5. Shri K. P. Soni, Dy. Financial Adviser, Ministry of Health.
6. Dr. S. L. Dhir, Asstt. Director General (Planning).
7. Dr. M. J. H. Writer, Asstt. Director General (F.P.) . . . Member-Secretary.
8. Shri K. Satyanarayan, Under Secretary, Ministry of Health.

2. Discussions which followed centred round the Report.

1. It was pointed out that in the absence of information relating to the assets and liabilities of the Gujarat Cancer Society, Ahmedabad, it was not possible to have an idea as to what the Government of India and the State Governments were to be asked to take over. Information in respect of donations collected was also incomplete (Statement 1). There was no possibility of further donations coming in when either the Central Government or the State Government take over the management of the hospitals. The first, most important factor to enable further consideration in the matter was detailed information regarding the assets and the liabilities of the society and to determine the extent of financial liability involved in the development of this hospital. Dr. T. B. Patel agreed to collect this information (Statement 2).

2. The proposal for taking over this Cancer Hospital would have to be considered in the context of the larger proposal of taking over the Cancer Hospitals at Madras, Calcutta and Hyderabad and the policy to be followed in all these would have to be the one and the same. Normally the Central responsibility should be limited to training and research. The Hospitals were generally the responsibility of State Governments.

3. The following are the recommendations :—

1. The State Government should immediately take over the Shri M. P. Shah Cancer Hospital, Ahmedabad and its Funds.

2. Professor Wahi and Dr. Patel should work out a scheme for the starting of a Research and Training Centre in the premises of this hospital with immediate effect by utilising certain beds of the hospitals.
- 3.2. 1. Professor Wahi and Dr. Patel would take into consideration the Co-ordination that would be required between the staff of the Medical College and Hospital and that of the Centre.
 2. They would submit proposals for the running of this Centre under the auspices of the Governing Body of which grants could be given by the Central Government.
 3. In this scheme of things, a certain number of beds—25 of the 60 would be utilised for training and research. The expenditure in respect of these beds would be the responsibility of the Central Government in addition to the expenditure on the administration of the Centre.
4. Alternately, both the Research Centre and the Hospital could be run by the Governing body, the Central Government placing the money for running the Centre at the disposal of the Governing Body and the State Government the money required for running the hospital.
 5. The Governing Body would be constituted as follows :—
 1. Secretary, Ministry of Health, Government of India Chairman.
 2. Director General of Health Services or his representative Member.
 3. A representative of the Ministry of Finance Member.
 4. Director of Medical & Health Service., Gujerat, Ahmedabad Member.
 5. A representative of the Govt. of Gujerat Member.
 6. Two representatives of the Gujerat Cancer Society, Ahmedabad Member.
 7. A Scientist appointed by the Govt. of India Member.
 8. The Senior-most Vice Chancellor of the University of Gujerat Member.
 9. Director, Shri M.P. Shah, Cancer Hospital Ahmedabad Member-Secretary.
 6. With reference to the grant requested by the General Secretary (Statement No. 3) Gujerat Cancer Society, Ahmedabad, the matter would be considered by the Committee for Grants to Voluntary Institutions. A sum of Rs. 1 lakh may be considered for 1965 and another Rs. 1 lakh for 1966

STATEMENT NO. 1

A REVIEW

On the 23rd of April, 1965 the Union Health Minister, the Chief Minister of Gujerat, Professor Thacker and Secretary, Ministry of Health, the Director General of Health Services, Deputy Secretary (P.H.) and the Deputy Financial Adviser were present at a discussion with regard to the future of the hospital. A committee consisting of the following was appointed :—

1. The D.G.H.S. Dr. K. N. Rao.
2. Dr. J. C. Paymaster, Tata Memorial Hospital, Bombay.
3. Dr. A. K. Sen, Chittaranjan Cancer Hospital, Calcutta.
4. Dr. T. B. Patel, Director Medical and Health Services, Gujerat State.
5. Prof. P. N. Wahi, Principal, Medical College, Agra.

to examine the present developments and to recommend a phased development and also to report on the immediate requirements. The Committee was also asked to examine the working of the Cancer Hospitals, Bombay, Calcutta and Madras and to make recommendations.

2. The Ministry of Health in their letter No. 42-4/65-RISM dated the 26th April, 1965, appointed a Committee as detailed above with the aforesaid terms of reference.

3. The Committee had preliminary discussion at Patiala House on the 29th May, 1965, under the Chairmanship of the Union Deputy Health Minister and subsequently visited the Cancer Hospital, Calcutta, the Chittaranjan National Cancer Research Centre, Calcutta, the Cancer Institute, Madras, the Radium Institute and Cancer Hospital, Hyderabad, and the Cancer Hospital, Ahmedabad, on the 22nd of June. Dr. Paymaster, however, could not be present. An interim report was to be submitted before the 30th of the current month as required by the Ministry of Health. The Committee in its interim report recommend as follows :—

1. The Gujerat Cancer Society may be permitted to complete the building and equipment programme in the shortest possible time.

2. That the State Government may be permitted to take over the hospital in view of the fact that it will greatly facilitate the integration of the B. J. Medical College Hospital and other specialised hospitals like the Cancer, Eye, Pediatrics, etc. and also the staff of the medical college like surgeons, physicians, obstetricians, E.N.T., Eye specialists, will be available for consultation in the cancer hospital and treat their own speciality patients.

3. The establishment of the Research Centre may be done with the full financial support of the Ministry of Health on the analogy of the Chittaranjan National Cancer Research Centre, Calcutta, and the type of management to be evolved may be left for such time till the research centre is established and a common pattern evolved for Calcutta, Madras and Ahmedabad.

4. No additional staff should be appointed by the Gujerat Cancer Society till the future of the hospital is finalised.

5. Cancer patients should not be levied any fee (neither in the out-patient nor inpatient general wards).

6. The development of the Cancer Centre should be phased progressively according to the resources available and that the Cancer Society should function as an independent organisation with its own Governing Council even after the Cancer hospital is taken over by the State Government by a Board of Management.

7. It is recommended that the question of establishment of the Cancer Research Centre with research beds in association with the hospital beds may be deferred till the 4th Plan outlays are known.

8. On 19-8-65, the Health Minister suggested that a sub-Committee consisting of Dr. Paymaster, Dr. T. B. Patel and Dr. Writer may visit Ahmedabad and submit a report immediately as to the future development year-wise and its future implications.

5. The sub-Committee on Cancer visited the M. P. Shah Cancer Hospital on the 21st and 22nd of August, 1965, and made the following recommendations:—

1. That the present hospital with additional staff and equipment may be allowed to function for a period of 2 years in the IV Plan (after which provision will be made for additional beds, staff, etc. if necessary).
2. That the research Wing may not be started till the last year of the IV Plan. Similarly, Isotope work may not be started in the IV Plan but in the last year of the IV Plan, when the research units start functioning.
3. The Second floor of the hospital which will be under construction should be utilised partly for providing 10 independent paying beds, fully equipped with intensive therapy treatment and partly for accommodation of Matron, Nurses and sisters to be accommodated as far as possible at the Nurses Hostel of the B. J. Medical College & Hospital.
4. Since the hospital is equipped for radio-diagnosis and radio-therapy treatment, its facilities could be utilised for the purpose of treatment and training of personnel. The staff could periodically visit the Tata Memorial Hospital for discussion and study.
5. The Cancer Detection Unit could function effectively as soon as cytologists are available in larger numbers.
6. Since cancer of the head, neck and cervix would require full time service, the committee recommends that all the staff of the Civil Hospital may participate in the special services and major surgery and they will be given facilities at the Cancer Hospital.
7. In view of the earlier recommendations, a cancer patient should not be levied any fee either in the O.P.D. or the I.P.D. It is considered that a patient admitted in the paying ward should be charged a tariff the rate of which is to be decided by the Committee.

8. The Ministry of Health in the Government of India and the State Government of Gujarat may jointly shoulder the responsibility for financing and administering the M. P. Shah Cancer Hospital, Ahmedabad.

5A. A financial statement in respect of the receipts so far received with the Cancer Society and the amount expended as well as the amount to be incurred is attached. (Statement No. 2).

6. The expenditure envisaged in 1966-67 is Rs. 9.86 lakhs. Further break up to the end of IV Plan is as under.

Year	Non-recur- ring Rs. in lakhs	Recurring Rs. in lakhs
1966-67	2	9.86
1967-68	2	9.86
1968-69	2	12.00
1969-70	2	12.00
1970-71	2	12.00
Total Non-recurring	10	
Total Recurring		55.72
	Grand Total	65.72
Less Fee from patients		5.72
Likely expenditure in IV Plan		60.00

7. The Sub-Committee also recommended that the Governing Council be appointed with representatives of the State Governments, the Govt. of India, the Gujarat Cancer Society, the Senior-most Vice Chancellor of the University of Gujarat (the member to be appointed by the Govt. of India). The Health Secretary as Chairman and D. G. or Additional D. G. as Member. The Director of the Hospital will be its Member-Secretary when appointed.

8. The late Shri Balwant Rai Mehta in his letter dated the 19th September, 1965 suggested the following:—

1. In consultation with the Planning Commission a scheme may be approved by which either the Government of India or the State Govt. takes over the Management of the Hospital.
2. A Governing Board may be constituted in which the Society also could be represented apart from the two Governments.
3. The activities of the Hospital and the Research Centre may be kept separate.
4. The Government of India may take over the Institution entirely if it so desires or may associate the State Government with it.
5. As regards the cost, the State Government may bear a fraction of the recurring cost. At any rate, it should not exceed 1/3rd of the total expenses.
6. An early decision of the Government of India may be taken.

9. The Union Health Minister in her minute on the 23rd September, 1965 stated that "it has become the last will and testament of the Departed Leader and she could like his wishes to be carried in full". The following steps may be taken immediately.

1. A Governing Body on the analogy of the Tata Memorial, Hospital Parel, Bombay, consisting of the following be constituted :—

1. Health Secretary Chairman.
2. D.G.H.S. or his representative Member.
3. Deputy Financial Adviser, Ministry of Health Member.
4. Director of Health Services, Gujarat Member.
5. Finance Secretary, Gujarat State Member.
6. 2 representatives of the Gujarat Cancer Society.
7. A scientist appointed by the Govt. of India.
8. The seniormost Vice Chancellor of the Gujarat University.
9. Director of the Cancer Hospital as Member-Secretary.

(The Seniormost officer available in the institution at present may be appointed as Member-Secretary till a Director is appointed.)

2. This Governing Body may function on an ad hoc basis to begin with and a Registered Society of the M. P. Shah Cancer Hospital & Research Centre may be formed.

3. All the assets and liabilities of the Cancer Society may be transferred to this Society. The budget for 1965-66 is envisaged as follows :—

It is expected that Rs. 8.80 lakhs would be the expenditure for 1965-66. This expenditure may be borne as 2/3rd by the Centre and 1/3rd by the State Government.

4. In future, the maintenance of the Hospital beds may be by the State Government on the basis of per capita cost. All the other expenditure of the staff and further development may be by the Governing Body to which funds may be made available by the Government of India and the total expenditure in the hospital in the fourth plan is Rs. 60 lakhs on the basis of 2/3rd and 1/3rd by the Centre and the State Government i.e. 20 lakhs to be borne by the State and 40 lakhs to be borne by the Centre. This is subject to availability of funds and approval by the Planning Commission and the Ministry of Finance and the Ministry of Health. The staff etc. may be appointed by the Government of India or the Governing Body.

5. The Hospital should work in close cooperation with the B. J. Medical College and the Specialists of other Hospitals should also work in this hospital. The Cancer Hospital and the Research Centre should be utilised for service, Education, Training and Research.

(Sd.) K. N. Rao

3-10-65.

Chairman.

STATEMENT No. 2
THE GUJARAT CANCER SOCIETY, AHMEDABAD
STATEMENT OF INCOME AND EXPENDITURE UPTO 5-10-1965

EXPENDITURE	Rs.	Rs.
A. Construction work as per last balance sheet incurred upto 5-10-65.	9,74,335.38 3,60,246.91	
	13,34,582.29	
Expenses still to be incurred	6,00,000.00	
	19,34,582.29	19,34,582.29
B. Equipment		
X-Ray Equipment as per last Balance Sheet	1,91,553.04	
Incurrd upto 5-10-65	2,86,179.32	
	4,77,732.36	4,77,732.36
Deep Therapy Equipment as per last Balance Sheet	2,61,901.69	
Incurrd upto 5-10-65	27,405.13	
	2,89,306.82	2,89,306.82
Surgical Equipment as per last Balance Sheet	10,353.62	
Incurrd upto 5-10-65	2,45,699.45	
	2,56,053.07	2,56,053.07
Caesium Bomb	69,776.22	69,776.22
Pathology equipment as per last Balance Sheet	185.55	
Incurrd upto 5-10-65	42,466.90	
	42,652.45	42,652.45
Anaesthesiology Equipment as per last Balance Sheet	4,551.70	
Incurrd upto 5-10-65	13,432.06	
	17,943.76	17,943.76
Furniture as per last Balance Sheet	23,856.08	
Incurrd upto 5-10-65	41,409.08	
	65,265.16	65,265.16
Library Equipment	13,291.48	13,291.48
Electric fitting & Installation as per last Balance Sheet	9,961.26	
Incurrd upto 5-10-65	32,892.95	
	32,854.21	32,854.21
Expenses still to be incurred on equipment to be ordered.	3,00,000.00	3,00,000.00

	Rs.	Rs.
Salary upto Oct. 1965 (including Honorarium) .	64,434.94	64,434.94
Miscellaneous expenses incurred upto Oct., 1965	45,156.25	45,156.25
Water connection charges	2,696.00	2,696.00
Indoor Patient Dept. equipment	770.49	770.49
Purchase of Dead Stock	6,543.70	6,543.70

(Including for the year 1964-65).

INCOME

A. *Donation:*

Balance as per last Balance Sheet ending 31-3-65 .	16,93,665.85	
Received upto 5-10-65	1,40,885.53	
	<u>18,34,551.38</u>	18,34,551.38

B. *Grants :*

Received from Government of Gujerat.	3,00,000.00	
Received from Government of India	3,00,000.00	
	<u>6,00,000.00</u>	
Due for the year from the Government of India .	2,00,000.00	
	<u>8,00,000.00</u>	8,00,000.00

C. *Firm promises due for donation :*

Shri M.P. Shah, Charitable Trust £ 10,000 .	1,33,000.00	
Shri N.S. Shodhan	1,00,000.00	
Shri Kasturbhai Lalbhai	25,000.00	
Shri Indulal D. Shah	37,000.00	
Shri Harilal Harivallabhdas Trust	30,000.00	
Shri Mathuradas Mangaldas Trust	14,000.00	
Rotary Club of Ahmedabad	27,000.00	
Government of India	2,00,000.00	
	<u>5,64,000.00</u>	5,64,000.00

D. *Other Incomes :*

Interest released from Bank	5,727.60	
Membership Fee	560.00	
Charity Show Income	6,510.00	
Miscellaneous Income	676.19	
	<u>13,543.79</u>	13,543.79

STATEMENT No. 3

THE GUJARAT CANCER SOCIETY, NEW CIVIL HOSPITAL COMPOUND,
ASARWA, AHMEDABAD-16

No. CS/1514

September 29, 1965

Dear Sushilabehn,

I did not worry you so far because of emergency and also because Balvabhui had undertaken to finalise the matter with you on 5th October, 1965, when he was to meet you. But, now also he is no more and so I have to worry you.

My hospital is ready to start but now I am in real financial trouble. I have spent Rs. 95,000 towards the staff of medical staff and because many persons in Ahmedabad feel insecure about running of this hospital, and promised donations of Rs. 4,50,000 are not yet received and are awaiting decision about start of the hospital.

In 1962, by a note given to Nawab Mehdi Nawaz Jung, your Ministry had sympathetically agreed to consider giving us 5 lacs of rupees of which we have already received Rs. 3 lacs. If you can urgently send us balance of two lacs of rupees to us, it will help us just now.

I would also appreciate if you will take decision on Paymaster Committee's Report which must have been submitted to you.

I readily do not have money to pay salaries and bills because even promised money is awaiting your grant of 2 lacs and your letter that you will take decision soon.

Everything is set for the hospital to start from 22nd October, if possible. Formal inauguration will wait some time. My S O S letter to you sent earlier was a mild worry compared to what I am facing now.

Please send your reply urgently.

With regards,

Yours sincerely,

(Sd.) Jitender Mehta

General Secretary

Dr. Sushila Nayyar,
Union Health Minister,
Government of India,
New Delhi.

STATEMENT No. 4
 GUJARAT CANCER SOCIETY, AHMEDABAD
 STATEMENT OF ASSETS AND LIABILITIES OF M. P. SHAH CANCER HOSPITAL, AHMEDABAD AS ON 9-10-65

RECEIPTS	Rs.	EXPENDITURE	Rs.
A. Non-Recurring		(A) Non-Recurring	
1. Donations :		1. Buildings :	
(a) Received from various bodies and individuals	18,34,551 38	(a) Expenditure already incurred	13,34,582 29
(b) From promises by various bodies and individuals	3,64,000 00	(b) Expenditure to be incurred on the Construction already carried out and bills received	1,93,310 16
2. Grants :		(c) Expenditure to be incurred on the works which are in progress	1,80,000 00
(c) Grant in aid from Govt. of India	3,00,000 00	(d) Electrical installations	1,70,000 00
(d) Grant in aid from Govt. of Gujarat	3,00,000 00	2. Equipment :	
3. Miscellaneous Income :		(a) Equipment already purchased and paid for	9,10,214 07
(e) Charity Show Income	6,510 00	(b) Equipment received and payment to be made	2,41,678 45
(f) Interest on Bank Balance	5,797 00	(c) Approximate Installation charges for equipment at 4%	84,000 00
(g) Membership fee	560 00	(d) Equipment ordered but bills not received	1,60,000 00
(a) Miscellaneous Income	676 19	(e) Octroi charges on equipment ordered	56,000 00
	28,12,094 57		33,29,784 97
B. Recurring			
(a) Grants :			
1. Government of India	Not Known		
2. State Government . . . . .	..	
3. Municipal Corporation . . . . .	..	
(b) Hospital fees :			
1. Out Patients	Not yet pres- cribed		
2. In Patients . . . . .	..	

Interest on securities and Bank Interest

1. Interest in securities of Rs. 10,000 in Government papers	350-00
2. Bank Interest	Cannot be assessed at present.
<i>c. Membership fees.</i>	
1. Recurring membership fee of Rs. 6 per annum	500 00 (Approximate)
2. Miscellaneous Income	500 00 (Approximate) 1,350 00

B. RECURRING

1. Payment of Establishment per annum for 25 bedded hospital.	**3,00,00 00
<i>2. Contingencies per annum.</i>	
a. Stationery, Postage & Telephones	12,000 00
b. Electric Charges	60,000 00
c. X-Ray	35,000 00
d. Diet to patients	60,000 00
e. Laundry & Sterilization	17,000 00
f. Car & Travelling	12,000 00
Total	4,97,000 00
Deficit	1,350 00
	<hr/> 4,97,650 00

501

NOTE. (1) Proposed expenditure on work under progress does not include expenditure on lifts, Air conditioning and animal House for which an approximate expenditure of Rs. 4,86,000 is expected to be incurred. This proposal is dropped for the present.

(2) At present the provision for furniture has been made for 25 beds.

** (3) This figure is hypothetical and there is scope for reduction by about 25%.

(Sd.) Jitendra Mehta
 General Secretary
 11-10-65
 for The Gujarat Cancer Society

APPENDIX 11

Proceeding of the Meeting of the Cancer Committee held in the Centenary Hall, Madras University on Saturday the 11th and 12th December, 1965.

The following members were present :—

1. Dr. K.N. Rao, D.G.H.S. Government of India, New Delhi . Chairman
2. Dr. J.C. Paymaster, Chief Surgeon and Superintendent, Tata Memorial Hospital, Bombay. Member
3. Dr. T.B. Patel, Director of Medical and Health Services, Gujarat, Ahmedabad Member
4. Dr. B. Mukerji, Director, Chittaranjan National Cancer Research Centre, 37, S.P. Mukerjee Road, Calcutta-26. Member
5. Dr. A.K. Sen, Secretary, Chittaranjan Cancer Hospital, Calcutta. Member
6. Dr. S. Krishnamurthi, Director & Scientific Director, Madras Cancer Institute, Madras-20. Member
7. Dr. S.R. Mukherji, Professor of Experimental Medicine, S. S. K. M. Calcutta, C/99/1, Karaya Road, Calcutta-19. Member
8. Dr. M. J. H. Writer, Asstt. Director General of Health Services, Govt. of India, New Delhi. Member Secretary

Dr. Syed Ali (Hyderabad) was absent and Dr. P. N. Wahi could not attend as he was out of India attending an International Conference at that time.

Dr. Y. Siddique, Director, Barnard Institute of Radiology, General Hospital, Madras 3 was coopted as a member of the Committee in Madras.

Item 1: The Policy of the Government of India.

The Chairman, Dr. K. N. Rao opened the meeting by giving a brief outline of the present position regarding the functional and organisational set-up of the various Cancer Hospitals and Research Centres in the country and indicated in brief the present line of thinking regarding the policy to be adopted by the Government of India for the further development during the last year of the 3rd Five Year Plan and later for further phased development in the 4th Five Year Plan. He recalled that the Committee on Cancer was originally constituted with Dr. Paymaster, Dr. P. N. Wahi, Dr. A. K. Sen and Dr. T. B. Patel as members and himself (Dr. K. N. Rao) as Chairman. Subsequently, in May, 1965, additional members such as Dr. S. Krishnamurthi and Dr. B. Mukerji were included. In June, 1965, Drs. S. R. Mukherjee, Syed Ali and Dr. M. J. H. Writer (Member Secretary) were added to make the committee more broadbased so that an overall picture of the cancer situation in India could be presented to enable the Health Ministry to define a comprehensive uniform policy of development during the fourth plan. In reviewing the present state of affairs in the different Cancer Hospitals in India, Dr. Rao stated that at present the most important

Centre of Cancer activity was the Tata Memorial Hospital and the Indian Cancer Research Centre in Bombay. This was originally started as a voluntary agency by the Tata Trust Group. Later the Hospital and the Research Centre came under the control of a Governing Body under the auspices of the Ministry of Health and recently, the whole complex including the hospital and the Research Centre have been taken over by the Department of Atomic Energy (another department of the Government of India) and was now entirely financed by the Government of India.

The Chittaranjan Cancer Hospital in Calcutta had its origin, again, through the help of a voluntary agency and the Central Government came in to finance the Chittaranjan National Cancer Research Centre which was later set up in the Chittaranjan Cancer Hospital on the model of Tata Memorial Hospital & Indian Cancer Research Centre. The Chittaranjan Cancer Hospital was aided by grants from the Government of West Bengal but the Chittaranjan National Cancer Centre was completely financed by the Government of India.

As far as Madras Cancer Institute was concerned, it was entirely managed by a voluntary Agency aided by grants from the Government of Madras and also by a grant from Government of India for purposes of research.

