Srivastava committee Report

HEALTH SERVICES AND MEDICAL EDUCATION: A PROGRAMME FOR IMMEDIATE ACTION

Report of the Group on Medical Education and Support Manpower

Ministry of Health and Family Planning
Government of India
New Delhi

First Published 1975

ALLIED PUBLISHERS PRIVATE LIMITED
15 Graham Road Ballard Estate Bombay 400038
5th Main Road Gandhinagar Bangalore 560009
13/14 Asaf Ali Road New Delhi 110001
17 Chittaranjan Avenue Calcutta 7C0013
150-B/6 Mount Road Madras 600C02

PRINTED AT THE CENTRAL ELECTRIC PRESS, 80-D, KAMLA NAGAR, DELHI-110007 AND PU3LISHED B / R. N. SACHDEV FOR ALLIED PUBLISHERS (PVT) LTD., 13/14 ASIF ALI ROAD, NEW DELHI-110001.

Composition of the Group on Medical Education and Support Manpower

DR. J.B. SHRIVASTAV, Director General of Health Services	*Chairman*
DR. C. GOPALAN , Director General, Indian Council of Medical Research New Delhi	*Member*
PROF. V. RAMALINGASWAMI, Director, All India Institute of Medical Sciences, New Delhi	—do-
DR. P. N. CHUTTANI, Director, Post-Graduate Institute of Medical Education & Research, Chandigarh	—do—
SHRI J.P. NAIK, Member-Secretary, Indian Council of Social Science Research, New Delhi	—do—
SHRI C.R. KRISHNAMURTHI, Director, Ministry of Health and Family Planning	—do-
DR. SHARAD KUMAR, Deputy Director General of Health Services (Medical)	*Member-Secrety*

PREFACE

I am very grateful to the Ministry of Health and Family Planning, Government of India, for giving permission to the Indian Council of Social Science Research to publish this report on *Health Services and Medical Education : A Programme for Immediate Action* in the series on Alternatives in Development.

J. P. NAIK
Member-Secretary
Indian Council of Social
Science Research.

New Delhi
15th August 1975

CONTENTS

HEALTH SERVICES AND MEDICAL EDUCATION: A PROGRAMME FOR IMMEDIATE ACTION

I

INTRODUCTORY

1.01 The Government of India, in the Ministry of Health and Family Planning, have invited attention to some of the pressing problems and needs of medical education and support manpower and especially to:

the essentially urban orientation of medical education in India, which relies heavily on curative methods and sophisticated diagnostic aids, with little emphasis on the preventive and promotional aspects of community health, the failure of the programmes of training in the fields of nutrition, family welfare planning, and maternal and child health to subserve the total needs of the community because of their development in isolation from medical education, the deprivation of the rural communities of doctors, in spite of the increase of their total stock in the society, the need to re-orient undergraduate medical education to the needs of the country, with emphasis on community rather than on hospital care, and the importance of integrating teaching of various aspects of family planning with medical education,

and have expressed the view that the structure of medical education has to be modified to meet the changing requirements and to provide adequately for future needs, particularly of the rural community. Governments have also stressed the need to improve the delivery of health services by better trained and more qualified personnel working under the supervision of fully-equipped medical doctors.

---

* Letter No. Z. 21015/1/74-PPH dated 1st November, 1974 which is quoted in full in Appendix I.

1.02 In the light of these limitations of medical education and health services, we have been requested

(a) to devise a suitable curriculum for training a cadre of Health Assistants conversant with basic medical aid, preventive and nutritional services, family welfare, and maternity and child welfare activities so that they can serve as a link between the qualified medical practitioners and the multipurpose workers, thus forming an effective team to deliver health care, family welfare and nutritional services to the people;
(b) to suggest steps for improving the existing medical educational processes as to provide due emphasis on the problems particularly relevant to national requirements, keeping in view the recommendations made by earlier Committees on Medical Education, specially the Medical Education Committee (1968) and the Medical Education Conference (1970) and to suggest suitable ways and means for implementing these recommendations; and
(c) to make any other suggestions to realise the above objectives and matters incidental thereto.

1.03 In our very first meeting, certain issues arose regarding the approach, scope and emphasis of our Report and we therefore sought an interview with the Minister of Health and Family Planning; and in the light of our discussions with him, it was decided that our proposals for the basic reforms in medical education and the organization of support manpower should be made in the context of the organization of a nation-wide network of efficient and effective health services for the country for which we could indicate a tentative framework. It was also decided that we should emphasize a few major programmes for immediate action and highlight the urgent need to create the essential structures necessary for implementing the reform of medical education. Our detailed proposals on the subject which follow have to be understood in the light of these decisions which were approved of by the Minister of Health and Family Planning.

1.04 We have examined all the earlier documents available on the subjects referred to us as well as the memoranda and suggestions

received from various associations and individuals. "We would like to convey our grateful thanks to Dr. K.S. Sanjivi, Director, National Health Services, Madras; Dr. A. Timmappaya, Director, National Institute for Health Administration and Education, New Delhi; Dr. P.R. Sondhi, Director, Health Services, Haryana and Dr. D.B. Bisht, Principal, Jawaharlal Institute of Post-Graduate Medical Education and Research, Pondicherry, who gave us their valuable advice and participated in some of our meetings. We would also like to place on record our appreciation of the unstinting hard work put in by our Member-Secretary; Dr. Sharad Kumar, but for which we would not have been able to finish our work in so short a time, the assistance rendered by Dr. S.K. Sen Gupta, Director, C.B.H.I., and Dr. B.C. Ghoshal, A.D.G. (HA) in our deliberations and the efficient secretarial assistance provided by the Directorate General of Health Services.

* The details are given in Appendix II.

II

HEALTH SERVICES FOR INDIA: A TENTATIVE FRAMEWORK.

2.01 The Bhore Committee (1946) put forward, for the first time, comprehensive and bold proposals for the development of a national programme of health services for the country. During the last 30 years, sustained efforts have been made to implement its recommendations as well as those of other important committees in this field. In spite of the substantial investments made and the impressive results obtained particularly in the production of medical manpower, the health status of the Indian people is still far from satisfactory. The sheer magnitude of the tasks that still remain is so great and the additional resources available for the purpose appear to be so limited that one almost despairs of meeting our health needs or realising our aspirations on the basis of the broad models we seem to have accepted. A time has, therefore, come when the entire programme of providing a nation-wide network of efficient and effective health services needs to be reviewed *de navo* with a view to evolving an alternative strategy of development more suitable for our conditions, limitations and potentialities.

General Principles

2.02 This strategy, in our opinion, will have to satisfy certain basic criteria such as (1) development of an integrated service covering promotive, preventive, and curative aspects of health services and family planning; (2) universal coverage and equal accessibility to all citizens; (3) full utilization of para-professional resources available in the community, and their supplementation by a well-structured system of referral services; (4) promotion of indigenous research as well as full use of the latest scientific developments made elsewhere in the field; and (5) the possibility of practical implementation within the financial resources likely to be available. In our opinion, this strategy will have to be based on the following general principles: (1) A universal and egalitarian programme of efficient and effective health services cannot be developed against the background

of a socio-economic structure in which the largest masses of people still live below the poverty line. So long as such stark poverty persists, the creative energies of the people will not be fully released; the State will never have adequate resources to finance even minimum national programmes of education or health; and benefits of even the meagre investments made in these services will fail to reach the masses of the people. There is therefore no alternative to making a direct, sustained and vigorous attack on the problem of mass poverty and for creation of a more egalitarian society. A nationwide programme of health services should be developed side by side as it will support this major national endeavour and be supported by it in turn.

(2) Development essentially means the development of men and not of things. It also implies an emphasis on the development of human rather than of material resources. For this purpose, the most significant tools are education and health. It will be difficult to define the *inter-se* priority between them. But there is no doubt that, taken together, they form the most powerful instruments for the development of man and human resources. Both education and health should therefore receive the highest priority and adequate allocation of resources, both at the Centre and in the States; and these in their turn, should be supplemented by local resources. What is even more important, the available resources should be used most economically and supplemented by well-planned human effort to obtain the best results possible.

(3) We have adopted tacitly, and rather uncritically, the model of health services from the industrially advanced and consumption-oriented societies of the West. This has its own inherent fallacies: health gets wrongly defined in terms of consumption of specific goods and services; the basic values in life which essentially determine its quality get distorted; over-professionalization increases costs and reduces the autonomy of the individual; and ultimately there is an adverse effect even on the health and happiness of the people. These weaknesses of the system are now being increasingly realized in the West and attempts are afoot to remedy them. Even if the system were faultless, the huge cost of the model and its emphasis on over-professionalization is obviously unsuited to the socio-economic conditions of a developing country like ours. It is therefore a tragedy that we continue to persist with this model even

when those we borrowed it from have begun to have serious misgivings about its utility and ultimate viability. It is, therefore, desirable that we take a conscious and deliberate decision to abandon this model and strive to create instead a viable and economic alternative suited to our own conditions, needs and aspirations. The new model will have to place a greater emphasis on human effort (for which we have a large potential) rather than on monetary inputs (for which we have severe constraints).

(4) Health is essentially an individual responsibility in the sense that, if the individual cannot be trained to take proper care of his. health, no community or State programme of health services can keep him healthy. The issue is therefore basically one of education. Every individual must be given the relevant information about his body and its functioning, must be taught the essential health skills (including the care of himself and of other persons in illness and preventive aspects of health) and must be enabled to develop values of self-control and discipline without which no person can remain healthy. It is also desirable to educate an individual in developing proper attitudes to health and disease, to accept old age gracefully as a natural process, to overcome abnormal sensitivity to physical pain and to learn to accept death cheerfully as an essential ingredient of life itself. It is a pity that these basic values which our tradition has been inculcating among our people for generations are being eroded, rather than strengthened, in the processes of modern formal education.