Regarding the Radium Institute and Cancer Hospital in Hyderabad, it was built by the Indian Conference of Social Work by voluntary contribution and handed over to the Government of Hyderabad, now Govt. of Andhra, and operated in close collaboration with the Institute of Social Sciences and Osmania Medical College.

The Cancer Hospital in Ahmedabad is being developed by the Gujarat Cancer Society, again a voluntary agency which is seeking the support of the Government of Gujarat and also the Government of India. Recently, requests have also come for strengthening the Cancer Programme in Agra, Kanpur, Neyoor (South India) Trivandrum, Delhi etc.

In the Agra Medical College, Department of Pathology, an active diagnostic and research centre has been developed under the leadership of Prof. P. N. Wahi. The ICMR, has placed research enquiries here and several projects on the biology of malignant tumours from their morphological, histological, histo-chemical and cytological angles are being actively pursued. The W.H.O. International Reference Centre for Oropharyngeal tumours and the W.H.O. Epidemiological Research Project and Tumour Registry of Oropharyngeal Tumours are also located here. A number of specialists in Cancer Research are being trained at the Agra Centre.

If the Cancer Committee has to make a worthwhile recommendation to the Govt. of India for any future phased development, this must be framed with an all-India outlook having a bearing on all the Cancer Centres so that some degree of uniformity in their scope and pattern of development could be brought about. The Advisory Committee should therefore consider the possibility of setting-up of Regional Centres for Cancer work in some important areas of the country. In other areas, the starting of 'Cancer Wings' in established Medical College Hospitals and 'Cancer Clinics' in some District Hospitals, etc. may have to be considered. Dr. Rao emphasized that whatever decisions the Committee would like to take, the recommendations should be made applicable for the entire country. The Committee must also be realistic in their approach with particular reference to

facilities and trained personnel available in different Centres as well as the question of limited financial commitments by the Government of India during the 4th Five Year Plan. Concrete proposals with the required details should be made, which will enable the Ministry to implement them immediately, as funds become available in 1966-67.

Dr. Sushila Nayar, Union Health Minister, joined the meeting when Dr. K. N. Rao was nearing the end of his speech. After Dr. Rao completed his talk, the Union Health Minister further elaborated on certain aspects of the Government's policy regarding the proposed development of Cancer Programme during 1966-67 and onwards during the 4th Plan. She wanted the Committee to realise :

- (a) that Cancer is a deadly disease and that considerably more attention should be paid to this problem now than at any other time before.
- (b) thus far, the Health Ministry had been busy trying to solve the problem of infectious and communicable diseases. Fortunately, these are either controlled or are on the way of being eradicated. It is time that concentrated efforts be made towards the problem of cancer, heart diseases etc.
- (c) that cancer control and cancer research are expensive and as such, the Ministry has to utilise its meagre resources to the fullest extent possible at all levels.
- (d) if any progress is to be made, there should be some uniformity of thinking and uniformity of ideas regarding *minimum standards* to be aimed at.
- (e) there should be freedom of mobility between different Centres of cancer work so that staff, scientists and specialists who are so few in the country, can be moved from one Centre to another.
- (f) there should also be *uniform* type of administration with authority which should be competent to move specialist service personnel and research officers from one place to another thereby permitting inter-change and exchange at certain levels. Regarding uniformity of administration, our country had adopted different methods in different cancer centres of Bombay, Calcutta, Madras and others. The three different agencies *e.g.* Central Government, State Government and voluntary bodies are participating independently or jointly to finance cancer research. We should undoubtedly pool all our resources from various agencies mentioned above. It is not possible for only one agency to do justice to such a big and all-pervasive programme. The funds from the Government of India from other bodies must be channelised through *one Central Government Body* in such a way that the development programme is not hampered but is permitted to follow a *set-pattern* which will be beneficial to all the Centres of activity in the country.
- (g) In view of the resources that are required for such an ambitious programme and in view of our own rather scanty budget provision in the 4th Plan, we have to make the best effort by getting the organisation to join in a common endeavour. This will enable maximum benefit to the patient population and also simultaneously improve the research, education and training of specialists necessary to run the programme.

- (h) various long-term and short-term programmes for Cancer Detection will have to be under-taken at different levels in taluk hospitals. District Hospitals, Basic Health Centre, etc. and Technicians will have to be trained for undertaking service activity in the peripheral areas, not ordinarily in the reach of Regional hospitals.
- (i) "foreign exchange will be difficult to obtain from our 4th Plan and therefore we have to look forward to foreign agencies and international Agencies for advice and aid for the development of various aspects of research. Special-types of equipment necessary for radiological and chemotherapeutic research may have to be obtained through aid funds."

The Health Minister, however, felt confident that if the medical and other scientists engaged in the solution of the cancer programme make a concerted effort, it will still be possible for us to get over many of the difficulties and to take a step forward. She desired that this Committee be constituted as a Permanent Advisory Body to function like the ICMR.

Dr. K. N. Rao, Director General, thanked the Health Minister for the valuable advice and guidance and assured her that all the points mentioned by her would be given full consideration and due weightage by the Committee.

Regional Cancer Centres, Management, Function, Organisation, etc.

The Director General asked Dr. Paymaster of the Tata Memorial Hospital, Bombay to describe briefly the present set-up of his Centre and suggest ways and means for the further development of activity at similar Cancer Centres that might be started and developed during 4th Five Year Plan. Dr. Paymaster stated that the Tata Memorial Hospital, Bombay, was started in 1941 and was originally managed and financed by the Dorabji Tata Trust. There was a Governing Body consisting of three members one of whom was a medical man of repute (usually the Surgeon General of Bombay). After 1947 a request was made to the State Government for additional funds and a sum of Rs. 50,000 later augmented to one lakh per year, was also sanctioned. Around 1950, a request was also made to the Central Government for up-grading the laboratory of Tata Memorial Hospital (TMH). This was done in 1952 and the up-graded T.M.H. Laboratory formed the nucleus of the Indian Cancer Research Centre. In 1957, the Health Ministry of India took over the control of the T.M.H. and the I.C.M.R. through separate Boards of Management.

After 1962, the Department of Atomic Energy took over both the ICRC and T.M.H. At present there are two Bodies of Management—one for the I.C.R.C. and another for T.M. Hospital. However, there is a strong move to amalgamate both the institutions and Dr. Paymaster feels that such unnecessary expenditure and duplication of efforts could be prevented by amalgamation of the two Institutions on the same campus. The Hospital has about 150 beds (75% free and the remaining paying) and a very large number of out-patients attend the hospital daily for radiotherapy.

Dr. Krishnamurthi of Madras stated that the Cancer Institute under his control is a voluntary institution and is managed by an Executive Committee consisting of distinguished private citizens. The Government of Madras gives grant towards the maintenance of hospital beds while the Government

of India gives grant for development of research and training programmes of the Institute. Funds are also obtained from many charitably inclined individuals and/or institutions. Dr. Krishnamurthi stated that the 'service part' of the Cancer Institute in Madras could easily be run on its own resources supported by the Government of Madras. Only Research activities are supported by the Government of India grant.

Dr. B. Mukerji of C.N.C.R.C. Calcutta spoke of the present status and function of the Chittaranjan National Cancer Research Centre. In 1951, Government of India indicated a desire to establish an all India Centre for post-graduate training and research on Cancer and allied subjects and executed an Agreement with the Deshbandhu Memorial Trust (DMT) and the authorities of the C.C.H. which Hospital is also vested in the D.M.T. The research projects in operation in the C.C.H. sponsored by C.S.I.R., I.C.M.R. & A.E.C. were taken over to form the nucleus of the Chittaranjan National Cancer Research Centre and the Government of India agreed to bear all the capital and recurring expenditure for the maintenance and development of this Centre. At present this Centre which is entirely devoted to full-time research and training programme, is completely financed by the Government of India. The Institute has a band of well-trained medical and non-medical scientists and its focus of interest is on fundamental and applied aspects of Biology (including cancerology and tumour biology), Biochemistry (including endocrinology), Biophysics (including electron microscopy) and Experimental and Clinical chemotherapy. The research portion follows the broad pattern of the Indian Cancer Research Centre in Bombay with emphasis on Chemotherapy though no problems of study are duplicated in these two organisations.

On being requested, Dr. A. K. Sen, Secretary, Chittaranjan Cancer Hospital, briefly narrated the organisation of the C.C.H. the staff pattern, equipment and the various other facilities available there. The C.C.H. undertakes hospital service for 161 patients, clinical investigations, laboratory diagnostic service, blood bank service, education and training programmes, etc. Originally, during the time of late Dr. Subodh Mitra, first Director, the Chittaranjan Cancer Hospital and the Chittaranjan National Cancer Research Centre, were under one Director. After his death, the management was bifurcated, the C.N.C.R.C. being controlled directly by the Centre and the C.C.H. through a Managing Committee of which he is the Secretary and Chief Executive Officer for more than 2 years from 1961-63 (April), till the appointment of Dr. B. Mukerji, as Director, C.N.C.R.C. he was looking after both C.N.C.R.C. & C.C.H. The C.N.C.R.C. is situated in the same building and is in a position to avail of all the facilities of the C.C.H. and *vice-versa*. Post-graduate courses for M. S. and D. Phil. (Cardiology) are held in this Institutions in intimate collaboration with the Calcutta University under which the institutions are recognised. Refresher course and other educational training programmes are arranged for doctors, nurses, laboratory technicians, etc.

Dr. Sen visualised that in future it would be better to have the two institutions controlled by one autonomous Governing Body with representatives from the Central Government, State Government and the Voluntary Agencies which had supported the Cancer Hospital from the very beginning. No single body—either the Central Government, the State Govt. or the Voluntary agency (C.C.H. management)—can decide on a joint integration without the consent of the other concerned parties.

Summary of recommendations

After considerable discussion in which all members participated and after clarification was obtained on several conflicting issues, the Chairman summarised the broad principles emerging out of the discussion and enunciated the lines of recommendations of the Committee as follows :—

I. Urgency of the Cancer Problem

Incidence and prevalence of cancer constitutes a serious health problem and must be tackled in a comprehensive manner through a multi-pronged collaborative approach by different groups of medical and non-medical scientists and Health Service personnel during the 4th Plan.

II. Need for Regional Cancer Centres

(Regional Oncological Institutes)

The most effective way is to organise the establishment of Regional Cancer Centres under the auspices of the Central Health Ministry in areas where facilities for diagnosis and treatment already exist. Such a Centre must have a coverage of more than one State and should receive Plan assistance and support from the Centre, the participating states and other Voluntary Agencies wherever possible.

To start with the following Regional Centres were recommended for early establishment :

- (i) **North-Eastern Regional Centre** : comprising of West Bengal, Assam, Orissa and Bihar etc.
- (ii) **Western Regional Centre** : comprising of Maharashtra (as one) under the Government of India, Madhya Pradesh, Goa, etc.
- (iii) **North Western Regional Centre** : comprising of Gujerat, Rajasthan, etc.
- (iv) **South-Eastern Regional Centre** : comprising of Madras and Kerala.
- (v) **Central Regional Centre** : comprising of Andhra Pradesh (Hyderabad) and Mysore.
- (vi) **Northern Regional Centre** : comprising of Delhi, Punjab, Jammu and Kashmir, U.P. etc. There may be certain Centres which may not come into the category of the Regional Cancer Centres, for these, Central assistance may be given as and when it becomes necessary but care should be taken that there is no duplication of effort and consequent wastage of talent and funds.

III. Functions of Regional Centres

These are outlined below :

- (i) Diagnosis, Treatment, Follow-up of Cancer patients.
- (ii) Research on fundamental and applied aspects of cancer problem. Dr. Wahi's paper gives the basic background and should be adopted with suitable modifications and variations. Research should aim at both fundamental and applied aspects and should include human and animal biology, cell biology including tissue culture, chemotherapy both experimental and clinical. Training in Medical

biophysics and medical physics including various aspects of radiation therapy and nucleonics, Radioisotopes, etc. will have to be made. This may not be possible in the Regional Centres and cooperation will have to be sought from various established Universities e.g. Calcutta, Madras, Bombay etc.

- (iii) Surveys of cancer morbidity and mortality, etc.
- (iv) Cancer prevention with particular emphasis upon (a) mass examination, (b) health education and (c) industrial hygiene.

(a) Mass examination: Mass examination (site-specific and comprehensive) of early cancer cases or symptom-free cancer cases will have to be taken up in Cancer Detection and Diagnostic Clinics in Urban Hospitals, District Hospitals and later, in Rural Centres. Epidemiology and geographic pathology of cancer incidence will be worked out from such data.

(b) Health Education: Preventive measures are very much linked with health education. Govt. of India has a Health Education Bureau and each State has also a cell of a section dealing with Health Education. These bodies will be asked to help in circulating authoritative information about cancer in urban and rural areas. Much more weightage should be given to cancer propaganda during the Fourth Plan.

(c) Industrial Hygiene: Industrial Hygiene including cigarette smoking can also be taken up for further investigative work. Public health measures can be taken where indicated.

- (v) Training Programmes of Doctors, Nurses, Technicians, Social workers etc.

(a) Doctors: Training of Cancer specialists in Regional Cancer Centres should be planned in collaboration with Medical Colleges and Research Institutes in the region and must aim at reaching a high standard of efficiency, as is obtainable in post-graduate institutions or Universities. Courses of study could be organised, for example for Diploma Courses in Radio-therapy, Surgery and M.D. or Ph.D. in Oncology. Basic qualification would be either M.B.B.S. M.Sc. These specialists will be supported by adequate stipends during the training period.

(b) Nurses: Basic qualification may be Pre-university level with six to twelve months training period.

(c) Technicians: Specialised training should be given to Technicians for X-ray work and for handling costly radio-therapy equipment for 6 months to one year.

(d) Social workers: Special training in bio-statistics for these people may be necessary. This is very important for epidemiological study and will be in the nature of post-graduate training to already qualified Social workers.

- (vi) Any other allied functions, as indicated from time to time by their Governing Bodies, to be set up for the purpose.

IV Finance

Regional Cancer Centres should draw their finances from three sources (1) Centre, (2) State and (3) Voluntary agencies and private bodies. The States which do not have adequate cancer treatment facilities should be encouraged to participate in this programme through suitable contributions and by sending a Representative to serve on the Governing Body of the R.C.Ss. The funds should be operated through one Autonomous Controlling

Authority (G.B.). Assistance from the Centre would be progressively more and more as their activities expand. Aid in the shape of foreign exchange, equipment, apparatus, etc. should be sought from International Agencies through the Health Ministry of the Government of India (not directly).

V. Management

(a) *Governing Body* : There should be one representative Governing Body consisting of about 9 to 11 members under the aegis of the Central Health Ministry. This will enable the Governing Body to operate the above State level and coordinate the activities of the various Regional Centres on an all-India pattern.

Chairman : The Chairman should be either the Union Health Minister or the Union Health Secretary or a scientist of international calibre nominated by the Ministry of Health. Chairman will be for 5-10 years till the Regional Cancer Centres are organised in a comprehensive manner.

Membership

Central Govt. 3.—

- 1 Director General of Health Services, Govt. of India, New Delhi.
- 1 Financial Adviser, Govt. of India, Ministry of Health, New Delhi.

State Govt. 3.—

- 1 One prominent scientist in the cancer field to be nominated by the Govt. of India.
- | | | |
|--|---|---|
| State Health Ministers
or
State Health Secretaries.
or
Directors of Health Services. | } | Number can be adjusted depending on participating States. |
|--|---|---|

Voluntary Agencies 2.—

- 2 To be nominated or elected from the respective bodies offering grants to the Regional Centres.

Member-Secretary 1—

- 1 Director of Regional Centre would be the Member-Secretary of the G.B. of R.C.Cs.

TOTAL 9

Two members could be coopted whenever necessary.

(b) *Director* : The Director of the Regional Cancer Centre will be a Senior Medical Scientist with high professional qualifications and mature research experience and leadership. He will be a full-time paid worker of the Regional Cancer Centre.

VI. Optimum size of the Hospital attached to Regional Cancer Centre

It was generally agreed to have a bed strength of 250 in this Regional Centres which will have a staffing pattern given in the report of Dr. A. K. Sen for a 200 bedded Hospital proposed in the expansion programme of the Chittaranjan Cancer Hospital in 1966.

Item 2 : The present position with reference to the Shri M. P. Shah Cancer Hospital, Ahmedabad.

The Chairman called the attention of the members to a copy of the Proceedings of a meeting held under his Chairmanship at Patiala House, New Delhi on 7th October, 1965 (Appendix 10) (Proceedings already circulated) in which Dr. T. B. Patel and Prof. P. N. Wahi and Dr. M.J.H. Writer were present along with four other members from the Secretariat of the Health Ministry. Dr. Writer explained that the Finance Department might agree to a grant of Rs. 2 lakhs asked for by Gujerat Society for the current year 1965-66. The stipulation is that the State Government will take over the Hospital immediately afterwards.

The Chairman stated that during the 3rd Plan period an amount of Rs. 5 lakhs were promised by the Government of India for assistance to the Shri M. P. Shah Cancer Hospital, Ahmedabad. Of these promised amount Rs. 2 lakhs had already been paid and another Rs. 2 lakhs has been recommended as a commitment by the Union Minister this year. This Committee had also studied the reports of both Dr. Paymaster and Prof. Wahi with regard to the phased development of this Institution. As certain grants-in-aid have already been sanctioned for the Ahmedabad Hospital, the Government of India may now form a Governing Body for the Shri M. P. Shah Cancer Hospital, Ahmedabad, on the proposed pattern already laid down for other Cancer Centres in the country. The Governing Body will run the hospital with the aid from the Gujerat Government and in close coordination with the Gujerat Medical College in the campus of which it is located. The next step would be the establishment of a Research Centre in this building with the full support of the Ministry of Health as has been done in Calcutta for the Chittaranjan National Cancer Research Centre.

Item 3 : The letter from the West Bengal Government for discussion.

Dr. Writer was asked to read an extract from the letter of the West Bengal Government in which a suggestion was made for the formation of a common Governing Body for running both the Cancer Hospital and the Research Centre. As this is now accepted by the committee no further action is called for.

Dr. S. R. Mukherjee suggested that facilities available at the Radiotherapy Department in the Calcutta Medical College should be utilised, if and when Eastern Regional Cancer Research Centre comes into existence. The Chairman stated that the Governing Body which will be constituted for the Regional Centre, would have power to deal with all matters, according to the needs of any particular area. This Governing Body will also decide whether in addition to the Regional Centre, a specialised Cancer Wing could be established in any large General Hospital attached to a Medical College.

Item 4 : Para-Psychological treatment of Cancer.

DGHS letter No. 16-45/65-MIV pertaining to the question of para-psychological treatment of Cancer, suggested by one, Shri Taluker was then taken. Dr. Krishnamurthi opined that the suggestion appears to have no scientific basis and no consideration can be given to such a letter. The members of the Committee agreed with this view.

Item 5 : The present position of the Hospitals visited.

The Committee noted the various Reports and Memoranda submitted by the Directors and Medical Superintendents of the various Hospitals and made a review of :

- (a) their expansion programmes with costs,

- (b) the staff position with present pays and allowances and grades,
- (c) equipment position and whether they have any from the USAID not utilised and the reasons thereof,
- (d) laboratories and progress achieved,
- (e) training being done, the number trained so far against each category of personnel and the number qualified,
- (f) research done if any.

The Chairman requested the members of the Cancer Committee to study these carefully and evolve a suitable budgetary estimate for the Regional Cancer Centres and the pattern of grants-in-aid that could be given to other hospitals etc. interested in developing Cancer Wings and other ancillary facilities for Cancer diagnosis, treatment etc.

At this stage, Dr. Y. Siddique of the Barnard Institute of Radiology, Madras, gave a brief history of the up-graded post-graduate teaching and research section of the Barnard Institute of Radiology. He indicated that this Institute was operating as a self-contained Cancer Treatment and Training Centre with all specialised units such as, radiology, radio-therapy, physio-therapy, etc. It was also holding courses for post-graduates training in D.M.R. and D.M.R.D. and in addition, it has facilities for laboratory studies in biochemistry, radio-isotopes, etc. With suitable strengthening in certain areas of research, this Institute could be easily considered for acceptance as a Regional Cancer Centre in the South-Eastern Zone (Madras).

Item No. 6: Dates to be arranged for the Members to visit other Hospitals and Institutes as desired by the Health Minister.

Other Hospitals and Institutes such as,

- (a) J & K Hospital, Kanpur.
- (b) S.M.S. Medical College & Hospital, Agra.
- (c) Medical College, Trivandrum.
- (d) Mission Hospital, Neyyoor.
- (e) Safdarjang Hospital, New Delhi.

The Chairman said that the visits would be taken up at a later date. As desired by the Union Health Minister, the Committee was not dissolving itself at the end of this meeting but will constitute itself as a Permanent Committee to the Health Ministry. The tour programme could be organised at a later date convenient to the members.

Item No. 7: (a) The bringing out of a booklet on 'Cancer' for the lay public on the basis of suggestions by Members. Any such already published could be guides for this work.

The members of the Advisory Panel suggested that a pamphlet or a booklet for the lay public outlining the various important facts of causation and incident of cancer should be brought about in Regional language to serve as a guide to the health education in different parts of the country. Dr. Krishnamurthi said that Dr. Khanolkar had already written a book in English on the subject. Dr. Paymaster said that attempts are now being made by him to write another booklet entitled 'Some facts About Cancer'. This will also be translated in Marathi and Gujrathi.

The Chairman asked Dr. Writer to get copies of these books from Dr. Paymaster and see if it could be translated in other regional languages. Dr. B. Mukerji said that if this is available, he could easily translate into Bengali and get a good Hindi translation of it also done through his friends.

(b) **Publication of the DGHS Pamphlet 'Specialised Treatment Centres in India' to be brought up-to-date:** In the question of publication of DGHS pamphlets on Specialised treatment Centres in India, the Chairman desired that necessary data be obtained and this pamphlet be brought up-to-date as soon as possible.

Item No. 8: Letter from the Medical Superintendent, Safdarjung Hospital in Delhi.

The letter had been circulated and the opinion of some members had already been received. Dr. Krishnamurthi did not favour the idea of making a Cancer Wing of a General Hospital as a Regional Oncological Institute at Delhi, as certain facilities are still lacking there. He said that the Regional Oncological Institute for the Northern region could be located in the campus of the Safdarjung Hospital but could not be just a wing of the Hospital. However, other members felt that the present Cancer Wing in Delhi Safdarjung Hospital could serve as a nucleus for a full-fledged Regional Centre soon. The Chairman pointed out that the Government of India had already spent some money on this and it would be helpful if such a Centre is created in Delhi to cater for the needs of Delhi area, Punjab, Himachal Pradesh, and also for U.P.

Item No. 9: Finalisation of the Report of the Cancer Committee on the setting up of the Regional Cancer Hospitals.

This has been taken up and will be completed soon.

Item No. 10: Any other item with the permission of the Chair.

Pursuant to the suggestion already made by the Health Minister in her speech before the Committee meeting that morning it was unanimously recommended that a permanent Committee on Cancer be constituted directly under the Ministry of Health during the 4th Plan period, consisting of the present members.

Morning Session ended at 12.45 P.M.

Another Session was held on the afternoon of the 11th December. On the morning of 12-1-65 Dr. K. N. Rao acted as Chairman for sometime. Later with Dr. T. B. Patel as Chairman the following further observations and recommendations were recorded:

1. Discussions were held for the research, training and staffing patterns of the Regional Cancer Centres during the IV Five Year Plan. After a general discussion it was unanimously agreed that the basis should be on the general pattern recommended by the W.H.O. It was also decided that the Regional Centres could be strengthened where necessary to suit the local requirements. Dr. S. R. Mukherjee wanted that the Medical Physics teaching and in training programmes in India should be developed further, as we were very much backward in this particular field.

2. **Bed strength:** It was unanimously resolved that the bed strength for each Regional Centre should be 250. It was also agreed that the General Hospitals should be encouraged to 'have Cancer Wings'. The Regional

Centres should also provide 'Convalescent Homes' and 'Rehabilitation Centres' for cancer patients. Specialists in the field of surgery or Radiotherapy or chemotherapy could work in such institution in collaboration with neighbouring hospitals, as far as possible.

3. Department : Dr. Krishnamurthy wanted separated departments for Radiotherapy and Radio-diagnosis. The Chairman and members however felt that both these departments can function under one division, so that the two departments can function as an integrated whole.

4. Specialities :

- (a) Medical and Biophysics; Chemotherapy including hormones. Experimental and Clinical Chemotherapy should be encouraged.
- (b) Rehabilitation including Physiotherapy, Occupational therapy and prosthetic training.
- (c) Pathology and blood bank.
- (d) Record keeping and Follow up.
- (e) Dr. Krishnamurthy wanted that tumour registration should be with adequate statistical service hospital tumour registry and demographic tumour registry. This was agreed to by the Committee.
- (f) Ancillary requirements.
- (g) Social Service—Patient care programme.

5. Cancer Control Programme : Dr. Krishnamurthy stated that he had submitted a project for screening of a population of 100,000 at the instance of W.H.O. This would cost around Rs. 10 lakhs. A screening programme for the entire population in the country would not be possible at this stage when diagnostic and therapeutic treatment has not been established on sufficient basis in the country. Dr. Paymaster also endorsed this view. It was therefore felt that a large scale cancer control programme should be undertaken only when adequate facilities are available for early diagnosis and treatment.

6. Staffing pattern : Dr. Sen's pattern for a 200 bedded hospital was approved as the minimum for a 250 bedded hospital, and this could be suitably modified to meet the local necessities.

7. Pay and allowances : The Committee unanimously agreed that the C.H.S. or any other current Central scales of pay and allowances and service conditions may apply to the staff of the Regional Centres.

8. Training : The Committee after discussion recommended that Government should write to the Universities to recognise the Centres for post-graduate training and degrees or diplomas may be given in Oncology. Oncology should also be included as a special subject for M.D., M.S., M.O. etc. in all Universities of India, and the Govt. of India should make arrangements for this with the Medical Council. Orientation courses should be arranged for nurses and technicians, and refresher courses for medical practitioners

APPENDIX 12

Commission on Cancer control
 Committee on Patient Care and
 Committee on Professional Education.

.....
 Country

QUESTIONNAIRE ON FACILITIES FOR THE DIAGNOSIS, TREATMENT AND CLINICAL TRAINING IN CANCER THROUGHOUT THE WORLD

1. Name and location of institution reporting
2. Is the institution supported by the Federal Government/the State/the University or a private/non-profit, organization?
3. Is the institution affiliated with a medical school? . . . Yes/No
 Name of the medical school
4. Is the institution for private patients only/ for charity patients or both?
5. Number of beds in the institution allocated for the clinical management of cancer patients.
6. Is the institution exclusively devoted to neoplastic diseases? Yes/No
7. Is there a separate ward, service or wing for cancer patients? . Yes/No
8. Is there a Cancer Committee or Tumour Board of the Hospital staff? Yes/No
9. Is there a cancer detection centre connected with the institution? Yes/No
10. Activities of the Department—
 - (a) *Surgery*: Number of doctors in the Department available . . . Full time
 - for teaching Part time.....
 - Number of residents
 - Duration of residency
 - Number of operations for benign and malignant tumours in 1963 (include major and minor)
 - Number of operating rooms
 - (b) *Radiotherapy* : Number of doctors in the Department . . . Full time
 - available for teaching Part time
 - Number of residents
 - Duration of residency
 - Number of new cancer patients treated in 1963
 - Total number of applications of radiation
 - Number and types of radiation machines
 - Isotope facilities Yes No
 - Total amount of radium element available
 - Department of Physics Yes/No
 - Dosimeters and individual protection System : Yes/No
 - Number of consultations in out-patient Deptt. in 1963

(c) *Cancer Chemotherapy:*

Drugs available (list)

Type of treatments :

Systemic Yes/No
 Adjuvant to surgery or radiation Yes/No
 Perfusion Yes/No
 Infusion Yes/No

(d) *Internal Medicine :*

No. of doctors in the department available for teaching . Full time
 Part time
 No. of residents
 Duration of residency
 No. of new patients treated in department in 1963
 Are surgical patients medically screened before Surgery? . Yes/No
 Approximate number of lymphomas and leukemias in 1963

(e) *Pathology :*

Number of Pathologists Full time
 Part time
 Number of residents
 Duration of residency
 Autopsies—percentage of total deaths per year
 Frozen section facilities Yes/No
 Photograph and photomicrography Yes/No
 Electron Microscopy Yes/No

(f) *Cytology :*

- Number of Cytologists, if any
10. Are there special rehabilitation facilities? Yes/No
 11. Is there follow-up after discharge from hospital? Yes/No
 Percentage of patients followed-up
 12. Is there a cancer registry? Yes/No
 13. Are statistical data on end-results of treatment summarized yearly? Yes/No
 14. Is the TNM Staging Classification of Cancer patients used? . Yes/No
 15. Is there a home visitor service for care of cancer patients? . Yes/No
 16. Are there social service organizations for cancer patients? . Yes/No
 17. Are there volunteer activities in connection with services to cancer patients? Yes/No
 18. Is diagnosis concealed from patients suffering from cancer? Yes/No
 19. How many residents have been specifically trained to treat cancer in the institution since its functions?
 20. Are there opportunities for training foreign doctors in cancer? Yes/No
 How many foreign doctors have been trained?
 21. What are the professional qualifications required for resident candidates?
 22. What is the salary of residents?

23. How is the teaching performed—
- Lectures
 - Case Presentation
 - Clinical-Pathologist discussions
 - Other techniques
24. Does the institution issue its own publication?
25. What is the editorial policy governing acceptance of papers for publication?
- Circulation?
26. Is experimental research carried out in the institution? Yes/No
27. Is there a medical library in the institution? Yes No
- Number of books
 - Number of periodicals
28. If an institutional organizational chart is available please forward with this report.
29. Is the institution exclusively devoted to neoplastic disease?
30. Is the institution equipped or likely to be equipped for treatment of convalent cases (a short note may be attached)
31. Is the institution having a rehabilitation unit or likely to have a rehabilitation unit in the near future? (a short note may be attached).
- Name (Director or Officer Incharge)..... Institution
- Date..... (Address)

The members of the Cancer Committee were requested to give their views on the Institutions visited with special reference to their specialities. They are given in Appendices 13, 14, 15.

- Prof. P.N. Wahi (Appendix 13)**
1. Chittaranjan National Cancer Research Centre, Calcutta.
 2. Institute of Post-graduate Medical Education & Research, Calcutta.
 3. Calcutta Medical College, Calcutta.
 4. Cancer Institute, Madras.
 5. Bernard Institute of Radiology, Madras.
- Dr. Amiya K. Sen (Appendix 14)**
1. Cancer Hospitals, their set up, staff & equipment. Part I & Part II.
 2. Cancer Institute, Madras.
- Dr. S. Krishnamurthi (Appendix 15)**
1. Cancer Institute, Madras.
 2. Chittarajan & Cancer Hospital, Calcutta.
 3. Radium Institute Cancer Hospital, Hyderabad.
 4. Cancer Institute, Ahmedabad.
 5. Outline of Cancer Organisation in India, Part I
Regional Oncological Institute, Part II.

APPENDIX 13
STATEMENT NO. 1

Prof. P. N. Wahi,
Principal,
Agra Medical College, Agra.

Chittaranjan National Cancer Research Centre

The Chittaranjan National Cancer Research Centre, Calcutta, was a wing created in 1957 in the Chittaranjan Cancer Hospital and was for a while receiving financial support from the Atomic Energy Commission, and the Indian Council of Medical Research. Up-till now the Research centre has rather been functioning on a small scale, though one is struck with the research potentiality of this centre, with several promising workers on its staff.

The centre has the following research units :

- (1) Cell biology
- (2) Biophysics
- (3) Biochemistry
- (4) Experimental carcinology, mainly experimental leukaemia
- (5) Tumour virology
- (6) Endocrinology
- (7) Chemotherapy

The section on cell biology is under Dr. P. Dey who is a competent research worker. He had his early training with Prof. T.O. Casperson at Stockholm. His work on cytochemistry has started attracting attention. The laboratory has some of the modern equipments (i.e. Ultra Violet Microspectrophotometer and Interference Microscope).

The section on biophysics is under Shri K. L. Bhattacharya, a physicist from the Calcutta University. He is well-versed in electron microscopy, and diagnostic and therapeutic aspects of X-Rays and deep therapy. He, together with Dr. Dey, is also recognised by the Calcutta University as guides for Ph.D thesis. This laboratory also is engaged on radio-biology studies including auto-radiographic techniques.

This laboratory has also made important contributions to the studies on the uses of radio isotopes both in cancer research and cancer therapy. The centre also has a Siemen's electron microscope installed in 1961 in the laboratory of biophysics.

The staff handling this microscope have been trained at the Siemen's factory and at the Gustav-Roussy Institute in Paris. The microscope has been recently installed in a properly air-conditioned room. It is suggested

that this laboratory could be utilised as a training centre for the studies with the electron microscope. Further expansion of the laboratory of biophysics both physically and in personnel would be desirable.

The laboratory of biochemistry is doing some very useful function and the centre has a very well trained biochemist in charge of the laboratory. The laboratory needs much expansion both towards the equipment as well as the space if it has to function as a research laboratory of a national cancer centre. If in future it is envisaged to undertake work on experimental carcinology and experiments on clinical chemotherapy, a well equipped and well-stalled biochemical laboratory is very essential. The present biochemist is principally interested in research and is working on various aspects of nucleic acid metabolism. A good organic chemist is also a necessary component of such a laboratory. Provision should be made for one.

The section on experimental carcinology has done limited work in the field of experimental leukaemia. This was started due to the interest of the late Dr. Subodh Mitra in the induction of leukaemia by ionising radiation. Later, Dr. Santosh Mitra one of the workers in the laboratory was deputed to work with Dr. Schwartz in Chicago and on his return he is working on mouse viral leukaemia. The studies have been very interesting and the work is being continued at present towards the induction of leukaemia on C57BL mice by whole-body radiation, and an attempt is being made to establish a leukaemagenic agent by serial passages of the cell free filtrates and extracts of pooled organs of leukaemic mice. The laboratory has maintained in Swiss mice and in strain A Schwartz leukaemic tumour. The laboratory is now trying a new technic for chromosome study. Dr. S. Mondal, the chief worker in the section of experimental carcinology, has recently returned from the Institute Gustav Roussy France and is devoting himself to the development of animal colony for cancer research. This should form the starting point of the newly conceived research programme of the centre i.e. studies on experimental and clinical chemo-therapy.

The section on tumour virology and tissue culture is being organised under Dr. Mrs. J. Roy Chowdhry who was trained at Sloan-Kettering Institute for Cancer Research in New York. The main line of work at present is the study of the oncogenic effect of the cell free filtrates of human malignant tumours on experimental animals.

The section on Endocrinology is under Dr. Mrs. P. Choudhry, but the work has been mostly confined to the diagnostic and therapeutic aspects of cancer. No basic problems have been tackled. This section needs reorganisation and strengthening in order to undertake basic fundamental studies on growth metabolism.

The section on chemotherapy is in the process of organisation. Dr. B. Mukerji, before joining, was the Director of the Central Drugs Research Institute, Lucknow and is naturally interested in the development of this aspect of cancer control. Cancer chemotherapy is attracting the attention all over the world in the various cancer institutions and already is forming an important part of the therapeutic programme in combination with radio therapy and surgery or in some countries even by itself. The next decade is going to hear more about this therapy and it is but essential that this should be developed at this centre. Two officers belonging to this section are under training in America, and two pool officers have recently joined. The Director expects that as soon as the animal house is properly organised

with the different strains of experimental animals, he would be able to carry out intensive research studies in this field both from clinical as well as laboratory aspects. The recently organised Ruplal Nundy Memorial Field Research Centre at Chandanagore could have its activity channelised towards the particular aspect of cancer research. It would be useful if this centre is developed both as a centre for experimental research in chemotherapy in animals and also as a centre for the treatment of cancer patients by chemotherapy. Provision for beds already exists and patients requiring chemo-therapy as decided by the joint consultation of the oncologist surgeon, radio-therapist, pathologist and the research Director could be admitted at this hospital for trial treatment under controlled laboratory investigations. The Committee would go a step further to recommend that the major research activity of the cancer research centre at Chittaranjan Cancer Research Centre may be directed towards chemotherapy and a team of research workers drawn from bio-chemistry original Pathology, experimental oncology tumour virology and oriented towards the study of drugs could make a useful contribution to cancer research in this country. The Centre immediately needs a modern air-condition animal house to undertake the above programme.

Geographic pathology: The Centre has practically no programme for the study of geographic pathology of cancer. The epidemiological study of cancer particularly the cancer which is the commonest in that area is well recognised as making an important contribution to the understanding of etiologic basis of the tumour. The two important cancers which form the major malignant tumours in this area are oral and oro-pharyngeal cancers and cancers of the uterine cervix. It would be desirable that this centre organises a unit of geographic pathology to study the various human factors likely to contribute towards the endemicity of these tumours in this area. It naturally follows that to make this programme successful, the centre should organise a Tumour Registry with peripheral registries working in rural areas with the interviewing officers located at the various neighbouring community development block hospitals.

Cancer diagnostic clinics & Population screening Programme: There is at present no programme of population screening. For a cancer centre like this it is essential that a fully developed programme should be organised not only to give a free diagnostic service to the people in the area but also to implement a mass screening programme. The use of smears for that study of exfoliated cells is a recognised method of such a screening programme. This is cheap and patients and the population do not mind subjecting to such an investigative procedure. Of course, it requires the services of a trained cytologist and also trained cytotechnicians. The Committee feels that to start with, a diagnostic centre should be located both at the Calcutta Institute and the Chandernagore centre where the cytological diagnosis should be available for the cancers of the viscera which are not approachable by the naked eye, e.g., examination of vaginal smears for the detection of cancer of the female genital tract, sputum for the detection of lung and bronchogenic cancer, urine for the detection of cancer of the urinary tract and gastric aspirates for gastric carcinomas. The mass screening programme may be confined to the site screening and to start with as a first phase of this programme cancer of the female genital tract by screening women above the age of 14 and who are married may be taken up. However, the Committee cautions that such a programme should not be taken up unless well trained cyto-technicians and cyto-pathologist are available.

STATEMENT NO. 2

The Institute of Post-graduate Medical Education, Calcutta

The Committee visited this institute and had a long profitable discussion with the Director, Dr. Mukerji from the point of view of developing this institute as working in close collaboration with the regional centre from therapy and research. The Committee strongly feels that at this stage every effort should be made to help develop the already existing institutions to give therapeutic service to as big a population as possible. The post-graduate institute has very well trained surgeons and the equipment for neuro-surgery, thoracic surgery, urogenital surgery and plastic surgery. The department of pathology of the institute is very well staged and equipped, and together with the laboratories of microbiology and virology can be very usefully utilised for cancer research.

STATEMENT NO. 3

Medical College, Calcutta

The Committee visited the Medical College, Calcutta and had a long discussion with the Dean Dr. Sarbadhikari. It visited the departments of radio-therapy and radio-diagnosis. The departments are well equipped to give all types of radio therapy including Cobalt 60. The Committee feels that this Department needs strengthening for an up-to-date record keeping. Besides, it was also informed that the sections of general surgical oncology could be also developed at this institution. The institution would then need a building for 80 beds. The department of basic sciences would give the necessary investigative services. The personnel and the equipment will be provided by the Institution.

STATEMENT NO. 4

Cancer Institute, Madras

The Cancer Institute at Madras is a well developed Institute both for therapy as well as research. The Committee was extremely impressed by the well organised set up and the way in which efforts are made in recent years to organise laboratories with the dual function of giving investigative services to the patients and affording research facilities. The Institute has been recently recognised by the Madras University for post-graduate studies in oncology and the students for the Ph.D can take up any aspect of oncology to present their thesis. The laboratories are :—

- (1) biochemistry including radiation biochemistry.
- (2) biology including histo-pathology, cytology, experimental oncology and clinical pathology.
- (3) radiation physics.
- (4) chemotherapy.

Biochemistry Section

The biochemistry section comprises :—

- (a) biochemical laboratory
- (b) radio biochemical laboratory
- (c) counting chamber.

The laboratories are well equipped. The staff is enthusiastic and is engaged in research projects. They are studying the effort of chelating agents on the biological distribution Cobalt 60, the metabolic fate of lipids and lipid proteins in normal and neoplastic tissues and collagen metabolism especially the relationship of the collagen content to the stromal interference in radio response of squamous cells carcinoma. An effort is being made to find suitable methods to dissolve collagen mass and are carrying on studies on I.F. mice. The work on steroid metabolism especially its relationship with the cancer of the cervix is also being carried on. The laboratory also is interested in the study of blood chemistry patterns in cancer cases.

Biology Section

The laboratories of biology include the group of histopathology, cytology, experimental oncology and clinical pathology. These laboratories have been organised to meet the investigative needs of the Institute, but would require substantial expansion both from the point of view of space as well as personnel and equipment if the institute is to function as a regional research centre. The institute immediately needs a well trained histopathologist to give the necessary Pathology and frozen section service to the patients. Similarly there is no laboratory of cytology. The committee feels that a diagnostic laboratory of exfoliative cytology for the diagnosis of cancer of the visera not easily approachable to the naked eye, i.e. vaginal smears for the cancer of the female genital tract, urine, for the cancers of urinary tract, sputum for the cancers of the lung and bronchial tree and gastric aspirates for the cancer of the stomach etc., should be provided. Such an investigative laboratory has become a 'Must' for any cancer institute and would be very desirable addition to this Institute with the appointment of a well trained cyto-pathologist and cyto-technicians. The clinical-pathology laboratory is also functioning as a purely investigative laboratory and should be strengthened by the appointment of a haematologist for researches in leukaemia. The laboratory of experimental oncology also needs strengthening with the appointment of an experimental oncologist and organic chemist, in order to carry on the work especially on the cancers of oro-pharynx and uterine cervix and the study of various carcinogenic changes as possible psychological. These are the common tumours in this part of the country.

Radio Physics

The Section of radio-biophysics is one of the best organised units of this centre. This section has the main laboratory, workshop, the mould room, the dark room and micro-radiography. The laboratory is well equipped and has various equipment like Radiation calibrating equipment (1) Dosimeters.

- (i) Victoren-r-meter with condenser chamber.
- (ii) Ionx ionisationmeter for measuring dose or dose rates from 3 r to 1000 r.
- (iii) Sieman's universal dosimeter with soft radiation chambers, phantom chambers, cup chambers, condenser chambers, Probe chambers, Thimble probe chambers, half value layer meter and radium standard.
- (iv) Scintillation dose rate meter with Sr-90 standard for measuring intracavitary dose and exploration of radiation field near radio active sources.

- (2) Film densitometer with photometer for film dosimetry measurements.
- (3) Phillips scintillation counter with scale, ratemeter, timer and H. V. supply.
Well type crystal and flat crystal with total uptake collimeter and scanning collimeter. Headcastle-assembly, G. M. counters, planchet counting of sources.
- (4) Ekko automatic scaler & pulse-height analyser with scintillation counter.
- (5) Testing equipment, Avo Meter, cathode ray oscillograph.
- (6) Tissue equivalent rubber sheets.
- (7) Counter projector.
- (8) Wedge filters.
- (9) Compact micro radiographic unit.

The Committee was very much impressed by the close co-operation of the laboratory and the therapeutic activities of the centre. This Centre was able to design a telecurie therapy machine which was later fabricated by the Atomic Energy Commission with the grant of aid from A.E.E.T. This laboratory gives an ideal example of a combination of research—fundamental in nature—as applied to clinical medicine. Some of the projects undertaken by this laboratory are :—

- (1) Design of a telecaesium head.
- (2) The distribution of radiation dose within body cavities such as thorax, pelvis, head and neck as compared to stationary and rotation beam therapy using isodose curves obtained with a standard phantom. Wherever the patient differs from the ideal phantom, correction factors are applied. (e.g. air cavities, oblique incidence) a typical fields and wedged fields are being used.
- (3) Intracavitary measurements are done using ionisation chambers following implication of radium and other radio-active sources.
- (4) Physical measurements on X-Ray, Co. 60 and Cs-137 Units such as outputs half value layer, depth-dose curves, isodose curves etc.
- (5) Film dosimetry using tissue equivalent material is being studied with special reference to wedge lifters; wedge filters have been designed, constructed and are used in pharyngeal and antral-carcinomas.
- (6) For accurate beam direction in the case of radium mould therapy and ipsilateral fields therapy—moulds of the patients are done.
- (7) Radio-active iodine is used in the diagnosis of thyroid disease and treatment of thyroid cancer and hyperthyroidism. Radio-active gold in colloidal form is used in malignant effusions and intra-tumoral infiltrations. The standardisation, safe storage, measurements of the activities to the particular organ are done in the department.
- (8) Radium handling includes leak testing, reconstruction of implements and dosage computation.

- (9) Micro radiographic studies of oral cancer samples were carried out using X-Rays.
- (10) The R.B.E. of various degrees of fractionation of dose with overall tissue dose remaining constant were studied using walter rate.
- (11) Design and construction of special wedge filters, compensators, measurement of exit doses are to be taken up shortly.
- (12) Total body scanning for distant metastases.—localised scanning to determine accurately the distribution of isotopes, renal function studies, cardiac output etc. are to be done when a scanner becomes available.

Chemotherapy

The laboratory of chemotherapy is mainly developed for clinical service, and the various drugs that have been used are :

Degranol
 Thiotepe
 Azetepa
 Methotrexate
 S. P. G.
 S. P. I.
 6 M. P.
 T. E. M.
 Actinomycin-D
 Endoxan

S F. W.
 Vin biostine
 Vin crystin
 Trenimar

Apart from the conventional uses of these drugs in the palliative therapy of leukaemias and lymphomas special projects in curative therapy have also been undertaken either in the form of original therapy or radio-sensitisation.

There is no unit of experimental chemo-therapy. The Committee feels that this should be developed especially as they have a well provided animal/colony.

Microbiology & Tissue Culture Laboratories

There is no well organised laboratory on microbiology and tissue culture and any regional cancer centre should have these laboratories for cancer research.