(5) The community responsibilities in health are even more important. It is the duty of the community to provide a proper environment for helping each individual to be healthy. This will include, amongst others, the supply of safe drinking water; adequate measures for disposal of human excreta; avoidance of air pollution; and control of communicable diseases. In our own tradition, these social aspects of health are the weakest and they therefore need strengthening and the highest emphasis.

(6) The State has an overall and supreme responsibility for providing a comprehensive and nation-wide network of health services. This includes: the direct attack on mass poverty; provision of adequate nutrition; development of integrated services in education and Health; and the organization of para-professional and professional services to cover the promotive, preventive and curative aspects, with emphasis on maternal and child health services which

are of the highest importance in this country. Unfortunately, several of these programmes have received inadequate attention, all of them have developed mostly in isolation from one another and there has been an undue emphasis on the curative aspects which are probably the least important. It is high time that all these programmes, are developed as a package deal and in their proper perspective

(7) The over-emphasis on provision of health services through professional staff under State control has been counter-productive. On the one hand, it is devaluing and destroying the old tradition of part-time semi-professional workers which the community used to train and throw up and which, with certain modifications, will have to continue to provide the foundation for the development of a national programme of health services in our country. On the other hand, the new professional services provided under State control are inadequate in quantity (because of the paucity of resources) and unsatisfactory in quality (because of defective training, organizational weaknesses and failure of rapport between the people and their so-called servants). What we need therefore is the creation of large bands of part-time semi-professional workers from among the community itself who would be close to the people, live with them, and in addition to promotive and preventive health services including those related to family planning, will also provide basic medical services needed in day-to-day common illnesses which account for about eighty percent of all illnesses. It is to supplement them, and not for supplanting them, that we have to create a professional, highly competent, dedicated, readily accessible, and almost ubiquitous referral service to deal with the minority of complicated cases that need specialized treatment.

(8) In the existing system, the entire programme of health services has been built up with the metropolitan and capital cities as centres and it tries to spread itself out in the rural areas through intermediate institutions such as Regional, District or Rural Hospitals and Primary Health Centres and its sub-centres. Very naturally, the quantum and quality of the services in this model are at their best in the Centre, gradually diminish in intensity as one moves away from it, and admittedly fail at what is commonly described as the periphery. Unfortunately, the 'periphery' comprises about: 80 percent of the people of India who should really be the focus of all the welfare and developmental effort of the State. It is therefore '

urgent that this process is reversed and the programme of national health services is built with the community itself as the central focus. This implies the creation of the needed health services within the community by utilizing all local resources available, and then to supplement them through a referral service which will gradually rise to the metropolitan or capital cities for dealing with more and more complicated cases.

(9) Throughout the last two hundred years, conflicts have arisen, in almost every important aspect of our life, between our traditional patterns and the corresponding systems of the West to which we have been introduced. In many of these aspects, the conflicts are being resolved through the evolution of a new national pattern suited to our own genius and conditions. In medicine and health services unfortunately, these conflicts are yet largely unresolved and the old and new continue to exist side by side, often in functional disharmony. A sustained effort is therefore needed to resolve these conflicts and to evolve a national system of medicine and health services, in keeping with our life systems, needs and aspirations.

(10) Education and health have continued to grow in isolation from each other to the detriment of both. It must now be emphasized that no programme of education (which means a sound mind in a sound body) can succeed unless it is blended with that of health education. Similarly, no programme of health services (which is essentially one of individual responsibility) can succeed without education which alone can give each individual the needed information, skills and value orientations. We must therefore develop these programmes together, not only in the formal education system, but also through non-formal methods which cover the out-of-school children and youth, the adult population, and especially the workers. (11) Nutrition is one of the most important components of health. There is overwhelming evidence of hunger and malnutrition among the large masses of people living below the poverty line, and especially among the vulnerable groups of young children and pregnant and lactating mothers. The problem will therefore have to be tackled on several fronts. We must produce more food and ensure its proper storage. A large scale public distribution system must be developed and employment at reasonable levels should be available to every person so that he will be able to procure at least the minimum food needed for himself and his family. Programmes

of supplementary feeding for vulnerable groups like pregnant and lactating mothers or young and school-going children or for the control of preventable diseases tike nutritional blindness or anaemias and goitre, should be developed. A programme of immunization has also to be developed side by side to break the vicious circle which has already set in, viz., malnutrition reducing the resistance to infection and infection, in its turn, accentuating the incidence of malnutrition. Equally important is the educative programme of improving the cooking and dietary habits of the people on scientific lines.

(12) Family planning is the basic issue in development just as development itself is the basic issue in population control. A massive and urgent programme of family planning, based on the application of existing contraceptive technology, must be developed on a war footing and the birth rate must be brought down to replacement levels in as short a time as possible. This will include simultaneous action on several fronts: educating public opinion about the consequences of the population explosion that has already reached 600 million and the staggering problems which the country will have to face if its population rises, as anticipated, to a billion mark level by the turn of the century; adoption of measures to spread the small family norm through education, reduction in infant mortality, increasing the cost of bringing up children, etc.; spread of education among women and improvement of their status; development of programmes of non-formal education (in which family planning is an essential ingredient) for young persons in the age-group 15-25; training of large numbers of family planning workers from the community itself and particularly from among the educated housewives; and making family planning an integral and important part of the comprehensive health services of the country.

2.03 We recommend that Government should undertake the task of evolving a national consensus on the broad strategy to be adopted for the development of a comprehensive nation-wide network of health services in the country during the years ahead. The general principles stated above and the broad framework which they indicate for the development of these services may be taken as a basis for consideration in this effort.

III

MAJOR PROGRAMMES FOR IMMEDIATE ACTION

3.01 If a viable model of national health services is to be created on the basis of these broad principles, immediate action will have to be initiated on the following four programmes, viz., (1) Organization of the basic health services (including nutrition, health education and family planning) within the community itself and training the personnel needed for the purposes;

(2) Organization of an economic and efficient programme of health services to bridge the Community with the first level referral Centre, viz., the PHC (including the strengthening of the PHC itself);

(3) The creation of a National Referral Services Complex by the development of proper linkages between the PHC and higher level referral and service centres; and

(4) To create the necessary administrative and financial machinery, for the reorganization of the entire programme of medical and health education from the point of view of the objectives and needs of the proposed programme of national health services.

We shall discuss these four programmes seriatim in the different sections that follow.

HEALTH SERVICES AND PERSONNEL IN THE COMMUNITY

4.1 The first assistance that any community needs in the form of health services should be provided within the community itself.

4.2 For some of these services, it is necessary to provide paid and trained professionals in public service. Some other services may be provided by fully trained professionals who are self-employed. It is, however, erroneous to assume that these services should be provided only by these two categories of professional staff. At the community level, what is needed most is not professional expertise so much as nearness to the community, its confidence, emotional rapport with the people, willingness to assist, low cost, and capacity to spare the needed time. It is, therefore, necessary that some of these services should be provided by the members of the family itself and also by part-time trained para-professional persons who operate on a self-employment basis. Even in societies which are affluent enough to provide all health services through fully-trained professional persons, either in public service or in self-employment, it is now becoming increasingly evident that the quality of life and of the health services will improve through the introduction of suitably trained part-time para-professional persons working on a self-employment basis. For developing countries whose resources are extremely limited, this method of providing health services is not only desirable, but also inescapable.

4.03 It may be recalled that, in the past, almost all health services used to be provided by part-time para-professional persons from the community itself who worked on a self-employment basis. The practitioner of indigenous medicine trained in a family tradition or the village dais who still perform the bulk of deliveries are instances of this practice. While the advantages of the system, such as its closeness to the community or low cost, are obvious, its main weakness lies in the fact that the training provided is limited and

Unrelated to modern developments in the medical and health sciences so that it often leads to quackery. The modern system which employs only the fully trained persons on a professional basis is no doubt very competent from a technical point of view. But it lacks some of the emotional, psychological and social advantages of the traditional system and is so costly that we will not be able to universalize it. What is necessary therefore is to combine the good features of both the systems. If we carefully select the individuals and train them, according to the best knowledge and skills made available by the latest developments in medical and health sciences, a large number of people from the community itself would be available for providing the elementary health and medical services needed by the community. Such a programme would serve three important purposes: (1) It would create an agency which is close to the people, has their confidence and is economical to operate, for providing the immediate, simple and day-to-day medical and health services needed by the community; (2) it will also create the foundation on which a superstructure of fully-trained and professional referral services can be advantageously built; and (3) it would have created a pattern of medical and health services which would be qualitatively better than the present system and still remain within the financial resources that are likely to be available in the near future.

4.04 Various steps will have to be taken to organize the large number of para-professionals who will be needed in every community to provide the first essential, simple and day-to-day health and medical services. Aptitude for such work is often developed within the family itself through participation in the provision of such services or in attending upon sick persons. This motivation would have to be strengthened further through the education system which should provide a core of health education to every student and also require him, as a part of work-experience or social service, to nurse sick persons in his own family or outside and also to participate in the development of services of a promotive or preventive character. This will enable a large number of individuals to discover their own interests and aptitudes. Many of them may later become para-professionals by acquiring the specialized skills necessary and operate on a part-time self-employment basis or become full-time professionals within or outside the public services.

4.5 It would also not be proper to regulate the number of such workers. Such a step would lead to the creation of a scarcity and monopoly situation with well-known adverse consequences. It should, on the other hand, be open to any individual with the necessary aptitude, background and talent to acquire the necessary skills and to provide the services. In fact, the more such trained people in a community, the better for all concerned.