Genetics and Biostatistics

A laboratory of genetics and biostatistics should also be organised. The committee feels that in order to upgrade this as a regional centre for research the following would be necessary :

- (1) Expansion of the pathology laboratories.
- (2) Provision of diagnostic cytology, laboratory and institution of mass screening programme.
- (3) Provision laboratories of micro biology and tissue culture and section of genetics.
- (4) Enlargement of the bio-physical laboratory.
- (5) A modern central air conditioning animal house.
- (6) Section on experimental chemo-therapy.
- (7) Experimental radiation station with high beams.

It is suggested that a new cancer research building providing all these laboratories could be usefully added to make this really function as a regional research centre on cancer.

Geographic Pathology Cancer Detection Clinic & Mass Screening Problems

The centre has practically no programme for the study of geographic pathology of cancer. The epidemiological study of the cancer particularly the cancer which is the commonest in this area is well recognised as making an important contribution to the understanding of etiologic basis of the tumour. The two important cancers which form the major malignant tumours in this area are oral and oro-pharyngeal cancer and cancer of the uterine cervix. It would be desirable that this centre organises a unit of geographic pathology to study the various factors likely to contribute towards the endemicity of these tumours in this area. It naturally follows that to make this programme successful the centre should organise a tumour registry with peripheral registries working in rural areas with the interviewing officers located at the various neighbouring community development block hospitals. Simultaneous institution of a population screening programme for a cancer of uterin cervix and examination of graffinal smears for exfoliated cells would also be helpful to easy detection of such cases of these promising, a cent per cent cure.

Radiation beam research Unit

This unit has a fair supply of different type of radiation services like X-Ray, Co-60, Cs 137, Radium and A U. 198, I 131, P 32 etc. Much research work has been done with chemical sensitisation which have significantly improved the cure rate in oral and cervical cancers. Factors deciding radio-resistance have also been elucidated and experiments to overcome these factors are underway. It is however desirable to enlarge these facilities of this Unit by adding electron and neutron services.

STATEMENT NO. 5

Barnard Institute of Radiology, Madras

The Committee visited the Barnard Institute of Radiology and was impressed by the extensive radio therapy facilities, available at this Institute. The institute is already upgraded by the Government of India and as such can continue to be a centre for radiotherapy without further help.

Women & Children Hospital and the Upgraded Department of Obstetrics and Gynaecology.

The committee visited this hospital and had discussions with Dr. Francis and Dr. Menon. There is no particular research work being done in any of these hospitals. The committee feels that the upgraded department could certainly be utilised for research and recommends that the research on epidemiology of cancer of the uterine cervix could be undertaken.

A cancer diagnostic clinic for the cancers of the female genital tract and breast, should be organised and a mass screening programme for women for the cancer of female genital tract should also be instituted. The department is upgraded and the Committee feels that the above activities should form a normal feature of upgraded department.

APPENDIX 14

STATEMENT NO. 1

REPORT ON MADRAS CANCER INSTITUTE

by

Dr. A. K. Sen, Secretary, Chittaranjan Cancer Hospital, Calcutta

The Committee visited the Cancer Institute on 19-6-65, and were glad to find a well-equipped hospital with arrangements and facilities for diagnosis, treatment, follow-up and certain aspects of clinical research.

Today, Cancer is a great killer and a nation-wide effort is necessary to fight this enemy in an efficient and coordinated way. If different institutions grow up here and there, which naturally will not have any uniformity and an agreed pattern, we shall not be able to give that service to the people and fight Cancer as it should be fought with all the knowledge, facilities and equipment available today.

Our purpose is not only to fight Cancer but also to gain fresh knowledge. A complete set-up of cancer centre should have three main arms, *viz.*, *Hospital Research* both clinical and fundamental and *Education & Training*. Research, Education and Training should be carried on either directly under the University or in close collaboration with it. Research programme should have wider horizon, incorporating the different disciplines of Science. The institution should preferably function as an educational institute of the University. Much emphasis should be given to training of medical, scientific, technical and nursing personnel.

Different centres start, grow up and develop in different ways according to circumstances, such as ideas, will and forethought of the founders and organisers. Each one moves forward with bias to one or more aspects as mentioned above. Upto a stage these institutions grow but it becomes necessary to infuse strength, vitality and momentum for future growth, by introduction of new facets of activity and new elements. These are the reasons why the State and Central Governments have to come forward with the help that is necessary and also to bring about a uniform pattern throughout the whole country, for service, education and research in Cancer. The Universities have also to play their part by giving these institutions the academic status they need.

There is a well-equipped 160 bedded hospital with outdoor and indoor facilities for diagnosis, treatment and follow-up. There is good arrangements for record keeping, registration and follow-up of patients.

Treatment.—Bias is on Radiotherapy. Of 60 beds, 140 are for radiotherapy and 8 are radium beds. There is also provision for 30 beds on the floor, as additional radiotherapy beds. There are no earmarked specialists, such as radiotherapists. The practice is to have persons with M. S. who will be trained in all aspects of treatment, *viz.*, surgery and radiotherapy. There is no arrangement for a specialist's Board to screen cases. The Director and the Deputy Director who are both surgeons, have trained themselves

up in radiotherapy and other aspects of cancer treatment. They decide the line of treatment and direct such treatment, themselves. Though there is a strong bias to radiotherapy, they do not believe in having a D.M.R.T. or some such person in the team.

Education & Training.—There is no programme as such. Persons are not being trained in the different disciplines, because the same persons are doing surgical, gynaecological, E.N.T. and radiotherapeutic work. One does not get the benefit of a combined effort by more than one specialist in cancer treatment.

Research.—There is an associated Research Centre which gets a central government grant of rupees two lacs annually. Bias is on clinical research. Fundamental research needs expansion towards many disciplines.

Library.—There is a token library. There is a plan to set up a good library.

STATEMENT No. 2

CANCER HOSPITALS, THEIR SET-UP, STAFF AND EQUIPMENT

by

Dr. Anilya Kumar Sen, M.B. DPH (London), FRCS(Eng.), Secretary, Chittaranjan Cancer Hospital, Calcutta-25.

Today, cancer is a great killer and we have to meet this challenge by a nation-wide effort. Our object is cure and prevention of cancer in man and for this, fresh knowledge has to be gained from day to day. For this purpose we need three main organisations, viz., (1) Hospital, (2) Research Organisation—both clinical and fundamental and (3) Educational and Training Programme.

Hospital

A cancer patient is not just one patient and a cancer hospital just one hospital. The treatment of a cancer patient is very expensive and it is a coordinated effort by specialists of many disciplines. A cancer hospital should have an associated Research Centre and an Educational & Training programme; all closely integrated together. The combine institution should function as an Educational Institute of the University. Much emphasis should be given to training of medical, scientific, technical and nursing personnel.

If different institutions grow up without any uniformity of pattern, we shall not be able to give that service to the people and fight cancer as it should be fought, with all the knowledge, facilities and equipment available today. Upto a stage these institutions grow but it is necessary for its future growth to introduce new facts of activity and new elements. These are the reasons why the State and the Central Governments have to come forward with the help that is needed and also to bring about a Uniform Pattern throughout the whole country, for service, education and research in cancer. The University have also to play an important part by giving these institutions the academic status they need.

Research, Education & Training

The above programmes should be carried on either directly under the university or in close collaboration with it. Research programme should have a wider horizon, incorporating the different disciplines of science.

Cancer work cannot be divorced from general medical services. A cancer hospital should work in close collaboration with general hospitals. As it is not possible to cope with all cancer patients in a cancer hospital, the general hospitals should have cancer or tumour wings. The regional cancer hospital will not only function as a treatment centre but also research and educational institution. This will also be a consultation centre for all other hospitals for a standard and uniform pattern.

The Governing Body of the institute should preferably be autonomous with representation from the State and Central Governments, Corporation and the Society which might have sponsored it.

All regional hospitals must be brought up to the same pattern and standard and they must have uniformity of purpose, aims and set-up.

Staff

This should be mostly full-time but certain senior people should also be in the staff as part-time or honorary members. Their experience and standing will benefit the institution. It would not be possible to get their service otherwise.

Equipment

These should be upto-date and sufficient to cope up with the work load. There should be planning ahead for increase in the coming years.

Every regional cancer hospital should also have efficient organisations for the following :—

1. Cancer Survey, including Epidemiological Study.
2. Cancer Detection.
3. Pre-treatment-many patients come in a very low state and have to be made fit for receiving treatment.
4. Treatment.
5. Convalescence.
6. Rehabilitation.
7. Follow-up.

Pre-treatment, Convalescence and Rehabilitation may with great advantage be arranged in collaboration with other hospitals or organisation, for a larger out-turn of the cancer hospital. Otherwise, beds are unnecessarily occupied, which could be utilised for the treatment of waiting patients.

Part I

Organisation
Staff
Management

Part II

Equipment list for different departments with gross estimate of same.

STATEMENT NO. 3

Set-up of A 200 Bed Cancer Hospital**PART I****ORGANISATION, STAFF, MANAGEMENT****ORGANISATION :**

A. The hospital will have arrangements for diagnosis and treatment of cancer patients and it will provide facilities for training and research in cancer.

Fundamental research in cancer requires elaborate and expensive set up and organisation. This type of organisation has to be built up together with the hospital, but it does not come strictly under the lay out of a 200 bed hospital. Therefore, here we have presented the set up for a 200 bed hospital, only which by itself can provide wide facilities for researches in connection with clinical problems.

B. The hospital should be under the control of a suitable body consisting of interested and responsible persons. The composition of the body, which may be named as Governing Body will depend naturally upon the constitution that this body or connected organisation or the Government may frame up.

C. The administration will be under the Director who will be in complete control of the staff and their functions.

D. The general administration will be under a Medical Superintendent, an Office Superintendent who will jointly carry out the administration under the Director.

E. The administrative set up (office etc.) will see to the smooth running of the hospital. The treatments will be carried out by different disciplines and other technical personnel.

F. The finance of the hospital will be looked after by the Governing Body and the Director will be a member of the Governing Body as well.

G. The principal departments will be :—

Surgery.

Gynaecology.

Ear, Nose and Throat.

Radiology.

Pathology.

Chemotherapy.

Blood Transfusion & Serology.

STAFF :

1. OFFICER CADRE :

A. Department of Surgery :

Senior Surgeons	2	} At least one surgeon trained in thoracic surgery.
Junior Surgeon	3	
Senior Dental Surgeon	1	
Junior Dental Surgeon	1	
Registrars	2	
Resident House Officers	6	
Out-patient Medical Officer	1	
Out-patient House Officers	3	

B. Department of Gynaecology :

Senior Surgeon	1
Junior Surgeons	3
Registrar	1
Resident House Officers	2
Out-patient M.O.	1
Out-patient House Officers	2

C. Department of E.N.T. :

Senior Surgeon	1
Junior Surgeon	1
Registrar	1
Resident House Officers	2
Out-patient M.O.	1
Out-patient House Officer	1

D. Department of pathology :

Laboratory		This will include the sections of Histology, Clinical Pathology, Outpatient clinical pathology, Bacteriology and Endocrinology.
Senior Pathologists	3	} including at least 1 bacteriologist and 2 clinical pathologists.
Biochemist	1	
Endocrinologist	1	

E. Blood Transfusion and Serology Section.

Blood Transfusion Officer	1
Resident Blood Transfusion Officer	1

F. Department of Anaesthesia :

Senior Anaesthetists	2
Junior Anaesthetists	3

G. Radiology :

Radiotherapy	
Senior Radiotherapist	
Junior Radiotherapist	
Medical Officers	
Resident House Officers	

Diagnostic Radiology :

Senior Radiologist	1
Junior Radiologist	1
Medical Officer	1

Physics & Radio-isotope Service :

Senior Physicist	1
Junior Physicist	1

II. Chemotherapy :

Chemotherapist	1
Resident House Officer	1

I. Consultants :

Apart from the clinical staff mentioned above, the hospital will have on its roll consultants from different important branches of medicine. They will help the work of the different departments.

General Physician	1
Cardiologist	1
Ophthalmic Surgeon	1
Plastic Surgeon	1
Cytologist	1

Administrative and other Officers :

Director	1
Medical Superintendent	1
Office Superintendent	1
Resident Superintendent	1
Follow-up Officer	1
Accountant	1
Librarian	1
Asst. Librarian	1
Statistician	1
Dietician	1

II. Administrative Staff Cadre : 19

Office clerks	6
P.A. to Director	1
Stenographer	1
Cashier	1
Store-clerk	1
Follow-up clerk	3
Registration and Enquiry Clerks	4
Kitchen clerks	1
Library clerks	1

III. Nursing Cadre : 147

Matron	1
Asstt. Matron	1
Block Sisters	6
Staff Nurses	19
Duty Nurses	120

IV. Non-Medical Technical Staff Cadre :

Ward Masters	8
Dressers	6
Radiotherapy Technicians	8
Diagnostic X-Ray Technicians	3
Laboratory Technicians	11
Sterilisation Technician	1
Store-keeper	2
Pharmacists	2
Maintenance Supervisors	2
Carpenter	1
Electricians	2
Plumber	1
Welder-Cum-painter	1
Seamstress	1
Tailors	2
Laundry Supervisor	1
Dhobis	6
Photographer	1
Artist	1
Projectionist	1
Blood Bank Technicians	2
Health Visitors	3

V. Subordinate Staff Cadre :

193

This group will include General Duty Assistants, Sweepers, Sweepresses, Khalasis, etc.

DISTRIBUTION OF STAFF :

The distribution of staff belonging to cadre other than officers are shown below:—

1. Wards :

200 beds will be divided into 8 wards of 25 beds each.

Block Sisters	5
Staff Nurses	14
Duty Nurses	80
Class IV	80
Ward masters	8
Dressers	6

2. Outpatients Clinic :

Surgical, Gynaecological, E.N.T. and Dental

Staff Nurse	1
Duty Nurses	7
Class IV	10

3. Radiotherapy :

Cobalt 60: 1, Caesium-137 :2

Conventional Unit	1
Radium Room	1
Staff Nurse	1
Duty Nurses	7
Class IV	11
Radiotherapy Technicians	8

4. Diagnostic Radiology :	
Duty Nurse	1
Technicians	2
Class IV	2
5. Operation Theatres :	
3 operation theatres, 1 Endoscopic Unit, I.O.T. for Outpatients. Central Sterilisation	
Block Sister	1
Staff Nurses	2
Duty Nurses	8
Class IV	7
Sterilisation technician	1
6. Postoperative Rooms :	
8 beds in two units.	
Staff Nurse	1
Duty Nurses	17
Class IV	11
7. Laboratory :	
Histology, Biochemistry, Clinical Pathology O.P.D. Clinical Pathology, Bacteriology, Endocrinology, Radioisotopes service.	
Technicians	14
Class IV	12
8. Administration :	
Clerks	6
P.A. to Director	1
Cashier	1
Stenographer	1
Class IV	15 (including durwans)
9. Stores :	
Store-keepers	2
Store-clerk	1
Class IV	2
10. Registration & Enquiry :	
Clerks	4
Class IV	3
11. Follow-up and Central Record :	
Statistician	1
Clerks	3
Class IV	5
Health Visitors	3
12. Dispensary :	
Pharmacists	2
Class IV	2
13. Kitchen and Dining :	
Supervisors	2
Clerk	1
Class IV	20 (including 8 cooks).

14. Maintenance :	
Supervisors	2
Electricians	2
Carpenter	1
Welder-cum-painter	1
Seamstress	1
Tailors	2
Plumber	1
Khalasi (Class IV)	5
15. Laundry :	
Supervisor	1
Dhobi	6
Class IV	1
16. Photography :	
Photographer	1
Artist	1
Class IV	1
Projectionist	1
17. Blood Bank :	
Technicians	3
Class IV	4
18. Library :	
Clerk	1
Class IV	2
19. Nursing Administration :	
Matron	1
Asstt. Matron	1

A. Administration

1. The administration will be under the Director, the Medical Superintendent and Office Superintendent. They will appoint persons and will specify their duties, salaries promotions etc. They will look after the collections and expenditures and will conduct purchases for different departments. They will also be incharge of construction and maintenance.

2. Certain departments will be directly under the office of the Superintendent e.g., the Kitchen, the Laundry, the maintenance unit, the store, the library, the lecture theatre, the registration and enquiry section, the follow-up and record office and the blood bank.

3. Nursing arrangements and the duties of sub-ordinate staffs in different sections will be carried out under the supervision of Matron and Asstt. Matron who in their turn will be responsible to administration.

4. Technicians will work under the departmental officers or supervisors.

5. Nurses, technicians and subordinate staff will do their duties on 8 hour shifts and for six such shifts in a week.

6. The hospital should have an electric line from local electric supply and a sub-station will be necessary in that case.

7. The water supply may be provided by the local municipality or corporation, but the hospital should have its own deep tube-wells (at least one) with pumps and storage tanks.

8. Ambulance facilities should be obtained through local bodies or general hospitals. The Cancer Hospital, however, can have its own conveyance arrangements. In that case it should have ambulance and one station wagon and staff.

9. For telephone connection the hospital may have an automatic P.B.X. with three lines or a small manual exchange with one operator.

10. It is desirable that the hospital should have a central supply for oxygen, nitrous oxide and vacuum.

11. The Resident Surgeon will be responsible for the duties of the Junior medical staff (House Officers, Registrar, etc).

12. Admission in indoor wards will be under the medical superintendent or resident surgeon.

B. Diagnosis, Treatment, Follow-up

1. The patient should be registered at scheduled hours by Registration-Enquiry-Clerk who will make all the documentation and will direct the patient to surgery, gynaecology or E.N.T. clinics.

2. The department concerned will make necessary investigation and will diagnose the case. Interdepartmental co-ordination and team work will have to be built up for this purpose.

3. The line of treatment for each case will be decided upon by a Board appointed by the Director. This Board will consist of Surgeons, Pathologists, Radiologists and other competent persons and will meet at least once a week. On that day the Board will review every case in detail and will line out the treatment which may be surgery, radiation, chemotherapy or combination of different systems.

4. Now the department concerned will conduct the treatment. Patients who need admission for treatment or investigation will be admitted in the wards through the Superintendent.

5. There should be no distribution of beds to individual surgeon or department. All beds should be open for admission to every patient and admission made by the Superintendent on the basis of priority or necessity.

6. After completion of treatment, the records of each patient will go to the follow-up officer and statistician for recording etc. The follow-up officer will conduct the further examinations etc. with the help of the departmental officers (Registrars).

C. Training and Research

The hospital will train people in diagnosis and treatment of cancer and will provide facilities for research.

Training

1. **Residential Training:** House Officers of different departments will go through a residency programme which will make them into trained cancer surgeons, therapists, etc.

2. Training as part of different courses the hospital through arrangements with local University and Medical Colleges will impart training in Cancer to students and undergraduate and postgraduate levels. Lectures and seminars etc. may be held for students of different courses like M.O., M.S., D.L.O. etc. to give them an idea about clinical aspect of cancer management.

3. Special training courses for advanced persons—The hospital may arrange training courses of longer duration (about one year) for advanced persons in different specialities. Junior Surgeons, Pathologists, Radiologists, etc. may take opportunity of these courses for specialised training on cancer in their respective branches.

4. Short courses for general practitioners.—The hospital may arrange short courses (about 3 months duration) for training general practitioners, in diagnosis and management of Cancer patients.

5. Technicians courses.—The hospital may arrange training courses in such specialities as radiotherapy and histology for technicians.

Research

1. Members of the staff will be encouraged to take up research as part of their works in the hospital and every member of the staff will be expected to take part in research projects.

2. Research through Fellowships, Foundation Grants, Scholarship etc. may be arranged and offered to suitable persons who will be attached to the hospital and will work on projects, on cancer.

3. The laboratories of the hospital should be equipped for research projects.

4. The hospital should have its own publications.

SET UP FOR 200 BEDDED CANCER HOSPITAL

PART II

Equipment for Different Departments

GROSS ESTIMATE FOR EQUIPMENT

	Rs.
Wards	2,30,000 00
Postoperative rooms	19,200 00
Diagnostic clinics	22,000 00
Radiotherapy	9,36,600 00
Diagnostic radiology	2,13,000 00
Radio-physics and isotope service	1,16,000 00
Photography and illustrations	55,000 00
Lecture theatre	22,000 00
Library	11,000 00
Blood Bank	1,15,000 00
Pathology	3,50,000 00
Operation theatre	2,40,000 00
Kitchen	42,000 00
Laundry	60,000 00
Maintenance section	7,000 00
Office	24,000 00
Record Room	10,000 00

25,11,900 00

*Equipment for Pathology Department**Clinical Pathology, Biochemistry, Histology, Bacteriology, Endocrinology.*

1. Ultra Visible Spectrophotometer	2
2. Automatic blood analyser	1
3. Low Temperature Centrifuge	1
4. Centrifuges (at least 3000 RPM)	4
5. Electronic Colorimeter	1
6. Visual Colorimeter	1
7. Ph. Meter	3
8. Photo-electric colorimeter for haemoglobin	1
9. Oil emersion microscope	8
10. Phase contrast microscope	1
11. Interference microscope	1
12. Van-Slyke's apparatus	1
13. Kjeldhal's Apparatus	1
14. Analytical balance	2
15. Constant temperature bath	5
16. Incubator (37° c)	2
17. Hot air Sterilizer	1
18. Autoclave	1
19. Vacuum Sterilizer	1
20. Serum Inspissator	1
21. Electrophoresis apparatus (with voltage stabilizer)	2
22. B.M.R. apparatus	1
23. Microtomes	2
24. Freezing microtome	1
25. Histokinette	2
26. Balance	2
27. Haemocrite	3 doz.
28. E.S.R. (Westergreen) tube with stand	2 doz.
29. Haemoglobinometer	5
30. R.B.C. and W.B.C. Pipettes	3 doz. ea.
31. Haemoglobin pipettes	3
32. Refrigerator	3
33. Typewriters	2
34. Distilled water apparatus	2
35. Furniture	
36. Chemical and media	
37. Cages of animals	

Equipment for Post Operative Units

1. Fowler beds	8
2. Transfusion stands	8
3. Oxygen sets	8
4. Suction apparatus	2
5. Dressing Trolley	2
6. Stretcher trolley	2
7. Drums	4

8. Dressing Scissors	2
9. Straight Artery forceps	6
10. Sinus forceps	2
11. Swab holding forceps	6
12. Probe	2
13. Scoup	2
14. Curved artery forceps	6
15. Small retractor	2
16. Scalpel handle	2
17. Tissue forceps	4
18. Maya's Scissors	1
19. Bandage Cutting Scissors	1
20. Tracheotomy sets	1
21. A.P. Set	1
22. B.P. Instruments	3
23. Stethoscope	3
24. Spotlight	1
25. Cheek Retractor	2
26. Tongue depressor	2
27. Symes speculum	1
28. Anterior vaginal Retractor	1
29. Volsellum	2
30. Uterine Sound	2
31. Furniture, glass ware, medicines, trays, bowls etc.	