4.6 In every community, we should have trained local, semi-professional, part-time workers of at least the following categories:

(1) An adequate number of *dais* to provide maternity services (some of them could also be trained to provide the whole range of MCH services including family planning).
(2) A large number of family planning workers from among* adults, young men, housewives and public functionaries.
(3) Persons who will be able to dispense a set of specific remedies selected from all systems of medicine for ordinary, common ailments.
(4) Persons who have been trained in the skills needed in programmes for the control of communicable diseases and whose services can be harnessed readily in case of emergencies.
(5) Persons who can help to develop promotional and preventive health activities (especially those relating to improved nutrition, environmental sanitation, control of common diseases, yoga, physical exercises, and so on).

4.07 These skills could be imparted to selected young persons from the community who may have the necessary aptitudes. One important group which may be considered in this context is that of the primary school teachers who now number about 2.5 million and even are present in the remotest rural areas and who have consider able acceptability and status in the community. Another important group would be that of educated housewives. An increasing pool of educated women is now becoming available even in rural areas (the census of 1971 records 1.5 million women in rural areas who are enumerated as housewives or non-workers but who are educated up to matriculation and beyond) and these form a large and useful pool for the training of such workers, including those for family planning. These workers, it may be pointed out, need not necessarily be multipurpose.

4.08 We would like to emphasize the point that periodical retraining of these personnel is extremely important as well as providing them with necessary guidance and counseling in their day-to-day work. The referral services should also be made available to them. In fact they should be looked upon as important links between the community and the trained professionals and the organized referral services.

4.09 This emphasis on the creation of a large band of semi- professional and part-time health workers in the community itself is proposed merely as second-level supplementary personnel to fully-trained professionals and not as a substitute for them. Where doctors or other personnel trained in indigenous or modern system of medicine are available, their services should be fully utilized, not only to provide health care to the people in the way best suited to each case, but also to train (or retrain) and assist other workers, honorary or part-time of a semi-professional character. We visualize that these two cadres would work closely together in an integrated fashion, the para-professional personnel in the community relieving the trained professionals of the innumerable small things over which their time would otherwise be wasted and the trained professionals taking over the more complicated cases direct and also providing referral and guidance services to the para-professional people.

4.10 It would not be desirable to try to convert these para-professional workers into a cadre, to give them remuneration from State \ funds or to supervise them. This will alienate them from the people and convert them into petty bureaucrats with all their faults. The general policy should be to leave them free to work with the community on the basis of the trust and confidence they can generate. The investment of the State in the organization of this group of para-professionals within the community should be limited to the provision of training and retraining, free of cost, on as large a scale as possible and to the provision of guidance and counseling through health workers, the proposed health assistants and doctors. Where necessary, the State should make supplies of materials (such as specified remedies) available at reasonable prices and on an assured basis. The overall financial investment on all these items would be comparatively

small; but the returns there from would be far greater.

4.11 These proposals might perhaps cause an adverse reaction in certain quarters on the ground that they would create, and let loose on the community, a large number of quacks who, in the long run, may do more harm than good. But a close examination will show that this will not be the case. The role assigned to these para-professional functionaries in the fields of promotive or preventive aspects of health and family planning are basically educational and are capable of doing immense good without any untoward implications. Some apprehensions may arise with regard to the role in curative aspects of health. But here, as we have emphasized, their function will be limited to the use of a few specified remedies for simple, day-to-day illnesses. There are also several safeguards in these proposals such as careful selection, provision of training and retraining, guidance and counseling and also periodical evaluation. Care has also been taken to ensure that they supplement the work of the professionals and not work in conflict or in competition with them. All things considered, we share no apprehensions on the subject and actually feel enthusiastic about most features of the scheme.

4.12 The details of several problems will have to be worked out before the scheme becomes operational. For instance, we will have to decide upon

—selection criteria for workers;
—the duration and content of their training and retraining;
—the provision of guidance and counselling, including periodical evaluation;
---the preparation of materials for these personnel in simple terms and in all the Indian languages; and
—determination of the institutions where their training etc. will be conducted, including the training of the trainers.

We recommend that these details should be worked out by the Director-General of Health Services, once the programme is accepted in principle by Government.

4.13 It is obvious that the scheme cannot immediately be started all over the country. Similarly, it would also be futile to start it in a few areas only. What is needed is a fairly large beginning and a fairly rapid generalization in the light of the experience gained which should be evaluated continuously. We therefore recommend that:

(1) all the details of the scheme should be worked out by the Director-General of Health Services as early as possible;
(2) after early consultations with the States, the scheme should be finalized quickly and at any rate before the end of the current year;
(3) the necessary financial provisions for the scheme should be made in the Central and State budgets for 1976-77 as a centrally-sponsored scheme of the Fifth Five Year Plan;
(4) the work of the scheme should begin in selected areas in each. State/Union Territory in 1976-77; and
(5) the scheme should be expanded to cover a fairly large part of the country by the end of the Fifth Plan and the entire country by the end of the Sixth Plan.