Equipment for Diagnostic Clinics

A. Surgical Clinic

1. Examination Tables	3
2. Dressing Trolley	4
3. Spot light	3
4. Cheek Retractor	3
5. Tongue Spatula	3
6. Sinus forceps	3
7. Stretcher trolley	1
8. B. P. Instrument	1
9. Stethoscope	2
10. Ophthalmoscope	1
11. Probe	2
12. Director	2
13. Scoup	2
14. Proctoscope (adult)	2
15. Proctoscope (child)	1
16. Biopsy Punch	3
17. X-Ray view box	2
18. Aspiration syringe with needles	3
19. Silverman needle	1
20. Needle holders	2
21. Tissue forceps	6
22. Lifter	3
23. Straight artery forceps	6

24. Curved artery forceps	6
25. Swab holding forceps	4
26. Towel clip	4
27. Scissors Mayo	2
28. Scissors dressing	3
29. Scissors bandage cutting	2
30. Scissors stitch removing	1
31. Mitchel clip remover	1
32. Small retractor	3
33. Toothed dissecting forceps	2
34. Plain dissecting forceps	2
35. Scalpel handle	2
36. Sterilizer	2
37. Furniture, trays etc.	
38. Medicinas, syringes, needle, etc.	

Gynaecological Clinic

1. Examination Tables	2
2. Drums	2
3. Dressing trolley	2
4. Symes speculum	4
5. Anterior vaginal retractor	4
6. Straight artery forceps	6
7. Curved artery forceps	6
8. Swab holding forceps	6
9. Volsellum	4
10. Uterine sound	2
11. Small dissecting forceps	3
12. Needle holder	1
13. Scalpel handle	2
14. Endometrial curette	4
15. Dilator set	2
16. Cervical biopsy punch	4
17. Lifter	2
18. Spot light	2
19. Sterilizer	1
20. Stretcher trolley	1
21. B.P. Instrument	1
22. Stethoscope	1
23. X'Ray View box	1
24. Furniture, medicines, trays etc.	

Ear-Nose-Throat Clinic

1. Examination table	1
2. X'Ray view box	1
3. Stretcher	1
4. B.P. Instrument	1
5. Stethoscope	1
6. Bulls Eye Lamp	3
7. Examination stool	3

8. Head Mirror	4
9. Spray	3
10. Tongue Depressor	3
11. Laryngeal mirror	8
12. P. N. S. mirror	8
13. Luck's forceps	3
14. Laryngeal biopsy punch forceps	4
15. Curved Laryngeal swab stick	3
16. Laryngeal syringe	1
17. Nasal speculum	1 set
18. Aural speculum	1 set
19. Aural syringe	1
20. Antrum puncture canula	1
21. Higginson's syringe	2
22. Dressing scissors	1
23. Bandage cutting scissors	1
24. Straight artery forceps	4
25. Sinus forceps	1
26. Probe	1
27. Lifter	2
28. Sterilizer	1
29. Dressing drum	1
30. Dressing trolley	2
31. Furniture, bucket, trays, etc.	

Equipment for Dental Service

1. Hydraulic dental Chair	1
2. Dental unit (light, fan, tray, spittoon dental engine, etc.)	1
3. Mouth mirror	6
4. Tweezers	6
5. Dental probe	6
6. Excavator D/E	2
7. Forceps upper anterior	2
8. Forceps upper premolar	1
9. Forceps upper Molar (right and left)	2
10. Forceps upper Root forceps	1
11. Forceps upper Lower molar	2
12. Forceps upper Lower Anterior	2
13. Forceps upper 3rd Molar	1
14. Forceps Children (upper and lower)	2
15. Elevator— upper and lower sets	
16. Gum lancets	2
17. Gum Scissors (curved and straight)	2
18. Mouth gag	2
19. Scaler	2 sets
20. Dental chisel and hammer	2
21. Impression materials	
22. Plaster (Colspar)	
23. Moulding wax	
24. Impression tray (assorted upper and lower full and partial)	

25. Half impression trays (right and left) or crown trays.	2
26. Wax knife	1
27. Rubber bowl	1
28. Plaster mixing spatula	1
29. Articulator (Plain)	1
30. Base plate	1 box
31. Dental flask with clamp	2
32. Steron box	1
33. Mixing jar	1
34. File	2
35. Carborandum stone with mantle	
36. Piasure bar for straight and piece	6
37. Sticky wax	
38. Sance par	
39. Water syringe	1
40. Furniture, trays, etc.	2
41. Syringe, needles, glass ware, medicine	
42. Sterilizer	1

Equipment for Wards

Provision for 220 beds (*i.e.* 10 per cent extras)

1. Beds	220
2. Fowlers beds	40
3. Bed side lockers	220
4. Stools	400
5. Oxygen sets	24
6. Transfusion stands	24
7. Dressing trolley	17
8. Stetcher trolley	17
9. Wheel chairs	4
10. Suction apparatus	8
11. Rrfrigerator	4
12. Sterilizer	8
13. A. P. Set	4
14. Potain's aspirator	4
15. Tocher—Canula	4
16. Tracheotomy set	4
17. Transfusion set	40
18. B. P. instrument	10
19. Stethoscope	10
20. Lifter	16
21. Drums	25
22. Check retractor	16
23. Tongue depressor	16
24. Proctoscope	8
25. Proctoscope child	2
26. Symes speculum	4
27. Anterior vaginal retractor	4
28. Volsellum	4

29. Uterine sound	2
30. Scissors dressing	16
31. Scissors Bandage cutting	16
32. Scissors stitch removing	8
33. Mitchel's clip remover	8
34. Probe	8
35. Swab holding forceps	16
36. Scoup	8
37. Straight artery forceps	16
38. Sinus forceps	8
39. Syringe, needle, thermometers timers, etc.	
40. Furniture, rays, bowls buckets, etc.	

Plumbing Instruments

1. Pliers	2
2. Tonge	3
3. Pipe Wrench	2
4. Pipe cutter	2
5. Screw driver	2
6. Die	3
7. Sly tong	2
8. Hack saw	2
9. Shear	2
10. Chair tong	2
11. Hammer	1
12. Pump	1
13. Rawl bit shear	1

Carpentry Instruments

1. Plainer	2
2. Chisel	5
3. Right measurer	3
4. Thread measurer	1
5. Drill blade	1
6. Hammer	1
7. Wood hammer	1
8. Agar	3
9. Partial plainer (half round etc.)	2
10. Breast drill	1
11. Centre bit	8
12. Saw	2
13. Clamp piece 6 ft.	1
14. Flat file	2
15. Wooden file	2
16. Triangular	6
17. Screw driver	3
18. Foot gauze	1
19. Spirit level	1
20. Wooden vice	1

21. Shear	2
22. Rawl bit	1
23. Blunt tool	2
24. Nail pliers	1
25. Nail remover	1
26. Glass cutter	1
27. Tape 25 ft.	1
28. Sly wrench	1 set
29. Cutting plier	1

Equipment for Laundry Service

1. Steam laundry machine	3
2. Drying machine, iron etc.	
3. Furniture etc.	

Equipment for Radiology, Radiotherapy, Diagnostic Radiology Radio Room, Physics and Isotope services

1. Cobalt 60 Teletherapy stationery 3600 RHM Source	1
2. Caesium 137 Teletherapy	2
3. 100 Kv X-Ray Therapy Unit	1
4. Radium—100 mg.	1000 mg.
5. Radium room operation table with lithotomy attachments.	1
6. Mobile lead screen	3
7. Lead 'L' block	3
8. Lead bricks	75
9. Remote control tongs with through spare manipulator	2
10. Remotely operated vice assembly	2
11. Lead carriers 1' protection 3' handle	2
12. Lead pot 2' protection	6
13. Gynaecological radium applicators—I.U. V. box	6 sets
14. Symes Speculum	4
15. Anterior vaginal speculum	4
16. Swab holding forceps	4
17. Sinus forceps	4
18. Volsellum	4
19. Straight artery forceps	6
20. Dilators	2 sets
21. Radium needles holders (different grooves)	8
22. Universal radium needle holders	1
23. Radium needle withdrawer	1
24. Rules (metric) stainless steel	3

Diagnostic

1. 500MA diagnostic X-Ray with tomography and all position table	1
2. 200MA diagnostic X-Ray unit with all position table	1
3. Portable X-Ray unit	1
4. Cassettes complete with intensifying screens—different sizes	48
5. Lead marking numbers	5 sets
6. Lead apron	6 pieces
7. Lead gloves	6 pairs

8. Stationery Grid	6 pieces
9. Odelca Camera attachment	1
10. Odelca view box	3 pieces
11. Locally made miniature film viewing system	24
12. Standard view box, multiple unit sets	2
13. Developing tanks with refrigeration arrangement	1
14. Film drying unit	1
15. Dark room safe light	3
16. Dark room clock	2

Equipment for Physics and Isotope service

1. Victoreen condenser R meter complete with 35—400 Kev and 400 Kev—1.3 mev. chambers	1
2. Victoreen Radocon complete with 35—400 kev and 400 kev—1.3 mev. chambers.	1
3. Siemens Gamma meter complete with stiffened and flexible measuring probes.	1
4. Radiation survey meter 0—50mr/hour	1
5. Radiation survey meter 0—5000 mr/hour	1
6. Impression tray (Dental)	1
7. Impression materials	
(a) Zelgan	
(b) Modelling compound	
(c) Modelling wax	
(d) Sticky wax	
(e) Plaster of Paris	
(f) Stelton powder and liquid	
(g) Pumice	
8. Instruments for moulding	
(a) Rubber bowl	
(b) Plaster spatula	
(c) Wax knife	
(d) Acrylic mixing spatula and jar	
9. Electric lathe with self centering chuck	1
10. Bench drill	1
11. Hand drill	1
12. Electric grinder	1
13. Power Buff	1
14. Vice 4"	1
15. Hand taps—full set upto $\frac{1}{8}$ "	
16. Die tape—full set upto $\frac{1}{8}$ ".	
17. Box wrenches—full set metric and British	
18. Spanner set—full set	
19. Adjustable spanner	1
20. Screw Driver—all sizes upto $\frac{1}{4}$ "	
21. Files—full set 4"—10"	
22. Small files—1 set	
23. Soldering iron—	
60 watt	1
500 watt	1

24. Hack saw	1
25. Centre punch	1
26. Steel rule	3
27. Vernier calipers	1
28. Micrometer	1
29. Ball press	3
30. Hammer	3
31. Anvil	1
32. Blow lamp	1
33. Knipper	2
34. Plier	2
35. Hand shears	1
36. Electric centrifuge 3600 R.P.M.	1
37. Hot plate 8"	1
38. Water bath	1
39. Chemical balance	1
40. Rough balance	1
41. Hot air oven	1
42. Simpson multimeter	1
43. Oscilloscope	1
44. Refrigerator	1
45. (a) G.C.S. 10A electronic set up	1
(b) I 1030 G.M. detector	1
(c) M 1900 Mount	1
(d) C 1700 lead castle	1
46. (a) G.R.S 20B electronic set up	1
(b) SH 635 Gamma Sintillation head	1
(c) C 1700 lead castle	1
47. (a) P.C.S. 14 B Proportional counting electronic set up	1
(b) I 1300 Gas flow detector	1
(c) I 1301 Gas flow detector	1
(d) I 1350 Gas flow counter	3
(e) C 1700 lead castle	1
(f) Counting gas burshane with regulator	1
48. MDS 25A Medical spectrometer with medical sintillation head	1
49. A 1750 Aluminium Absorbent set	1
50. P 1850 stainless steel planchets	5 sets
51. P 1851 stainless steel Sample pans	5 sets
52. R 2100 beta reference source	1 set
53. R 2300 Gamma reference sources	1
54. Stainless steel tray	1
55. Chemicals	
56. Glass ware for laboratory	
57. Furinituro, almirah, cabinets etc.	

Equipment for photography and illustration sections

1. Triple extension camera	1
2. $\frac{1}{4}$ size enlarger	1
3. 35 m.m. enlarger	1
4. 35 m.m. camera with telephoto, wide angle and close up attachment	1 set

5. Photo flood lights	6
6. Directly photocopying attachment	1
7. Cold storage with facilities for running cold water	1
8. Dark room safety lamp	3
9. Developing trays	12
10. Photomicrography and projecting unit with arc lamp	1
11. Drawing board	2
12. Drawing sets	1
13. Brushes, paints, spatula, Palate etc.	
14. Drawing table with illumination arrangements	1
15. X-Ray view box	1

Equipment for Projection Room

1. Folding screen	1
2. Projection (for slides of different sizes)	1
3. 16m.m. film projector	1
4. Microscope and slide projector	1
5. Microphones	2
6. Amplifier system	

Equipment for Library

1. Card cabinet	4
2. Microphotograph cabinets	2
3. Microphotograph viewers	2
4. Journal cabinets with glass front—drawers for each journal : for 100 journals.	
5. Open racks for books	
6. Furniture, cabinets etc.	

Requirements of a Blood Bank for a 200 bedded Hospital

1. *Furnitures :*

i. Working Tables	3
ii. Working Tools	10
iii. Secretariat Table	2
iv. Chairs	8
v. Donor's Bed	2
vi. Donor's Sitting Benches	6
vii. Partition Screen	6
viii. Steel Almirah	2
ix. Open Rack	2
x. File Cases (Ronco)	2
xi. Type Writing Machine	1

2. *Instruments :*

i. Blood Bank Refrigerators (PHILLIPS or BLUE STAR, 4 (2-large : 2-small)	4
ii. Pyrogen Free Distillation Still : GANSONS : KILDURN	2
iii. Bottle Washing Machine : Larsen Taubro : Small size (Wall type) with Rinsers and Greaser	2
iv. Hot air Sterilizer : KILBURN	1
v. Water Bath : Automatic temperature range 37—56' : Adair Dutt	2
vi. Incubator : 37 c : Adair Dutt	2
vii. VDRL Slide Rotator : Adair Dutt	1

viii.	Blood Pressure Instruments	2
ix.	Stethoscopes	2
x.	Ultra Violet Light Hanging type : } Pedestal : } PHILLIPS	4
xi.	Horizontal Autoclave : Greaves Cotton or Adair Dutt	2
xii.	Bottle Centrifuge Machine : Adair Dutt	1
xiii.	Test Tube Centrifuge Machine; Angle Head : Adair Dutt	2
xiv.	Rh. View Box : American Hospital Supply Corpn	1
xv.	View Box : (X-Ray)	1
xvi.	Aspiration Apparatus : Adair Dutt	1
xvii.	Chemical Weighing Machine : Adair Dutt	1
xviii.	Sietz Filters	12 Dz.
xix.	Bleeding, Transfusion & Plasma transfer Sets	1000
xx.	MICROSCOPE : BINOCULAR TYPE : LIETZ OR ZEISS	1
xxi.	Weighing & Height Machine (sorter)	1
xxii.	ULTRA-CENTRIFUGE MACHINE	1
xxiii.	Haemo Globinometers	3
xxiv.	Haemo Cytometers.	3
xxv.	Pipettes for Hb. meter & Haemocytometers	2 Dz.

- i. Borosil Blood Bottles : (with frosted window & letter : CCH) 540 ml. & 375 ml. 2000 each
- ii. Beakers : Glass Jars : Measuring Cylinders : Flasks : Petri Dishes : Slides VDRL Slides : VDRL ring maker : Rimmed, Kahn & Rimless Test Tubes : Microscopical Glass Slides : Microscopical SPECIFICATION & REQUIREMENTS
- iii. Test Tube Racks, Enamel Trays, Enamel Dishes, Enamel Bowls, Kahn Test Tube Rack : Test Tube Racks for the water Bath & Incubator : Tripod Stands : Heaters : etc. (according to the SPECIFICATION & REQUIREMENTS).
- iv. Reagents & Chemicals : eg. Kahn, VDRL, ABO, Rh, Adsorbed anti-A Serum, Lo. & Coombs, etc.
- v. Sodium Citrate, Sodium Chloride, Acid Citrate, Dextrose, Pot. Dichromate Sulphuric Acid, Pot. Permanganate, Liquid Soap, etc. (according to the SPECIFICATION & REQUIREMENTS)
- vi. AIR CONDITIONER for 4 rooms—2 ton x 4 such

O. T. Appliances and Furnitures

1.	Operation tables	4
2.	Top lights	4
3.	Spotlights	4
4.	Cavity lights	2
5.	Suction apparatus	4
6.	Diathermy apparatus and set	2
7.	Electro cardiographs	2
8.	Pulse respiration recorder	2
9.	Horizontal steriliser	2
10.	Bowl and Tray steriliser	2
11.	Water steriliser	2
12.	Transfusion stands	8
13.	Stretcher trolleys	6
14.	Dressing trolleys	6
15.	Boyle's Apparatus	4
16.	Instrument Almirahs	8
17.	Medicine Almirahs	2
18.	Linen Almirahs	2
19.	Working tables	2
20.	Office tables	2
21.	Chairs	8
22.	Working stools	8
23.	Tray, Bowls, Drums etc.	

General Instruments

Articles with specification	Requirements
1. Artery Forceps :	
Artery Forceps (Curved on flat) KELLY FRASER'S 13.75	
Artery Forceps (Curved on flat) KILNER'S 14 cm	7 Doz.
Artery Forceps (Curved on flat) Mc Indoes' 14.5 cm.	
Artery Forceps (Curved on flat) HALSTEREAD'S "Masquito" 12.5 cm.	2 Doz.
Artery Forceps (Curved on flat) MOYNIHAN'S 14.5 cm.	2 Doz.
Artery Forceps (Curved on flat) SPENCER WELL'S 15 cm.	2 Doz.
Artery Forceps (Curved on flat) SPENCER WELL'S 18 cm.	2 Doz.
(Straight) Artery Forceps CREALE'S 14 cm.	1 Doz.
(Straight) Artery Forceps MORRANT BAKER'S 12.5 cm.	4 Each
(Straight) Artery Forceps SPENCER WELL'S (Angular) 12.5	4 Each
Long Artery Forceps 20 cm	1 Doz.
2. Dissecting Forceps :	
Dissecting forceps Narrow serrated points 19 cm.	4 Such
Dissecting forceps Narrow serrated 25 points cm	4 Such
Dissecting forceps Fine serrated 9.4 points cm.	2 Such
Dissecting forceps One into two teeth 19 cm	4 Such
Dissecting forceps One into two teeth 25 cm	4 Such
Dissecting forceps Child's four into five 18 cm	2 Such
Dissecting forceps Cole's one into two teeth 18 cm	2 Such
Dissecting forceps Gillies one into two teeth 15 cm	2 Such
Dissecting forceps Mc Indoe's—Extrafine 15 cm.	2 Such
Dissecting forceps Waugh's fine serrated 20 cm	2 Such
3. Scissors :	
Scissors, Bonney—Mayo's Curved on flat (17 cm)	8 Pairs
Scissors, Mc-Indoe's—Curved on flat 19 cm	4 Pairs
Scissors, Nelson's—Curved on flat 22.5 cm	2 Pairs
Scissors, Curved on flat 27.5 cm	2 Pairs
Scissors, Ward for Dressing 14 cm	6 Pairs
Scissors, Curved on flat sharp points 12.5 cm	2 Pairs
Scissors, Health's Suture	4 Such
Scissors Gillies—Scissors, suture and needle Holder combined	2 Such
4. Tissue and Towel Forceps :	
Towel Holding forceps McIndoe's 12.5 cm	2 doz.
Towel Holding forceps Moynihan's 19 cm	2 doz.
Tissue forceps Allis's 15 cm	1 doz.
Tissue forceps Lane's 20 cm	2 doz.
Tissue forceps Stiles 20 cm	1 doz.
5. Needle Holders :	
Straight Needle Holder 21.5 cm	4 such
Moynihan's Needle Holder 19.5 cm	4 such
Curved Needle Holder 20.5 cm	4 such

Self Releasing Needle Holder 24 cm	2 such
Long Needle Holder (Thoracic) 27.5 cm	2 such
Higg's Needle Holder 15 cm	2 such
6. Swab Holding Forceps	
7. Aneurism Needle :	
Aneurism Needle Small	2 such
Aneurism Needle Medium	2 such
Aneurism Needle Long	2 such
8. Directors :	
Directors with guard and frenum slit 12.5 cm	1 such
Brodie's Director	1 such
Cannings' probe pointed	1 such
9. Dissector :	
Kelly's Comb 18 cm	4 such
Dissector Macdonald's 18.6 cm.	2 such
Dissector Durhans 19 cm	2 such
10. Gland Forceps :	
Dennis Broune's 18 cm	4 such
Cumin's 18 cm	4 such
11. Sinus Forceps :	
Sinus Forceps	2 such
Sinus Forceps	2 such
12. Ligature Forceps :	
Ligature forceps (Williamson's) 19 cm	4 such
Mortimar Wolf's	4 such
13. Valkmann's Scoop	
14. Scalpel Handle	
15. Suction Heads	
16. Retractors :	
Abdominal Retractor Curved 3" wide	6 such
Curved 2" wide	4 such
Deep Retractor 1" or 1½" wide	6 such
Higg's Type Deep Retractor	4 such
Fenestrated Deep	4 such
17. Michel Clips Holder :	
Michel Clips Removing forceps	2 such
18. Trocar and Cannula :	
(a) Sternal Puncture Needle with complete set	2 such
(b) Silvermann's Needles for aspiration biopsy	2 such
(c) Roger's Cannula for Child-Adult sizes	2 such
(d) Set of Trocars and Cannulae for ascites	2 such

19. *Biopsy Forceps* :
- (i) Punch Biopsy forceps 4 such
 - (ii) Venema cup Punch (for prostatic Biopsy) 1 such
 - (iii) Sterlizer Forceps (lifter) 2 doz.
20. *Suture Needles* :
- (i) Straight cutting
 - (ii) Curved—Round Body—Different variation
Curved Round Cutting Different variation

Special Abdominal Surgery Instruments

<i>Articles and Specifications :</i>	<i>Requirements</i>
Colostomy Tube - Phul ($\frac{1}{2}$)	2 such
Intubatin Tube - Miller Abbott's	1 such
Enterotome, Mikulicz's	2 such
Maingot's T-Tube (for gall-bladder drainage)	1 doz.
Gall Bladder Forceps - Gaary Grant for Cystic Duct (22.5cm)	2 such
Gall -Bladder Forceps - Gray (22.5 cm)	4 such
Gall-Bladder Forceps Moynihan (22.5 cm)	4 such
Gall-Stone Forceps -Desjardin (22 cm.)	2 such
Gall-Stone Probe -Desjardin	1 such
Gall Stone Probe and Scoop -Moynihan's	1 such
Gall-Stone Scoop-Carless	1 such
Gastrostomy Feeding Tube -rubber, Canvas Lined 9 English Catheter Gauge (16 Chairre).	1 doz.
Gastrostomy Feeding Tube rubber with flange 12 English Catheter gauge	1 doz.
Intestinal Depressor -Roverdin's, stainless steel	4 doz.
Intestinal Depressor -Sergent's Tapering	2 such
Intestinal Holding Forceps -Denis Browne (18 cm)	1 doz.
Peritoneal Forceps -Rutherford Morrison (15 cm)	1 doz.
Peritoneum Forceps -Moynihan (22 cm)	1 doz.
Intestinal clamp Forceps -Carwardine's Twin Pattern (19 cm)	1 doz.
Intestinal Clamp Forceps - Doyen's (10 cm)	4 such
Intestinal Clamp - Kocher's (25 cm)	1 doz.
Intestinal Clamp - Makin's (20.7 cm)	1 doz.
Intestinal Clamp - Moynihan (20.5cm)	1 doz.
Intestinal Crushing clamp - Payr's (10 cm)	6 such
Stomach Clamp Forceps Moynihan's (27.5cm)	1 doz.
Stomach Clamp Forceps Moynihan's (33 cm)	4 such
Stomach Clamp - Moynihans Curved (33 cm)	4 such
Stomach Crushing Clamp - Payer's (24-25 cm)	6 such
Suction Tube Kindersley's - 22.5 cm	2 such
Duodenal Feeding Apparatus -Young's	1 set
Fasciatome -Welped Adam -40 cm	2 such
Hernia Forceps -Collingword Steward	1 such
Gallie's Needle (Large, Medium and small)	3 such
Hernia Needle - St. Thomas Hospital	1 such

A Complete set of Gastroscope with Bellow and Electric Lead

A Complete set for Peritoneoscopy consisting of :

1. Bellows
2. Introducer and needle.

3. Peritoneoscopes with trocar introducer.
4. Suction tube.
5. Peritoneoscope and telescope.
6. Sterilizable leads and connexions.
7. Insulated biopsy forceps.