4.14 These bands of community level health workers, once created, will form the links between the people at large and the multipurpose workers functioning at the sub-centres and the doctors at the PHC level. This will make a much better utilization of their time and energy possible. Their training should therefore be adequate to ensure that, while they can freely offer services within a well-defined sphere of simple, urgent and day-to-day needs of the community, they would be able to decide when a case needs referral or consultancy from trained professional staff and take action accordingly without hesitation or delay.

V

FROM THE COMMUNITY TO THE PRIMARY HEALTH CENTRE

5.1 Beyond the community (and the local professional or para-professional health workers within it) lies the next stage in the organization of health services. In this area, we have, at present, various categories of health workers and their supervisors at the Sub-Centres and the PHC itself which also has its complement of doctors and other facilities. In our opinion, the provision of these services between the community and the PHC needs reorganization and the Primary Health Centre itself requires strengthening.

5.2 The Bhore Committee visualized the development of the Primary Health Centres in two stages. As a short-term measure, it was proposed that each PHC set up in the rural areas should cater to a population of 40,000 with a secondary health centre to serve as a supervisory, coordinating and referral institution. For each PHC, two medical officers, four public health nurses, one nurse, four midwives, four trained dais, two sanitary inspectors, two health assistants, one pharmacist and fifteen other Class IV employees were recommended. In the long-term, the Committee visualized a PHC to serve a population of only 20,000. The functions of the PHC were to include medical relief to both inpatients and outpatients, maternal and child health services including family planning, control of communicable diseases, school health, environmental sanitation and health education. But unfortunately it has not been possible, on financial grounds, to implement even the short-term proposals of the Bhore Committee to this day. At present, the Primary Health Centre serves a total population of about 80,000 to 120,000 and has a much smaller staff than that visualized by the Bhore Committee for a population coverage of 40,000 only. It also has a number of sub-centres, roughly at the rate of one for every 10,000 population. Under this situation, and especially in the absence of community level health workers on the desired scale and of the

right quality, it is no wonder that the out-reach of our Primary Health Centres in rural areas is very inadequate.

5.03 It will not be financially practicable to increase the number of Primary Health Centres except marginally. We therefore recommend that the focus of development in the immediate future should
be on the following three programmes:

(1) To reorganize the service of Health Workers and to increase their number as resources become available and ultimately to provide one male and one female health worker for every 5,000 population;
(2) To create a new cadre of Health Assistants by providing suitable training to the existing health supervisors and to increase their number so that there is ultimately one health assistant (male/female) for every two health workers (male/female); and
(3) To strengthen the Primary Health Centres.

Reorganization of the Services of Health Workers and the Creation of the New Cadre of Health Assistants

5.04 During the last twenty-four years, the cadres of functionaries which provide various health services to the community have multiplied very greatly because each health programme was run virtually independently of the others and with little coordination, both among the field workers and amongst those at the supervisory level. Even the two doctors at the Primary Health Centre had separate spheres of activity, one being devoted to the family planning programme and the other to the provision of general health services. It is now realized that, in the interest of economy as well as of efficiency, it is necessary to create a single multipurpose cadre to provide all the different promotive, preventive and curative health services needed, (including the control of communicable diseases) and also to include, within the responsibilities of this cadre, a modicum of curative services, an emphasis on maternal and child welfare services and family planning. The proposals of the Kartar Singh Committee in this regard have been accepted by Government and are also under various stages of implementation in the States. We fully support them subject to the observations made in the following paragraphs.

Health Workers

5.5 There is now a male health worker for every 6,000-7,000 population and one female health worker for every 10,000 population. The proposed target for the Fifth Five Year Plan is to provide one male and female worker each for a population of 8,000. While we welcome this, we-recommend that, by the end of the Sixth Plan, we should strive to provide one male and one female worker each for every 5,000 population.

5.6 We also recommend that every health worker should be trained and equipped to give simple specified remedies (including proven indigenous remedies as well) for day-to-day illnesses. Apart from the fact that this will provide an essential and needed curative service to the people, it will also increase the acceptability, utility and efficiency of the health workers themselves.

Health Assistants

5.07 There are now several cadres of uni functionary supervisors. The Kartar Singh Committee has done a signal service by suggesting the integration of all of them into a single cadre of health supervisors. While we endorse these proposals, we are of the view that they are inadequate to meet the situation and recommend the following changes:

(1) All this supervisory personnel should be designated as "Health Assistants" to highlight their role of assisting the work of the doctors at the PHC level and of forming a link between the PHC and the Health workers.

(2) The present position is that we have one male supervisor for every 20,000 population (or one for every three male health workers) and one female supervisor for every 60,000 population (or one for every six female health workers). In the Fifth Five Year Plan, there is a proposal to increase the number of female supervisors. The Kartar Singh Committee has recommended one supervisor for every four health workers. We recommend that we should strive to provide one male and one female health assistant for two male and two female health workers respectively.

(3) The health assistants should be located invariably at the sub-centres and not at the PHC.