Orthopaedic Instruments

Articles and specifications	Requirements ^s
Osteotomes-Smith-Petersons's (size $\frac{1}{4}$ " to $\frac{3}{4}$ ")	1 each
Raspatory, Allis (16.5 cm)	1 such
Raspatory, Lane's (18 cm)	1 such
Raspatory, Legg's (18 cm)	1 such
Raspatory, Rollinson's (18 cm)	1 such
Raspatory, St. Thomas's Hospital	1 such
Rugino-Farabeuf's curved 7/16" (16 cm)	1 such
Rugino-Farabeuf's 1/4" (19 cm)	1 such
Rugino-Farabeuf's Straight, 7/16" (16 cm)	1 doz.
Rugino-Olliers', convex end (16 cm)	1 such
Rug ne-Olliers', Convave end (16 cm)	1 such
Gigli's Saw	1 doz.
Gigli saw Handles	set of 4
Amputation saw	2 such
Amputation saw	1 such
Saw-Jone's	2 such
Scope Stanley Boyd's	2 such
Tourniquet	1 such
Plaster saw	1 such
Gauges-Robert-Jones (16 cm) (.65 cm-3.75 cm)	1 each size.
Bone lever or Pariosteal detacher-Brislow (22.5 cm)	4 such
Bone lever-Lane-35. cm	2 such
Bone lever or Pariosteal detacher-Lane's for small bone, 25.5 cm	2 such
Bone Holding lion forceps, Fergussons	
15 cm	2 such
20.5 cm	1 such
24 cm.	1 such
Bone Holding forceps, Heygroves (22.5 cm)	1 such
Bone drill or Awl—	
Small with and without eye	1 each
Large with and without eye	1 each
Bone drill-Archimedian with three drill points	1 such
Bone drill, Lane, Universal chuck with three twist drill	1 such
Bone drill, Steiner's	1 such
Bone Drill Swedish Pattern with four twist drills 2 mm., 2.5mm., 3 mm and 3.5 mm	1 such
Wires, Krischener's - 80mm to 2 mm size	
Dissecting forceps, Chamby's-18cm	1 such
Screw Driver and Holder combined, Sherman's	1 such
Bone cutting forceps, straight compound action (22.5cm)	1 such
Bone cutting forceps-Curved in flat	1 such
Bone cutting forceps-fine, angled on flat, 18 cm	1 such

Bone cutting forceps-straight, screw joint	1 such
Chisels (18 cm) - Different sizes	1 each size
Gauge, Smith - Peterson's full curve 13/16 in (2 cm)	1 such
Gauge forceps or bone ribbers-straight, 22.5 cm	1 such
Gauge forceps-Curved on flat, 22.5 cm	1 such
Hook; Langenbeck's	1 such
Mallet, Todd's 18 oz	1 such
Mallet 12 oz	1 such
Necrosis forceps-20.5 cm	1 such
Osteotomes, Bristow's (size 3/4" to 1/4")	1 each
Osteotomes, Hibbs (size 1/4" to 1/")	1 each

Thoracic and Vascular Instruments

Labectomy Scissors Nelson curved on flat 22.5	2 such
Labectomy clamp	2 such
Lung Dissecting forceps—	
(i) One into two teeth 25 cm	
(ii) Narrow serrated points-25cm	2 such
Lung forceps, DUVAL'S-2.5 cm wide fenestrated blades-19cm long	2 such
Lung Tourniquet with spare cord	1 such
Periosteal Elevator and Rougine combined	2 such
Periosteal Elevators including Farabnif's Robinson's and Bristow's	4 such
Pleural Dissector-Robert's derib	1 such
Phrenic Retractors	1 such
Rib Raspatories, Doyen—	
Curved to left, adult	1 such
Curved to left, child	1 such
Curved to right, adult	1 such
Curved to right, child	1 such
Rib Raspatory . -for first rib	1 such
Rib Shears (Costotome) WERMEHREN'S	1 such
Rib Shears (Costotome) SELLOR'S, for child	1 such
Rib spreader, Double Tudor Edward's Two single adjustable spreaders on connecting bar	1 such
Rib spreader -Teriffier's	1 such
Scapula Retractor-Tudor Edward's	1 such
Erector spine retractor, Brompton Hospital	2 such
Sellor's self retaining chest retractor	1 such
Self retaining rib approximator	2 such
Pott's coarctation Clamp	1 such
Bronchus Clamp	2 such
Beck's aorta clamp	2 such
Blackock's clamp	2 such
Bull dog clips	2 such

Rectal Instruments and Urological Instruments

Haemorrhoid Forceps-15 cm	2 such
Haemorrhoid Forceps - 20 cm	2 such
Rectal speculum-Gabriel's conical length (6.25 cm)	2 such
Rectal speculum, Kelly's conical length (6.25 cm)	1 such

Haemorrhoid syringes-Gabriel's with spare needle	1 such
Sigmoidoscope, LOCKHARD-MUMMERY'S combination set, consisting of	1 such
One sigmoidoscope, 30 cm x 20 mm with obturator	
One sigmoidoscope, 15 cm x 17 mm with obturator	
One telescope for use with both sigmoidoscopes one connection cables.	
Two spare lamps 2.5 volts and one double inflating bellows.	
Swab Holder and applicator, length-43cm. for use with sigmoidoscope	2 such
Sharp curette	
Sigmoidoscopic forceps-45 cm	2 such
Cysto Lithotomy forceps curved, screw joint 18 cm	1 such
Cystoscope, Brown Burger's	
Double catheterization and plain examination and irrigation- concave and convex sheath.	
24 Charrier gauze	
21 Charrier gauze	
Completeset with telescope, obturator, two ureterine catheters, cleaning rod, spare washers, connecting cable with switch.	1 set for adult 1 set for children.
Cystoscopic forceps	1 such
Prostatic Resectoscope-Thomson	1 set
Riches or Thompson-Walker Bladder syringes	1 such
Kidney retractors	2 such
Thompson-Walkers kidney pedicle clamps	2 such

E. N. T. Instruments

Nasal Syringe	1 such
Mastoid retractor self retaining-MOLLISON'S	1 such
Laryngoscope (Adult)-Chevalier Jackson	1 such
Laryngoscope (Child)-Chevalier	1 such
Jackson with two light carrier and two bulbs	1 such
Bronchoscope C. J. 40 cm x 9 mm with two light carriers and two bulbs	1 such
Oesophagoscope C. J. 45 cm x 9 mm	1 such
Oesophageal Biopsy forceps-C.J.	1 such
Tracheotomy Canula-PERKER'S 22 to 32 size	2 such
Tenotomy Knife	2 such
Nasal Polyp Snare-KRAUSE	1 such
Laryngeal Probe	2 such
Oesophageal Bougie flexible elastic gum and size 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, Charrier gauze.	1 for each size
Same sizes 19, 20, 21, 22, 23, 24, charrier guage	1 ..
Tracheostomy Cannula-Chevalier Jackson 8 sizes 18, 20, 22, 24, 26, 28, 30, 32 charrier gauze.	1 ..
Bowlby's tracheal dilating forceps	2 such

Instruments for Skin Grafting

Skin grafting knife	1 such
Humby's	1 such
Blairs's	2 such
Theirrsch	1 such
Metal Rule	1 such
Balance Skin liftors	2 such
—Electro-dermatome	1 such

Instruments used in Basic Cranial Surgery

Hudson's brace and burrs	1 such
Down's Gauge forceps	1 such
Trotter's skull cutting forceps	1 such
Haffman's skull cutting forceps	1 such
Dott's skull cutting forceps	1 such
Skull forceps	1 such
Skull elevators	1 such
Horsby's trephine	1 such
Olive-Grona's saw with handle	1 pair
de Martill's guide for saw	1 such
Sergent's skull flap forceps	1 such
Hey's saw with double edge 1	1 such
Jefferson's silver brain needle with trephine and manometer	1 such

Oral and Dental Surgery Instruments

1. Dental Props	2 pairs
2. Doyen Mouth Gag	4 such
3. Check Retractors	2 such
4. Right and left root elevators	1 each
5. Straight root elevators	1 such
6. Lower Incisor dental forceps	1 such
7. Lower molar dental forceps	1 such
8. Upper Incisor dental forceps	1 such
9. Upper molar dental forceps	1 such
10. Splitting dental forceps	1 such

INSTRUMENTS AND TOOLS FOR MAINTENANCE SERVICES

Electrical Instrument

1. Screw driver	4
2. Pliers	1
3. Cutting pliers	1
4. Electric drill	1
5. Drill	1
6. Hack saw	3
7. Chisel	2
8. Full Wrench	1 set
9. Box Wrench	1 set
10. Hammer	2
11. Vice	1
12. Sly wrench	1
13. Die	2
14. Tap	1 doz.
15. Raw Bit with handle	1
16. Foot rule	1
17. Measurement tape 25'	1
18. Spray machine with gun	1
19. Electric solder	1
20. Mager	1
21. Pipe vice	1

22. Electric welding set with transformer	1
23. Torch	1
24. Hand shear	3
25. File	3
26. Pound File	1
27. Wooden file	2
28. Blunt tool	2
29. Agur	3
30. Blow lamp	1
31. Punch	1 doz.
32. Small roller machine	1
33. Oil can	2
34. Grinder.	2
35. Bending machine	1

ADMINISTRATIVE OFFICER ADMINISTER

1. Electric typewriters.	3
2. Steel typist table	3
3. File cabinet	4
4. Iron safe	2
5. Franking machine	1
6. Electric calculating machine	1
7. Cyclostyle machine (Electric)	1
8. Furniture, racks, almirah, etc.	

RECORD AND FOLLOW UP SECTION

1. Record cabinets	12
2. Card cabinet	6
3. Electric calculating machine	1
4. Punching machine	1
5. Typewriter	1
6. Furniture, open racks almirah, etc.	

KITCHEN AND DINING

1. Electric or gas oven	8
2. Cold storage system	
3. Refrigerator	1
4. Water cooler	1
5. Utensils for cooking, dining room service, and ward service, furniture etc.	

APPENDIX 15

CANCER INSTITUTE, MADRAS

- I. Date of founding January, 1953.
- Founding organisation Women's Indian Association, Cancer Relief Fund.
- Area served Madras State, Andhra Pradesh, Karnataka and Kerala.
- Patients are also drawn from all over India, Nepal, Malaya and Ceylon.

II. Out-patient department

- Room system of examination adopted.
- No. of new cases seen per year 3825
- Percentage of non-cancer cases 20%
- Number admitted per day About 6
- Number rejected per day About 4
- Length of waiting list About 30 at any one time
- Accommodation for waiting list patients Poor patients are permitted to stay in the reception department pending admission. A new dharmasala is now proposed to be constructed on land donated by the Govt. of Madras with a grant promised by the Govt. of India, Govt. of Madras and Shri Rebala Lakshminarasa Reddy of Nellore. The blue prints are ready and the building will soon start. This will accommodate waiting list patients.
- Percentage treated as O.P. Less than 1%
- Only well-to-do patients with satisfactory residential accommodation available in the city are treated as out-patients. All poor patients are compulsorily admitted.
- Social service reception and care A team of 4 social workers are present in the reception every day to receive OP. cases and look after them.
- Criteria for admission Pre-cancerous lesions and early cancer are given priority for admission. The rest of the admission is by waiting list. There is a separate waiting list for the general wards and paying wards.

III. In-patients

- No. of beds 160
- No. of additional floor beds 30 to 40
- No. of paying beds 30
- No. of free beds 130. All floor patients are free Patients. Some of the beds are maintained by private donors and companies. However, no reservation of beds by any of them is permitted and any patient can be admitted to those beds.
- Male general beds 55
- Female general beds 63

Padiatric beds	12
There is a separate Pediatric wing for children. Children below the age of 15 years are admitted to this wing.	
Intensive care room facilities	Yes
Surgical beds	10
Radiotherapy beds	240
There are no separate beds for chemo-therapy.	
Radium room	Yes, 6 beds
Post-operative ward	Yes, 10 beds

Diagnostic facilities

X-Ray	Yes.	X-ray diagnostic machines	2
		Tomographic unit	1
		E. C. G. Machine	1
		Image amplifier	1
Chemistry	Yes, excellent.	A separate biochemical laboratory is available.	
Pathology			
Histopathology	Yes		
Frozen Section facilities	Yes		
Specimen dissections	Yes		
Cytology	Yes		
(Methods employed)	Papanicolau T.P.T. Fluorescent microscopy)		
Diagnostic isotope technics	Yes		
Separate isotope laboratory is available			

Treatment facilities

Surgical (a) No. of operating rooms	3
(b) Surgical staff	5, i.e., 2 surgeons and 3 assistants
(c) Special operation equipment available	Yes
Defibrillator and impulsator	Yes
Hypothermia unit	Yes
Automatic respirator	Yes
Artificial Kidney Heart lung machine	No
(d) Central Sterile supply	Yes
(e) No. of operations performed per year	1246 approximately (includes major and minor surgery, excluding biopsy).
(f) Facilities for reconstructive surgery	Yes
(g) Facilities for functional rehabilitation like speech therapy	No
(h) Physiotherapy	Yes
(i) Blood Bank facilities	Yes

Radiotherapy

Staff :	3
Equipment :	250 K. V. Deep X-Ray unit 1
	Cobalt 60 beam therapy units 3
	Caesium 137 unit 1
	Contact therapy Nil

Sealed isotopes :	Radium	600 mg
	AU/198	3000 grains
	Yt 90	Nil
	Tantalum 182	Nil
	Iridium 192	Nil
	Strontium 90	Yes
Special equipment for using these isotopes		Yes
Metabolised isotopes	AU 198 } I 131 } P 32 }	Yes
No. of teleradiation treatments per year		73,000
No. of radium implantations and insertions per year		251
Amount of metabolised isotopes used		About 3000 mc per year
Radiation protection services		Yes
Radiation planning :		
Beam direction masks	}	Yes
Wedge filters		
Beam verification		
Radium reconstructions		
Director bladder and rectal measurements		
Contour projector		
<i>Chemo-therapy</i>		
Beds		No separate beds available.
Drugs available	Degranol Thiotepa Azetepa Methotrexate S.P.G. S.P.I. 6 M.P. T.E.M.	Actinomycin-D Endoxan Trenimon Natulan Synkavit 5 Flurao Uracil The Vinca Alkaloids
No. of patients treated per year		842 cases approximately.
Methodology		Systemic and intra arterial infusions.

Tumour Registry

A hospital tumour registry is available. The international classification and coding of tumours is followed. The follow up ranges from 93 to 96% of all cases treated.

The tumour registry is conducting a cancer survey in Chingleput district during the last 6 months. The total population surveyed during the period was 10,542. The number of cancers detected was 51. The number of precancerosis was 69. The incidence of cancer was 51/10,452, that is 4.8 per 1000 population. The survey is still proceeding.

A cancer control programme has been envisaged at Kancheepuram town for a population of 100,000. The proposals have been submitted to the W.H.O. and their reactions are awaited.

The punch card system of maintaining records of the survey has been introduced.

Statistical help is borrowed from the W.H.O. centre at Madras.

Research Department

The following departments are at present working :

- (1) Radiation beam research unit.
- (2) Biology including experimental biology and exfoliative cytology.
- (3) Biophysics.
- (4) Biochemistry.
- (5) Radiation chemistry.
- (6) Microphotography.

Animal house facilities are available.

Library facilities are available. The library space and facilities are now being enlarged with the help of a grant from the Government of India.

The co-ordination between the hospital and research sections is excellent as they all come under one Scientific Director.

Research projects under way :

Vide Annual Report of the Cancer Institute for 1964-65.

Is adequate equipment and personnel available
Future plans for expansion

More equipment and personnel are needed. A microbiology unit including cell culture and electron microscopy, an enzyme chemistry unit, pharmacological chemistry and a genetics division are proposed to be set up.

General

Library	No. of books	687
	No. of journals	62
Pathology museum		Yes
Animal House facilities		Yes
Photographic dept		Yes
University affiliation		Yes
Nature of affiliation		

The Institute is recognised for the Doctorate degree in Oncology and chemistry by the University of Madras.

Recommendations

APPENDIX No. 15

REPORT ON THE CANCER INSTITUTION VISITED AT CALCUTTA, MADRAS, HYDERABAD AND AHMEDABAD

BY

DR. S. KRISHNAMURHTI

*Director & Scientific Director, Cancer, Institute, Madras and Member
Committee on Cancer, Govt. of India*

STATEMENT No 1

THE CHITTARANJAN CANCER HOSPITAL, CALCUTTA

- I. Date of founding : January 1950
Founding organisation : Dashabandhu Memorial Trust
Area Served : West Bengal and surrounding states
Scientific Director : Dr. A. K. Sen
- II. *Out-patient department*
- Room system of examination adopted.
No. of new cases seen per year 5636
Percentage of non-cancer cases Nearly 50% (According to Dr. A. K. Sen)
Waiting list : Not maintained.
Admission is decided by a Hospital Cancer Board once a week.
Emergency admissions are decided by an interim board.
Admission is not based on waiting list or any precise predetermined criteria, but is entirely at the discretion of the hospital board.
Admission to 30 beds is decided by the Department of Health, Govt. of West Bengal and for 10 beds by the Health Officer of the Calcutta Corporation.
Percentage of cases rejected for admission Not available
Accommodation for waiting list patients Nil
Percentage treated as O.P. Information not available
Accommodation and ancillary treatment { Nil
facilities for O.P. Cases }
Social service reception and care Nil (One social worker at reception)
- III. *In Patients*
- Number of beds 161
Number of floor beds No floor bed. permitted
Paying beds 73
Free beds 88 (30 of the free beds are maintained by the Govt. of West Bengal and 10 beds by the Calcutta Corporation. These beds are reserved by them for cases recommended by them).
No separate beds for men, women and children are reserved as such.
Intensive care room facilities Nil

No separate beds for radio-therapy, surgery ; Chemo Therapy	
Radium room	Separate radium room available
Pre and post-operative wards	No pre-operative ward available. No information available for postoperative ward.

Diagnostic facilities

X Ray	2 X Ray machines are available.
Chemistry ;	Chemical investigations are done by the Clinical pathology department.

Pathology

Histopathology	Good facilities present
Frozen section facilities	Available
Cytology	Available
(Method used	Papanicolaou)
Diagnostic isotope technics	Available

Treatment facilities

Surgical (a) No. of operating rooms	2. I am not sure of the exact number as I was shown only 2 operating rooms.
(b) Surgical staff : 18 in number including surgeons, deputy surgeons and Junior Surgeons. All the surgeons are part time and draw a salary from Rs. 0 to 150 per mensem. All are permitted full private practice.	
(c) Equipment : Adequate surgical equipment is available but no hypothermia unit, artificial kidney, heart lung machine or automatic respirators are available.	
(d) Central sterile supply :	Available
(e) No. of operations performed per year	About 1500
(f) Facilities for reconstructive surgery	No special facilities
(g) Facilities for functional rehabilitation like speech therapy	Yes
(h) Blood bank facilities	Yes

Radiotherapy

No. of radiologists	5
Equipment	Cobalt 60 unit . . . 1 Caesium 137 unit . . . 1 meV X Ray unit . . . 1 200-250 KV units . . . 3 Contact therapy unit . . . 1
Scaled isotopes	Radium 1.3 gms AU 198 Nil Yt 90 Nil Tantalum 182 Nil Iridium 192 Nil Strontium 90 Nil
Special equipment for using these isotopes	Nil
Metabolised isotopes	AU 198 Yes I 131 Yes P 32 Yes

No. of teleradiation treatments per year	Over 50,000
No. of radium implantations and insertions per year	Exact date are not available
Amount of metabolised isotopes used	Do.
Radiation protection services	Not satisfactory
Radiation planning	
Beam direction masks	} Not provided
Wedge filters	
Beam verification	
Radium reconstructions	
Director bladder and rectal Measurements	
Contour projector	
Chemo Therapy	
List of drugs used	Mycleran, Lenkeran, Degranol, Endoxan, Thio-Tepar, Methotrexate, SPC, SPI, Nitromine, DTM
No. of patients treated per year	60 to 70
Modalities	(i) Systemic and (b) intre arterial infusict..
Tumour Registry	
No proper tumour registry is maintained.	
The international classification and coding of tumours is not followed.	
The follow up system is inadequate.	
There is at present no cancer survey or control programmes under way.	

**CHITTARANJAN NATIONAL CANCER RESEARCH INSTITUTE,
CALCUTTA.**

- | | |
|--|-------------------------------|
| 1. Cell Research | 2. Biophysics |
| 3. Chemotherapy and biochemistry | 4. Experimental leukemia unit |
| 5. Experimental carcinology | 6. Tumour virology |
| 7. Scientific illustration and photography | 8. Animal House |

Projects under way

The information is given in the biennial report (1963-65) of the Chittaranjan National Cancer Research Centre.

Equipment

Excellent equipment is available.

Library Facilities

Available

No. of books

Information not available.

No. of journals 115 approximately.

University Affiliation

Both the hospital and the research centre are affiliated to the University of Calcutta for the M. S., D.M.R., Ph.D. degrees etc.

Comments

The Chittaranjan Cancer Hospital has all the modern facilities necessary for becoming a regional centre. It has all the necessary staff also. I would however suggest the following improvements :

(1) At present the Chittaranjan Hospital and the Chittaranjan Research Centre are functioning administratively, scientifically and psychologically as two independent units with apparently little co-operation and coordination between the two. There is thus a tremendous duplication and waste of both material and energy for both, institutions. The Chittaranjan Research Centre can easily and with profit undertake all the scientific investigations necessary for the hospital and the hospital can provide all the material necessary for the research divisions of the research centre. It is a pity that when such abundance of material is available in the same campus for the chemo-therapeutic programmes of the research centre that the latter should be compelled to seek new pastures elsewhere. Under the circumstances it is very difficult to see how the gap between the two institutions could be bridged except by the organisation of an entirely new administrative set up.