(4) The health assistants, like the health workers, should also be trained and equipped to give specified remedies for simple day-to-day illnesses but at a higher level of competence. The curative services for which they should be trained, the medical kit which they should carry, all this need to be carefully worked out. This task should be immediately undertaken by the Director-General of Health Services.

(5) While the health assistants do have a supervisory role, they should also function as health workers in their own area, carrying out the same duties and responsibilities, but at a higher level of technical competence. They will be specially responsible for the promotive and preventive health measures and all the national health programmes. The female health assistant should take particular care of children and expectant and lactating mothers.

5.8 Our proposals regarding health assistants really fall in two phases. The first phase is qualitative in the sense that it is not proposed to increase the total number of persons at the supervisory level but to replace the existing varieties of unifunctionaries by a broad-based single cadre of multipurpose, middle level workers, comprising the sub-doctorate and sub-professional groups. From this point of view, persons in the existing categories of health supervisors, after suitable screening, should be given intensive training for varying periods so as to fit them for the job expected of them as health assistants. In the second phase, we propose that the number of health assistants should be increased as suggested above in para 5.07(2).

5.9 We regard the cadre of health assistants as an incentive and promotional cadre for health workers. We therefore recommend that the recruitment to the category of health assistants should ordinarily be restricted to health workers who are duly qualified to shoulder the higher responsibilities involved. Where, however, such qualified health workers are not available for promotion, an alternative channel of lateral recruitment from the open market should be provided.

5.10 Details relating to eligibility qualifications for promotion or selection into the category of health assistants, the period and kind of training that will have to be provided to health workers for the

purpose, the institutional arrangements needed for such training and its curriculum content, etc., are important and will have to be worked out by each State on the basis of general guidelines provided by the Centre. In course of time, as the health assistants replace the existing health supervisors, the latter category would eventually be phased out.

5.11 Both the health workers and the health assistants will have to function as important links in the referral services. They will deal freely with cases within their sphere of competence; but their training would have to emphasize that they should refer the cases beyond their competence to the appropriate agency without delay or hesitation.

5.12 While attempts to induce doctors to settle down in rural areas should continue and the services of all available doctors in rural areas should be fully utilized, there is no doubt that the category of health assistants will still be needed for years to come to supplement the available pool of medical man-power in rural areas. It is also necessary to emphasize that the health assistant is not a functional substitute for a doctor. But he will be providing useful health services in the sub-centres and thus will increase effectively the out-reach of the Primary Health Centres themselves.

The Primary Health Centre

5.13 The creation of local para-professional workers in the community itself to provide simple specified medicines for common day-to-day illnesses and the introduction of a curative function in the duties of the health workers and health assistants in providing some medical relief to the community will lead to a change in the functions and responsibilities of the doctors at the Primary Health Centre. They need no longer spend a greater part of their time, as at present, in providing simple medical relief and would thus be able to devote more attention to the referred cases and to the development of promotive and preventive programmes of community medicine and health. In spite of this, however, we do feel that the Primary Health Centre itself needs to be strengthened in manpower resources.

We have given, in Appendix III, a broad outline of the function of the Health Assistant as well as the venue and curriculum of training.

In view of the fact that women and children from the bulk of the population, we recommend that the immediate programme should be to add one more doctor, especially to look after maternal and child health services and one nurse. This will not only create an important, readily accessible professional skill in the PHC area, but would also ensure greater coverage and more effective use of the existing beds at the PHC. Similarly, the existing allotment of Rs. 12,000 earmarked for the purchase of drugs at each PHC is inadequate and needs to be increased. The additional funds needed for this programme should be found on a priority basis.

5.14 The National Service Act, in its application to the medical profession, need not be used to strengthen the medical manpower available at the Primary Health Centre. It is also not desirable to post the young inexperienced doctors at the Primary Health Centres and more so because the present system of medical education does not produce a doctor properly oriented to community needs. It should, however, be possible to use the newly recruited young doctors to strengthen the medical manpower at the medical college, regional, district or taluk/tehsil hospitals and to utilize the services of some senior doctors who would thus be relieved to work at the PHC level. We further recommend that the possibility of making a rule to the effect that every doctor in public health service shall spend, between the fifth and fifteenth year of his career, a period of not less than two consecutive years at a PHC should also be explored.