(2) The number of staff on the Chittaranjan hospital is unnecessarily and ineffectively large. All of them or at least most of them work in the hospital only for 3 to 4 hours a day and according to Dr. Sen, they are also permitted private practice without any limitations. This, I feel, is not conducive to scientific work. I would therefore recommend a smaller number of full-time well paid staff. As I understand it, there is no dearth of well trained staff in oncology willing to take up fulltime work at the hospital.

(3) The system of admission into the institution needs very drastic alteration. Admissions should be made every day and patients should not be made to wait for one whole week. Criteria for admission should be (a) early disease (b) priority on the waiting list. To leave the admission to a tumour board composed essentially of honorary men is not conducive to a healthy tradition being created.

(4) There should be a separate wing for pediatric malignancy.

(5) The surgical wards should be separated from the radio therapeutic wards because infection can travel airborne as far as a furlong and by all modern standards and experience the mix-up of surgical patients with general cases is hazardous. A new surgical suite with modern operating rooms, intensive care rooms, hypothermia room, post anaesthetic recovery room etc., completely isolated from the ward blocks and architected according to the specific requirements laid down by the U.K. Hospital Planning Board should be provided immediately.

(6) It is now universally recognised that the very basis of radio-therapy is medical radiation physics. This facility is totally lacking at the Chittaranjan Hospital and should be provided forthwith. The physicist should hold a qualification not less than the M.Sc. of the Calcutta University and hold a certificate of training of either the Atomic Energy of India or its equivalent, from a well recognised foreign medical physics centre.

(7) A separate department of chemo-therapy should be set up under a full time physician and chemo-therapy should be tried out on a methodical and scientific basis and not applied empirically.

(8) A full fledged hospital tumour registry must be set up immediately and should conform to the standards laid down by the American College of Surgeons and the American Cancer Society.

(9) I was deeply impressed by the work of Dr. Dey of the Cell Research Unit. Not much time was afforded to go into details of the programmes of the other research sections, but it would be advisable for the research centre to organise a department of geographic pathology and try to establish a cancer control programme in its immediate environs.

STATEMENT No. 2

THE RADIUM INSTITUTE AND CANCER HOSPITAL, HYDERABAD

- I. Date of founding 1955
 Founding organisation The Indian Conference of Social Work,
 Hyderabad.
 Area served Andhra Pradesh and surrounding States.

II. *Out-patient department*

- Room system of examination adopted
 No. of new cases seen per year 3744
 Waiting list Not maintained.
 The out-patient runs daily. Mondays, Tuesdays, Thursdays, Fridays are radio-therapy admission days. Wednesdays and Saturdays are surgical admission days.
 Percentage treated as O.P. Information not available.
 Accommodation and ancillary treatment facilities for O.P. cases Nil
 Social Service reception and care Yes.
 Criteria for admission Cases are referred to this institution from the Osmania General Hospital, the Gandhi Hospital and other hospitals in the city and the districts. The cases referred for treatment are essentially radio-therapeutic. The referred cases are admitted. A tumour board decides admission of equivocal cases. No precise criteria for admission obtained.

II. *In-patients.*

- No. of beds 125 All beds are free beds. Separate beds are available for men and women. No separate pediatric beds are available.
 Intensive care room facilities Nil.
 No. of floor beds Floor beds are permitted, but the exact number is not available. I saw 2 or 3 floor beds. No separate beds are available for radio therapy, surgery or chemotherapy. There is a separate radium room but there is no post-operative ward and the few cases that undergo surgery in this institution are placed in the general wards with radio-therapy and other cases.

Diagnostic facilities

- X-Ray 500 MV diagnostic X-Ray machine I
 Chemistry Only clinical biochemistry is done.
 Pathology
 Histopathology Yes
 Frozen section
 Facilities Nil
 Specimen dissections Not done
 Cytology Not done.

Treatment facilities

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Surgical (a) No. of operating rooms. 2—(one is used for surgical procedures and the other for radium work)	
(b) Surgical staff	3 (including assistants)
(c) Special operation equipment available.	} Nil
Defibrillator and impulsator	
Hypothermia unit	
Artificial kidney	
Heart-lung machine	} Nil
(d) Central sterile supply	
(e) No. of operations performed per year.	Exact number not available, but the surgeon concerned informed me that most of the surgical cases are operated either at the Osmania General Hospital or the Gandhi Hospital or the Miloufer Hospital and were referred here only for radio-therapy.
	Only a few radical mastectomias or emascu- lations are carried out in the hospital.
(f) Facilities for re-constructive surgery	Nil
(g) Facilities for functional rehabilitation like speech therapy.	Nil.
(h) Physiotherapy	Yes
(i) Blood bank facilities	Yes

Radio-therapy

Staff	7 (including the Chiefs and assistant)
Equipment	250 K. V. deep X-Ray Units 2
	Cobalt beam therapy unit 1
	Caesium 137 unit nil
	Contact therapy unit nil
Scaled isotopes	Radium 450 mgms
	AU 198
	Yt 90
	Tantalum 182
	Iridium 192
	Strontium 90
	} Nil
Special equipment for using these isotopes	Nil
Metabolised isotopes	2 Geiger counters
	2 survey meters
	1 gammaray spectrometer etc., are available but only 10 mc of isotopes are used per year.
No. of telerradiation treatments per year .	Information not available.
No. of radium implantations and insertions per year.	Information not available.
Amount of metabolised isotopes used	10 mc per year
Radiation protection services	Yes

Radiation planning—

Beam direction masks	} Nil
Wedge filters	
Beam verification	
Radium reconstructions	
Direct bladder and rectal measurements	
Contour projector	

Chemotherapy

Beds	Separate beds not available.
Drugs used	Leukeran Endoxan Nitrogen mustard Methotraxate Myleran Urethane
No. of patients treated per year	Information not available.
Morbilities	Only systemic therapy issued. Intra arteria infusion and perfusion not used.

Tumour Registry

No proper tumour registry is maintained. The International classification and coding of tumours is not followed. The follow up is 45% of all treated cases. There is at present no cancer survey or control programme under way.

Research departments Nil

General—

Library	Yes
No. of books	No information available.
No. of journals	29
Pathology museum	Yes
Animal house facilities	Nil
Photographic dept	Yes
University affiliation	Yes
Nature of affiliation	The Institute is recognised for the D.M.R.T. and D.M.R.D. and the M.D. in Radiology.

Recommendations

From the discussions that the Committee had with the staff of the cancer hospital and with the staff of the Osmania Medical College Hospital and the Gandhi Hospital it was apparent that the Institute was essentially a radio-therapy centre to which patients were referred from the other hospitals for radio-therapy. Almost all major cancer surgery seemed to be performed in the two teaching hospitals and all malignant Gynaecological surgery in the Niloufer Hospital. The follow up of the surgical cases was done by the surgeons of the above three hospitals and the follow up of radio-therapy cases in the cancer hospital. There, therefore, did not seem to be a co-ordinated system of follow up of patients as a whole. It is strongly recommended that major cancer surgery of the patients admitted to the cancer hospital should be done there itself and not in the general hospitals and the follow up of all cancer patients should be the responsibility of the cancer hospital staff.

(2) Separate pre-and post-operative wards should be established as the danger of cross infection is very great in the general wards. It is positively dangerous to place a patient in the immediate post-operative period in a mixed ward with infected cases.

(3) In the radio-therapy department an additional Cobalt 60 beam unit and a caesium 137 unit are absolutely essential taking into consideration the volume of cases treated per year.

(4) An adequately equipped medical physics laboratory should be established forthwith and the staff of trained physicists should be increased.

(5) The Isotope laboratory needs more refined equipment and certainly a large volume of isotope work is possible.

(6) A new operating suite incorporating the recommendations of the Hospital Planning Board of the United Kingdom should be built.

(7) The pathology laboratory should undertake cytological work, and frozen section facilities should be provided in the hospital itself. At present frozen sectioning is done for the hospital in the Nilourfer Hospital, thus contradicting the basic principle of frozen sectioning.

(8) A proper tumour registry and follow up system should be organised.

(9) A clinical research centre and fundamental research Laboratories should be established in association with the hospital section.

STATEMENT NO. 3

CANCER INSTITUTE, AHMEDABAD

The Cancer Institute, Ahmedabad, has not yet been completed. Only the out-patient building is complete, but it has not yet been completely equipped. It appears to me that it will be at least 6 to 9 months more before the hospital can commence functioning in a partial manner.

The hospital has been planned on a very magnificent scale. It would be advisable both for the Government of India and the State Government to consider whether such planning is likely to be useful and economical. As far as I could see quite a few unnecessary equipment have been purchased at great cost and an unnecessarily large number of staff have already been appointed over the last 3 months. These staff are not likely to be utilised in any adequate manner for at least 6 months more. They should therefore be utilised elsewhere during this period.

The hospital expects to open with an initial bed strength of 54 in the first phase. The number of staff already appointed for such a bed strength is absolutely stupendous.

The administrative staff in my opinion requires drastic pruning.

Despite all these, the Gujarat Cancer Society has to be congratulated and admired for the enthusiasm and the vigour with which they have gone about establishing this Institute. They have done a marvellous job in the collection of funds and in the establishment of this Centre. The only thing they need is a little technical advice on how to layout their money in the best possible manner.

STATEMENT No. 4

PART I

OUTLINE OF CANCER ORGANISATION IN INDIA

Introduction

Cancer in India is not a rare disease as it was once believed to be. It is as common (if not commoner) as in any other country, West or East. And the incidence is rising because of the increased longevity of the population, the growing industrialisation of the country and alterations of many of our habits and ways of life as a result of European influence.

For long the cancer problem in India had not received the attention that was its due from the Health authorities. The more dramatic phenomena of the communicable diseases focussed all attention, probably the more pressing problems of Tuberculosis and Family Planning had to be solved first. But now that measures have been concerned to deal with these problems, the menace of cancer always present but insidious, is declaring itself.

The control of cancer is a very different proposition from the control of communicable diseases. The latter was essentially a problem of organisation but the former is a far more complex affair. It involves complicated methods of diagnosis, monumental procedures of mass screening (one has to screen every organ and not just the lung as in Tuberculosis), highly specialised and costly technics of treatment and a painstaking long term follow up. The survey and registration of cancer cases in the population of India is in itself a Herculean task.

If, therefore, cancer control in India is to become an effective reality, careful, wise and meticulous planning of the programmes and their dedicated implementation are vital. Unless wisdom and dedication go hand-in-hand in a country placed as is ours, all programmes are bound to fail, however, perfect they may appear on paper.

Definition of the Problem

It is always wise to define exactly the problem that we face. There are many aspects to the Cancer problem, the dominant aspects varying from country to country. It would therefore, be desirable to define the dominant features as far as India is concerned and to formulate procedure for their solution.

The commonest cancers in India are given in the order of their incidence (From the Cancer Institute Survey of Cancer in Madras State) —

1. Cancer of the cervix 50.5% (2.6/1,000 population)
2. Cancer of the oral cavity and pharynx 32% (1.6/1,000 population)
3. Cancer of the breast 7.5% (0.4/1,000 population)
4. Others 10% (0.5/1,000 population)

Of these the first two together constitute over 3/4 of all the cancers occurring in our country. These, therefore, represent the dominant cancer problems in India at present and our immediate task should be their control. This is not, however, to suggest that the other aspects of cancer should be ignored but only that the main concentration of resources and energy should be against the first two.

The Magnitude of the Problem

The WHO reports the European incidence of cancer as 3,500 million population. Our survey to date reveals an incidence rate of 4,800 million population (51 hitherto undiagnosed cancers in 10,452 apparently healthy population). The preliminary figures confirm at any rate, that the cancer incidence and, therefore, the problem in India is no whit less than that in European countries. The facilities to combat the disease in our country should be, therefore, as good as in the West.

In India, however, problems other than just the incidence exist, factors which are not of serious import in the Western countries. Most of our cancers come in an advanced stage of the disease (*vide* Tables I and II)

Table I -

	Cancer Institute, Madras (2)			
	British Early (%)	British Late (%)	Ratio	
			Early	Late
Cancer of oral cavity	14%	86%	1 :	1
Cancer of cervix	21.4%	78.6%	1 :	1

Table-II -

	Holt Radium Institute Manchester (3)			
	British Early (%)	British Late (%)	Ratio	
			Early	Late
Oral cavity	53%	47%	1.1 :	1
Cervix	52.5%	47.5%	1.1 :	1

This creates a difficult situation from the view point of ours.

About 98% of the cancer population in India is backward economically and educationally. This combination of ignorance and poverty plays a very important role in the patient's neglecting the disease in its early stages and sometimes in preventing them from coming to the city hospitals.

There is another aspect to poverty. The patient is often the only breadwinner of a large family and he is very reluctant to leave his family starving at home or dependent on grumbling relatives while he undergoes a prolonged hospitalisation. This, we have discovered, is the main reason why a man comes late or often breaks away in the middle of the treatment period to return home.

Poverty is also one of the main reasons for the patient's failure to report for the periodic follow up. The Railway concession exists but is so encumbered with regulations that it is often useless as far as the poor patient is concerned.

India is a country of great distances. 80% of our patients come from over 100 miles away. They are also poor. It is not possible for them to undertake treatment as out-patients. They have to be admitted. The

treatment of cancer is not just the application of radiation to the growth ; the supporting therapy of proteinisation, ironisation and vitaminsation as well as the maintenance of oral or genital hygiene are just as important. Moreover, every patient has to be treated every day as treatment once in 2 days or 3 days is biologically incorrect. Hence 90% of our patients have to be admitted. This creates the problem of beds.

And all these existing problems are not made easier by the not inconsiderable ignorance of the general medical practitioner regarding cancer. In nearly one-third of the cases, the delay in undertaking timely treatment was due to the temporising advice of the practitioner who first saw the patient.

Facing the Problem

"Facing the Problem" is, therefore, far from an easy or simple test. It is certainly formidable and to an extent disquieting. But it is a challenge which our generation has to meet.

The problem of Cancer in our country has to be tackle under four heads :—

- A. Control Programmes.
- B. Therapeutic Programmes.
- C. Socio-Economic Programmes.
- D. Educational Programmes.

A. Control Programmes

Under this head will come :—

(i) Establishment of Cancer detection clinics at the Primary health centre level. This will include clinical, simple endoscopic, histopathological and cytological examinations. The biopsies and smears can be sent to the nearest "Pathology centre" at the District Hospital level. Patients may also be referred there for more complex investigations.

(ii) *Cancer prevention services.*—Under this head will come the recognition of "Precancerous lesions" or of such pathological states as may lead to them. This should also be at the primary health centre level. Necessary advice and treatment could be given at the centre and the patient reviewed frequently. In case of doubt the patient may be referred to the District centre for more expert opinion.

(iii) The control and elimination of occupational and industrial cancer hazards. Growing industrialisation and the development of atomic power has resulted in the production of carcinogenic waste products. The industrial environment has to be carefully studied for carcinogenic pollution and steps taken to eliminate it and to protect the workers employed.

B. Therapeutic Programmes

The aim should be to establish a sufficiently extensive network of specialised cancer treatment centres at different levels, staffed by qualified personnel and furnished with appropriate diagnostic and therapeutic equipment. The types and number of centres to be established should be based on the population to be served, the common types of cancers met within the area the cancer prevalence rate, the economic status of the population, the feasibility of out-patient treatment etc.

(i) *Number of cancer beds required.*—The WHO has recommended that based on the European Cancer Incidence rate of 3,500 per million population full hospitalisation is required for 2,000 of these cases, part hospitalisation for 1000 and outpatient treatment for 500. On this basis and taking into account the prolonged and repeated hospitalisation that is necessary for cancer cases they have calculated that 650 cancer beds per million population should be ensured. On the basis of this recommendation the total number of cancer beds required in Madras State alone will be 21,450 whereas at present the number of beds available is round about 500 at a very generous estimate. It should also not be forgotten that a much higher percentage of cancer cases needs hospitalisation in India than in Europe. It is of significance that the WHO pointedly states that their bed estimate does not include advanced cases.

(ii) *Types of centres required :*

The therapeutic net-work as visualised by the WHO is as follows:—

- (a) Regional Cancer Institute.
- (b) Special Cancer clinics *i.e.* Cancer treatment centres.
- (c) Mobile cancer therapeutic teams.
- (d) Cancer wings in General Hospitals.

To this I would like to add a fifth (e) Home for the advanced cancer patient.

(a) *The Regional Cancer Institute* is the central Directing Organisation of all cancer activity in its region. In India, both because of its vast size and population and ethnic and political factors, it would be desirable to consider each state as a "Region" and plan the "Regional Cancer Institutes" on that basis. The development of these regional Institutes can be phased depending on the existing facilities in the State and the finances available. The organisation of a "Regional Institute" will be elaborated in Part II.

(b) *Special Cancer Treatment Centres.*—These are fully equipped and fully staffed cancer centres containing all the facilities for the diagnosis treatment and follow up of cancer patients. The WHO has recommended on such a centre for every 1-2 million population. In India such a ratio may not be practicable. But it would be necessary to have one such centre for every 5 million population in the beginning if the cancer problem is to be adequately met. Each of these centres should contain 50 beds initially, though the WHO recommendation is nearly 60 times as many. This is because in the initial years all cases of cancer in the area will not come to hospital for treatment and only relatively late cases will come. But as the educational and screening programmes get effectively underway, which we expect would be the case in 10 years' time if we start now, the number of cancer beds provided would have to be sharply increased to keep in step with the demand.

The special cancer treatment centres will also be in charge of mass education and the screening programmes in its area. They will, however, have no teaching or research functions. They will be affiliated to the Central Regional Institute.

(c) *Mobile Cancer therapeutic teams.*—As the cancer detection programmes grow apace it may become necessary to establish mobile therapeutic clinics *i.e.* a special cancer treatment centre minus its beds, on wheels

—which will follow the detection teams and provide modern cancer therapy on the spot. The mobile clinics should have modern diagnostic, surgical, radio-therapeutic and chemo-therapeutic facilities. These mobile clinics have been organised in the Republics of the USSR where there are under-developed areas, and have proved a great success.

(d) *Cancer Wings in General Hospitals.*—Cancer wings in General Hospitals do not constitute the ideal set up to treat cancer. In the General Hospital the volume of non-oncologic cases overwhelm the oncologic ones. The oncologic cases are not so very rewarding from the point of cure and personal prestige as the non-oncologic cases. The surgeon, therefore, tends generally to bestow more attention on his non-oncologic cases. With a large operating list to go through the surgeon often tends to do his “abdominals” and leave a radical mastectomy or an emasculation or a neck dissection to either his Assistants or Senior House Surgeons. The juniors have to learn surgery, no doubt but it should never be on a cancer patient, for the penalty of a small surgical omission is recurrence and death for the patient. An investigation of the 5 year cure in a series of General Hospital and Cancer Hospitals in the U.S.A. by Dr. Heller of the American Cancer Society revealed a 15% to 20% higher cure rate in the Cancer Hospitals than in the General Hospitals.

Moreover, in a general hospital several surgical and medical teams handle cancer cases and there is a lack of uniformity and method in the management of a cancer patient which militates against his well being. Co-ordination between different teams is also not always easy. In India, General Hospitals as a rule do not maintain a Tumor Registry, not even the semblance of follow up.

But in India under the existing circumstances Cancer will continue to be treated in General Hospitals. It should, however, be possible to ensure uniformity of treatment, coordination between various therapeutic teams, minimal standards of therapy, proper tumor registration and follow up. It will be valuable to appoint a co-ordinator, who can be one of the Senior Surgeons of the Hospital. Frequent consultations between the Specialists on the progress of each case under treatment should be held and *not just the first consultation regarding the line of treatment.*

The Cancer Wings of General Hospitals will be routine treatment centres and will coordinate with the Regional Cancer Institute.

(e) *Institutions for the care of the advance cancer patients.*—The WHO has visualised the management of the patient with advanced cancer as essentially a part of the “Home Care” programme. While this may apply to Europe it does not to a country like India. Our Socio-Economic conditions, the great distances and the poor transportation to the remote village preclude any “Home Care Programme” and deny any treatment at all for the poor villager who does not gain admission to a Hospital. Institutional Care of the advanced cancer patient has, therefore, to be an integral part of any cancer therapeutic programme in our country.

Care of the advanced cancer patient is not just a matter of nursing as people often believe it to be but includes discriminate radio-therapy, chemotherapy or hormonal therapy. It may even involve “palliative surgery” such as pain relief or a by-pass.

C. Socio-Economic Programmes

The poverty of the average Indian creates problems at every stage in the implementation of a cancer programme.

Even when free transport and free inpatient treatment is provided for the patients the economic difficulties of his family left behind constitute a grave problem. The prolonged and repeated hospitalisation that cancer treatment demands, deprives the family of the source of their meagre livelihood. Their troubles affect the patient in the hospital, depresses him and interferes with his response to treatment. Sometimes he absconds before the treatment is completed, but quite often he leaves the day the treatment is over and before the violent reactions have subsided. This interferes with our treatment procedure.

A way has, therefore, to be found to support the family of the patient while he is under treatment.

Most of the patients undergoing radio-therapy are ambulatory and can do a limited amount of physical work. It would be advisable, therefore, to set up simple vocations, at a cancer treatment centre, like charka spinning, sell the yarn to the Khadi Board, and pay the patient for his labour. This earning could support his family. This facility, we feel, would make for a happier patient and more cures.

In Western Countries Health Insurance looks after the family during the difficult days of a breadwinner's illness but such arrangements on universal scale is not possible in India, however much such social security programmes may be desirable.

D. Educational Programmes.

This will include—

(i) Education of the public through talks on the radio, touring exhibitions, lantern slide lectures, film shows etc.

(ii) *Education of the Medical Practitioner.*—This needs high priority. Annual refresher courses do not attract many of the practitioners and do not appear to be of much value. Tumor seminars, once a week in the afternoon, for the general medical men could be of more value. The general practitioner will himself participate in the seminars, bring his own cases for elucidation and become part of the institution rather than a spectator on the sidelines. Every tumor centre should hold these seminars.

Close co-operation between the general medical practitioner and the specialised cancer centres is an indispensable prerequisite to the success of any cancer programme in the country.

(iii) *Under graduate Education.*—Teaching—Clinical and Laboratory on the basic aspects of neoplasia should be part of the curricula of under-graduate medical education.

(iv) *Graduate Education on Cancer.*—Oncology is a speciality in itself and should be considered as such by all Universities. Oncology cannot just become a minor part of a post-graduate course in General Surgery or in Radiology. The subject is too vast, too subtle and of too vital an importance for such treatment hereafter. The vision and foresight of the Vice-Chancel-

lor of the University of Madras has made it possible to introduce Oncology as a speciality for the Ph.D. Degree of the University. This aspect of cancer education will be dealt with in greater detail in Part II under "Regional Institutes".

Conclusion

The programme of organisation outlined above is a long term one. The vastness of our country and its population, the ignorance of the masses, the apathy of the educated classes, and above all the lack of discipline, integrity and conscience that pervades all sections of our people make the implementation of a programme like this a very formidable and stupendous task. It seems to us that it will be well nigh impossible to direct the programme from a Central All India Bureau at Delhi. The programme has to be taken up at the State level by the individual States with Central assistance if need be.

I feel that the best way to implement the programme is to encourage voluntary organisations interested in the programme to take up the work. A Cancer Board should be formed by these organisations for each State. It should consist of about 12 members and should include Oncologists, representatives of the interested voluntary social organisations, effective representatives from the Government of India, and the Chief Minister of the State concerned, who will also act as Chairman of the Board.

The details of the programme to be implemented will be worked out by these Boards for their States. These Cancer Boards should be subsidised both by the Government of India and the State Governments. It should also be incumbent on them to collect a fixed percentage of the money needed from non-official agencies and individuals.

This seems to be the only practical way in which the Cancer programme outlined above could function.

Part II

THE REGIONAL ONCOLOGICAL INSTITUTE

Definition

As already mentioned in Part I, it would be wise and practical at the present time in India to consider each State as an individual region for the purpose of the establishment of a Cancer Institute. This Regional Institute would be the coordinating centre for all the peripheral cancer clinics visualised in Part I. It will consist of a Cancer Hospital not exceeding 200-300 beds provided with every known facility for the precise diagnosis of cancer and its scientific treatment, a Statewide Tumor Registry, a clinical research division and fundamental research laboratories. It will also have a teaching centre attached.

The Institute will be an integrated centre under one Scientific Director.

Functions

The functions of a Regional Oncological Institute are defined by the WHO as follows :—

- (i) To act as a complete centre for diagnosis, treatment and follow up of cancer patients.
- (ii) To act as the centre for teaching and training in the Cancer field for the different professional levels needed.
- (iii) To carry out the research work in Cancer in the region.
- (iv) To act as the Central Cancer Registry for the Region where all cancer records are collected for statistical elaboration and analysis for the purpose of finding the Cancer morbidity and mortality, for the preventive campaign and for further development of the network of cancer facilities in the region.
- (v) To coordinate and lead the fight against cancer in the region through its peripheral cancer clinics, its cancer control and educational programmes.

Facilities

An oncological centre should satisfy certain basic requirements before it can be accepted as a satisfactory training centre:

They are :—

- (i) A properly functioning tumor registry and follow up system with a statistical department.
- (ii) A cancer hospital with a minimum bed strength of 100. Separate beds should be allocated to radio-therapy, surgery and chemotherapy. Satisfactory facilities for radio-diagnosis, diagnostic work-ups radio-therapy (including metabolised isotope therapy), surgery and resuscitation service should be available. A specialised consultant staff and a resident staff should also be available in the various oncological disciplines.

Ancillary units which are highly desirable and which can be part time are—

- (a) Dental Surgery, including a prosthetic department.
- (b) E.N.T.
- (c) Ophthalmic.
- (d) Reconstructive surgery.
- (e) Rehabilitative medicine including speech therapy.
- (f) Neuro-surgery.
- (g) Internal Medicine.
- (h) Home care.
- (iii) Laboratory facilities for both routine investigations and research should be available in Pathology, Experimental Biology, Biochemistry and Medical Physics.

Other laboratory facilities which are highly desirable but not compulsive are :—

- (a) Microbiology,
- (b) Radiation chemistry.
- (c) Enzyme Chemistry.
- (d) Pharmacological chemistry and chemo-therapy.
- (e) Genetics.
- (iv) Adequate library facilities.
- (v) An adequate secretarial, social and administrative service should also be available.

Teaching Staff

The quality of the staff and conditions of service are also, naturally, of immense importance.

It is my experience that the teaching staff of an Oncological Institute should be essentially full time. It may be valuable to have a few others, distinguished in certain fields of medicine, as part time consultants and teachers, but the staff should be essentially full time.

Oncology is a very complex and intricate subject. Moreover, it is a dynamic subject, in which ideas, technics, methods and experimentation are continuously progressive. A teacher in Oncology has, therefore, to be learned, but what is more important scientifically original. Scholarship in itself will not be adequate, he has to be a constant student, not merely of books, but of Oncology in its different manifestations and aspects. Such a one can have little time for anything but his science. But the system should not be so rigid as to totally exclude some distinguished scholar who can benefit the institution by his contribution in experience and knowledge just because he does not conform to the 'Full time' regulation.

As far as possible the staff should be of indigenous origin. This is essential for progress. Talent is present in our people and can be developed and trained. In every country of South East Asia you will find groups of well educated talented oncologists who can well and easily form the nucleus

of an oncological centre. There may be an occasional area of oncology where a competent indigenous teacher may be lacking. In such case an expert in that particular field may have to be invited from elsewhere.

Here I feel that I should sound a note of caution. I have met many professors from abroad sent to India under exchange programmes. The impression has grown on me that they were vastly inferior to the teachers under whom I had studied in the United States. I have discussed this phenomenon with several outstanding scientists of the U.S.A. and all of them had the feeling that the best men in the States were reluctant to take an assignment of more than a few weeks outside their laboratories. They felt that the long term professors assigned to South East Asian countries were not selected with due care. It should always be borne in mind that a scientific lacuna can be corrected properly only by the best men in the field and not by men of indifferent quality. It also tends to bring the entire exchange programme into contempt, which is not very healthy.

It goes without saying that the teaching staff should be men of intellect and experience. Experience does not necessarily mean age. It is really preferable to choose relatively younger men, say about 40 years, because in the building up a new world, energy, drive and enthusiasm tempered by wisdom and experience are essential.

It is difficult to define the exact qualifications of the teaching staff. It is better left to the judgement of the selecting committee. The staff, however, should possess post-graduate degrees in the clinical specialities or doctorate degrees in the non-clinical laboratory specialities, have at least 5-10 years of research and teaching experience, should have published original papers in national and international journals and should have given evidence of steadiness in their work and temperament.

In this connection it would be well to carefully consider the composition of the Committee selecting the staff. It is important that the members of this high power committee should be free from political pressures, and considerations other than talent and merit should not count.

If this is to be implemented in some fashion at least the selecting committee should be composed of representatives from the groups mentioned below :—

1. The Director of the Institute.
2. Two representatives from an International Scientific Organisation not belonging to the country where the Institute is situated.
3. Two representatives of a regional, internationally accepted and autonomous University.
4. One representative of the Government from the technical services.
5. One representatives of the Government from the top administrative services.

I do not say that this Committee is fool-proof, but it is likely to limit abuses.

There can be no limit to the type and number of staff to be appointed. This will depend upon the financial capacity of the Institute, and the availability of personnel. But the following basic staff are essential in an Oncological Institute :—

- I. Clinical Services.—**
- | | |
|---------------------------------------|--|
| Surgeons | Dental Surgeon with prosthetic training. |
| Radiotherapists | Plastic surgeon. |
| Radiologist | Anaesthetist |
| Physician | Physio-therapist |
| Clinical Pathologist & Bacteriologist | Gynecologist |
| Blood Bank Medical Officer. | Speech therapist. |
| | Programme-co-ordinator. |
- II. The Laboratory service.—**
- Pathologist with cytology training.
 - Medical physicist.
 - Biochemist.
 - Micro-biologist.
 - Geneticist.
 - Pharmacologist.
- III. Tumor Registry.—**
- Statistician
 - Interviewers
 - Record Clerks.
- IV. Social services.**
- Almoner
 - Medical Social workers.
 - Home visiting nursing staff.
- V. Administrative services.—**
- Trained secretarial staff.
 - Office staff like Administrative Officer.
 - Establishment Officer.
 - Accountant.
 - Store Clerk etc.
- VI. Miscellaneous.—**
- Librarian.
 - Photo Artist.

Constitution

The Regional Institute should be governed preferably by an autonomous Governing Body. The precise composition of the body would depend on local conditions and circumstances, but a tentative list is given below for consideration.

Representatives of the Government of India	1
Representatives of the State Government	1
Vice-Chancellor of the affiliating University	1
Director of the Indian Council of Medical Research	1
Director-General of the C.S.I.R.	1
Representatives from public life	5
Director of the institute	1
Secretary & Treasurer of the Institute	1

The representatives from public life can include Social workers, businessmen, lawyers or Scientists (medical or non-medical) as circumstances dictate. Such a Governing Body is visualised because it is felt that the association of non-officials in the Governance of the Institution would greatly help the organisation and implementation of control programmes. It would also promote flexibility in the Institution and prevent its isolation from the general public. It would also be advantageous to obtain financial support for the Institute from private individuals and agencies to supplement the State Grants.

This Governing Council will be the body legally responsible for the governance of the Institution and its finances, and will represent the Institution in all dealings with official or non-official agencies, national or international.

Financial pattern.—The finances of the Institute should be preferably drawn from three sources, viz. the Government of India, the State Government and the Co-operating Voluntary agency in the proportion of 50%, 30% and 20%. This should apply to both maintenance and capital expenditure. If the State Government is the agency desirous of establishing the Institute and no voluntary agency is interested (this arrangement should be minimised as far as possible as it is bound to be less effective), the expenditure should be divided between the State and the Centre on the basis of 50%, 50%.

University affiliation.—The Institute should be affiliated to the Regional University at the Post-Graduate level. Oncology should be recognised as a special subject by the University for its research degrees. Oncologic degrees should be conferred only by research and not examination. In addition to the written treatise there should be an oration and defence of the treatise before a Court of Examiners.

Recognition of the Institute.—The Institute should be inspected by a Committee of Oncologists formed from the Scientific Directors of existing Oncological Institutions, the Vice-Chancellor of the Regional University, the Director of the I.C.M.R. and the Director General of the C.S.I.R. before it is recognised as a Regional Oncological Institute. The recommendations of this Committee should be final and binding upon Government.

Reference.—

1. Report of the WHO Expert Committee on the treatment of Cancer—Geneva, March 1965.
2. Shanta V. Krishnamurthi, S—Progress in the treatment of oral and cervical cancer—2nd National Cancer Congress, Madras, January, 1964.
3. Pateson R., Tod M and Russel, M—Results of radium and X-Ray therapy in malignant disease—3rd Statistical Report of the Holt Radium Institute, Manchester. 1950.
4. Wahi, P. N.—Personal communication.

APPENDIX 16

VIEWS OF DR. J. C. PAYMASTER

Facilities for Cancer Treatment & Diagnosis other than Regional Cancer Centre

Besides Regional Cancer Centres, there will be "Cancer Wings" or "Cancer Sections" in some of the larger hospitals and perhaps in the smaller ones, there will be "Cancer Clinics". The Cancer Wings or Sections and the Cancer Clinics must work in full co-ordination with the nearest Regional Cancer Centre. In this way there will be uniformity in the matter of collection of data, diagnostic facilities and also in the treatment of Cancer patients. Ultimately from these data will emerge the methods for prevention of cancer.

A. Cancer Clinics

The Cancer Clinics being situated in smaller hospitals with limited facilities need not go in for elaborate treatment part but they must have diagnostic facilities.

For this purpose :—

1. They must use forms or proformas accepted by the Regional Cancer Centre and used throughout the clinics and Cancer Wings of the regions covered by the Regional Cancer Centre and collect information about cancer which can be filled by the medical officer in charge at the time of examination.
2. There must be facilities for taking a biopsy from superficial lesions such as those which occur on the skin, ear, nose, mouth, throat, cervix penis etc.
3. There must be mutual arrangements for such biopsies to be examined either by the nearest hospital that has a "Cancer Wing" or it must be sent to the nearest regional cancer centre.
4. The patient once suspected or diagnosed as a cancer patient, should be referred to the nearest hospital with a cancer wing or to the nearest Regional Cancer Centre without delay for treatment and advice.
5. After completing treatment at the Cancer Wing or Regional Cancer Centre, the routine periodical check-ups may be done at the Cancer Clinics and information and findings passed on to the Cancer Wing or to the Regional Cancer Centre for record purposes.

B. Cancer Wings or Cancer sections must have the Following Facilities :—

1. Facilities (Proforms etc.) for collection of data from cancer patients.
2. Facilities for clinical examinations of patients
3. Facilities for taking biopsies from external and internal organs.
4. Facilities for processing and examining biopsies.
5. Radiological diagnosis and treatment facilities etc.
6. Personnel trained for all types of treatment of cancer patients.
7. Personnel and facilities for collecting follow-up information and to maintain medical records of patients.

A team from the Regional Cancer Centre should visit the Cancer Wings or Clinics and evaluate the working and progress of each unit periodically.

APPENDIX 17

Break-up for the Regional Cancer Hospital & Centre for the Fourth Five Year Plan period

	1966-67	1967-68	1968-69	1969-70	1970-71	Total
1. (Research)	N.R. 5.00 lakhs	..	..	..	..	Rs. 5.00 lakhs
Clinical	1.50	1.50	1.50	1.50	1.50	7.5 lakhs
2. Fundamental Research	5.50	7.00	7.50	10.00	15.00	45.00
3. Training (20 students)						
Post graduate MS						
(6 students) MD						
3 courses of 3 months Ph.D						
training @ Rs. 300 per month D.Sc	0.162	0.162	0.162	0.162	0.162	0.81
M.Sc. & M.B.B.S. 8 students for 6 months @ Rs. 250/-p.m. (two courses)	0.24	0.24	0.24	0.24	0.24	1.20
Technicians (B.Sc.) 6 students for 6 months course @ Rs. 200/- p.m. (2 courses).	0.144	0.144	0.144	0.144	0.144	0.720
4. Equipment	4.00	4.00	4.00	4.00	4.00	20.00
(including Foreign Exchange.)						Rs. 80.23 lakhs

@Stay Rs. 80.00 lakhs for one Regional Cancer Centre. Two such Centres costing Rs. 1.60 crores will be developed in each of the IVth, Vth & VIth Plans, if possible and on the recommendation of the Cancer Committee.

APPENDIX 18

RESOLUTION OF THE WORLD HEALTH ORGANISATION

Eighteenth World Health Assembly

WHA 18.44
20 May 1965

ORIGINAL: ENGLISH AND FRENCH

ESTABLISHMENT OF AN INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

The Eighteenth World Health Assembly,

Cognizant of Article 18 of the constitution which provides, *inter alia*, that one of the functions of the Health Assembly shall be to establish such other institutions as it may consider desirable with a view to promoting and carrying on research;

Considering that the Governments of the Federal Republic of Germany, France, Italy, the United Kingdom of Great Britain and Northern Ireland and the United States of America have agreed to sponsor the creation of and to participate in the functioning of an International Agency for Research on Cancer in accordance with the provisions of its Statute;

Considering that many governments have expressed their interest in the creation of such an Agency; and

Considering resolution WHA 17.49 of the Seventeenth World Health Assembly.

DECIDED TO establish an International Agency for Research on Cancer which shall carry on its functions in accordance with the provisions of its Statute.

Twelfth plenary meeting.
20 May 1965
A 18/VR/12

WHA 18.44

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STATUTE OF INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

Article I. Objective

The objective of the International Agency for Research on Cancer shall be to promote international collaboration in cancer research. The agency shall serve as a means through Participating States and the World Health Organisation, in liaison with the International Union against Cancer and other interested international organisation, may cooperate in the stimulation and support of all phases of research related to the problem of cancer.

Article II. Functions

In order to achieve its objectives, the Agency shall have the following functions :

1. The Agency shall make provision for planning, promoting and developing research in all phases of the causation, treatment and prevention of cancer.

2. The Agency shall carry out a programme of permanent activities. These activities shall include :

- (a) the collection and dissemination of information on epidemiology of cancer, on cancer research and on the causation and prevention of cancer throughout the world ;
- (b) the consideration of proposals and preparation of plans for projects in, or in support of, cancer research; such projects should be designed to make the best possible use of any scientific and financial resources and special opportunities of studies of the natural history of cancer which may arise ;
- (c) the education and training of personnel for cancer research.

3. The Agency may arrange for the carrying out of special projects ; such special projects shall be initiated only upon the specific approval of the Governing Council, based upon the recommendation of the Scientific Council.

4. Such special projects may include :

- (a) activities complementary to the permanent programme ;
- (b) the demonstration of pilot cancer prevention activities ;
- (c) the encouragement of, and the giving of assistance to, research at the national level, if necessary by the direct establishment of research organisations.

5. In carrying out its programme of permanent services or any special projects the Agency may collaborate with any other entity.

Article III. Participating States

Any Member of the World Health Organisation may, subject to the provisions of Article XII, participate actively in the Agency by undertaking, in a notification to the Director General of the World Health Organisation, to observe and apply the provisions of this Statute. In this Statute, Members which have made such a notification are termed "Participating States".

Article IV. Structure

The Agency shall comprise ;

- (a) the Governing Council ;
- (b) the Scientific Council ;
- (c) the Secretariat.

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Article V. The Governing Council

Annex

1. The Governing Council shall be composed of one representative of each Participating State and the Director General of the Health Organisation, who may be accompanied by alternates or advisers.

2. Each member of the Governing Council shall have one vote.

3. The Governing Council shall :

- (a) adopt the budget ;
- (b) adopt financial regulations ;
- (c) control expenditure ;
- (d) decide on the size of the Secretariat ;
- (e) adopt its own rules of procedure.

4. The Governing Council after considering the recommendation of the Scientific Council, shall :

- (a) adopt the programme of permanent activities ;
- (b) approve any special project ;
- (c) decide upon any supplementary programme.

5. Decisions of the Governing Council under sub-paragraphs (a) and (b) of paragraph 3 of this Article shall be made by a two-thirds majority of its members which are Participating States.

6. Decisions of the Governing Council shall be taken by a Simple majority of members present and voting, except as otherwise provided in this statute. A majority of members shall constitute a quorum.

7. The Governing Council shall meet in ordinary session at least once in each year. It may also meet in extraordinary session at the request of one-third of its members.

8. The Governing Council may appoint sub-committees and working groups.

Article VI. The Scientific Council

1. The Scientific Council shall be composed of twelve highly qualified scientists, selected on the basis of their technical competence in cancer research and allied fields.

2. The members of the Scientific Council shall be appointed by the Governing Council. The Director-General of the World Health Organisation after consultation with qualified scientific organisation, shall propose a list of experts to the Governing Council.

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3. Each member of the Scientific Council shall serve for a term of three years. However, of the members first appointed, the terms of four members shall expire at the end of one year, and the terms of four more members

shall expire at the end of two years. The members whose terms are to expire at the end of one year and the members whose terms are to expire at the end of two years be chosen by lot to be drawn by the Director General of the World Health Organisation immediately after the first appointments have been made.

Any member leaving the Scientific Council can be reappointed only after at least one year has elapsed, except those who have been chosen by lot in accordance with the above procedure.

4. The Scientific Council shall be responsible for ;
 - (a) adopting its own rules of procedure ;
 - (b) the periodical evaluation of the activities of the Agency ;
 - (c) recommending programmes and preparing special projects for submission to the Governing Council.
 - (d) the periodical evaluation of special projects sponsored by the Agency ;
 - (e) reporting to the Governing Council, for consideration at the time that body considers the programme and budget, upon the matters dealt with in sub-paragraphs (b) (c) and (d) above.

Article VII. Secretariat

1. Subject to the general authority of the Director-General of the World Health Organisation, the Secretariat shall be the administrative and technical organ of the Agency. It shall in addition carry out the decisions of the Governing Council and the Scientific Council.

2. The Secretariat shall consist of the Director of the Agency and such technical and administrative staff may be required.

3. The Director of the Agency shall be selected by the Governing Council. The appointment shall be effected by the Director-General of the World Health Organisation on such terms as the Governing Council may determine.

4. The staff of the Agency shall be appointed in a manner to be determined by agreement between the Director-General of the World Health Organisation and the Director of the Agency.

5. The Director of the Agency shall be the chief executive officer of the Agency. He shall be responsible for :

- (a) preparing the future programme and the budget estimates ;
- (b) supervising the execution of the programme and the scientific activities ;
- (c) directing administrative and financial matters.

WHO 18.44

Page 5.

The Director of the Agency shall submit a report on the progress of the Agency and the budget estimates for the next financial year to each Participating State and to the Director-General of the World Health Organisation, which shall be distributed to reach them at least thirty days before the regular annual meeting of the Governing Council.

Article VIII. Finance

1. The administrative services and permanent activities of the Agency shall be financed by equal annual contributions by each Participating State.

2. These annual contributions shall be due on 1st January of each year and must be paid not later than 31 December of that year.

3. These annual contributions shall be \$150,000.

4. The amount of these contributions shall not be changed for five years except by unanimous decision of the Governing Council. After that period, any decision to change the amount shall require a two-thirds majority of the members of the Governing Council who are representatives of Participating States.

5. A Participating State which is in areas in the payment of its annual contribution shall have no vote in the Governing Council if the amount of its arrears equals or exceeds the amount of contributions due from it for the preceding financial year.

6. The Governing Council may establish a working capital fund and decide its amount.

7. The Governing Council shall be empowered to accept grants or special contributions from any individual, body or government. The special projects of the Agency shall be financed from such grants or special contributions.

8. The funds and assets of the Agency shall be treated as trust funds under Article VI(6) and (7) of the Financial Regulations of the World Health Organisation. They shall be accounted for separately from the funds and assets of the World Health Organisation and administered in accordance with the financial regulations adopted by the Governing Council.

Article IX. Headquarters

The site of the headquarters of the Agency shall be determined by the Governing Council.

Article X. Amendments

Except as provided in Article VIII, 4, amendments to this Statute shall come into force when adopted by the Governing Council by a two-thirds majority of its members who are representatives of Participating States and accepted by the World Health Assembly.

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Article XI. Entry into Force

The provisions of this Statute shall enter into force when five of the States which took the initiative in proposing the International Agency for Research on Cancer have given the undertaking referred to in Article III to observe and apply the provisions of the present Statute.

Article XII. New Participating States

After the entry into force of this Statute, any State Member of the World Health Organisation may be admitted as a Participating State, provided that :

(a) the Governing Council, by a two-thirds majority of its members who are representatives of Participating States, considers that the State is able to contribute effectively to the scientific and technical work of the Agency ;

(b) and thereafter, the State gives the undertaking referred to in Article III.

Article XIII. Withdrawal from Participation

A Participating State may withdraw from participation in the operation of the Agency by notifying the Director-General of the World Health Organisation of its intention to withdraw. Such a notification shall take effect six months after its receipt by the Director-General of the World Health Organisation.

EXTRACTS ON CANCER FROM THE REPORT OF THE HEALTH SURVEY AND PLANNING COMMITTEE

Page 25

Provision should be made for radium and X-Ray treatment at all hospitals associated with medical colleges. A Considerable extension of diagnostic facilities will be necessary.

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Two cancer research centres were set up by the Government of India, one at Bombay and the other at Calcutta. In addition, certain non-governmental cancer institutions were given substantial financial help.

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Although treatment of cancer is provided at most of the larger hospitals in the country, the number of hospitals devoted exclusively to the treatment of cancer can be counted on the finger tips. Even many of the teaching institutions do not have separate cancer hospitals or cancer wings. It is suggested that each teaching hospital should have its own separate cancer clinic with an independent cancer wing if not a hospital. Each State should have a full-fledged hospital equipped with modern facilities for the surgery and radio-therapy of cancer cases.