VI

THE REFERRAL SERVICES COMPLEX

5.01 We are of the opinion that the para-professional groups within the local communities, the health workers, the health assistants and he PHC doctors cannot satisfactorily perform the duties and functions expected of them unless they are properly integrated into a veil-organized referral system which would provide them with adequate support and guidance. From this point of view, it is necessary to develop an efficient and readily accessible system of referral from the PHC to higher and more sophisticated echelons in the neighbouring taluka/tehsil, district, regional or medical college hospitals. At present, most of these hospitals function in almost total isolation from one another and without satisfactory links with the local community and a wide gulf separates them from the Primary Health Centres. We strongly feel that this situation has to be immediately remedied. We therefore recommend that the Primary Health Centres, as well as the Taluka/Tehsil, District, regional and medical college hospitals should each develop living and direct links with the community around them and also have functional links with one another within a total referral services complex. This linkage can best be secured through a properly organized internship programme which will be discussed in the following section. Once established, it will create a viable and economic referral services complex which will have several advantages. It will provide a programme of total health care: promotive, preventive, curative and ehabilitative. It will also form a nidus for training in community medicine. The services of the outpatient departments of the semi-urban and urban hospitals would become available to individuals and their families in rural areas. A medical college hospital whose health care has its outreach in the community through such a complex can become an effective training ground for training personnel oriented to community health and for the more efficient delivery of health services to the community. Taken as a whole, he programme will not only provide the most efficient health care services possible to the community but will also provide feedback

from the community to the system of health care itself and lead to great improvements therein over time.

VII

THE ESTABLISHMENT OF THE MEDICAL AND HEALTH EDUCATION COMMISSION

7.01 It is common knowledge that the existing system of medical education does not prepare the right type of personnel needed for a national programme of health services. If the system of comprehensive health care visualized in the preceding sections is to be developed properly and worked efficiently, it is obviously necessary to restructure the entire programme of medical education.

Basic Issues in Medical Education

7.2 Among the basic issues in medical education, probably the most important is the training of the general medical practitioner who occupies a central place among the different functionaries needed for the health services. His work is not merely with treatment of sickness and prevention of disease but also with those social and cultural problems that contribute to the fabric of health. His commitment is to man and to the human family. He must change his outlook from an excessive concern with disease to a role of full social responsibility. The manner in which physicians are educated and the nature of the educational outcome are therefore of paramount importance.

7.3 It is widely recognized that the present system of undergraduate medical education is far from satisfactory. Despite the recommendations made by numerous committees and conferences, improvements in the quality and relevance of medical education have been tardy. Although the setting up of Departments of Preventive and Social Medicine in the medical colleges over 15 years ago was a step in the right direction, this by itself has not met with significant success as it lacked scholarly foundations and the field practice areas were not adequately prepared. The stranglehold of the inherited system of medical education, the exclusive orientation towards the teaching hospital (five years and three months out of

five years and six months of the total period of medical education being spent within the setting of the teaching hospital), the irrelevance of the training to the health needs of the community, the increasing trend towards specialization and acquisition of postgraduate degrees, the lack of incentives and adequate recognition for work within rural communities and the attractions of the export market for medical manpower arc some of the factors which can be identified as being responsible for the present day aloofness of medicine from the basic health needs of our people. The relation of medical education to the social framework of the community is largely brought out towards the end of the students' period of formal training and medical education continues to postpone, rather than prepare, a doctor for the practice of medicine in the community. A vacuum separates the health centre and the doctor from the village and the people and the critical health needs of people remain largely unmet. The greatest challenge to medical education in our country therefore is to design a system that is deeply rooted in the scientific method and yet is profoundly influenced by the local health problems and by the social, cultural and economic settings in which they arise. 'We need to develop methods and tools of instruction which have relevance to the resources and cultural patterns of each area. We need to train physicians in whom an interest is generated to work in the community and who have the qualities for functioning in the community in an effective manner. In addition to medical skills, they should be trained in managerial skills and be able to improvise and innovate.

Objectives of Undergraduate Medical Education

7.04 If these far-reaching reforms are to be carried out several basic issues will have to be discussed in depth and appropriate decisions taken thereon. The first relates to the objectives of undergraduate medical education. Whether it is the training of a physician or an auxiliary, the principles of educational science should find increasing application in the educational process. Goals of education must be clearly defined at the outset. Appropriate instructional methods must be selected and the curriculum constructed and duration determined to enable these goals to be accomplished. The outcome should be evaluated by the use of appropriate criteria to see if the desired change in the functional behaviour of the student.

lad in fact taken place.

7.05 There is a definite need to define the skills that a doctor should have and the qualities that he should possess. The 'Basic Doctor was defined in the report of the Medical Education Conference held in New Delhi in 1970. The objectives of undergraduate medical education that is appropriate for developing countries have been set out in the WHO Inter-Regional Conference on Medical Education and in numerous other conferences dealing with medical education. The language, sequence, mode of presentation, and elative emphasis vary from statement to statement but they all have a fairly common core. We do not propose to attempt a full and detailed statement on this subject. We are, however, convinced that whatever the form in which the objectives of undergraduate medical education may come to be ultimately formulated, one thing is certain the overriding objective of the undergraduate medical courses should be to give a positive community orientation to the entire programme. It is from this point of view that the several recommendations made on the subject by earlier committees and conferences will have to be judged and the several experiments now going on in the field will have to be evaluated.

Premedical Education

7.06 The curriculum of undergraduate medical education will depend, not only on the objectives of the undergraduate medical education, but also on pre-medical education which determines the level of preparation at which students will enter the undergraduate medical course. In our opinion, premedical education should aim at a balanced education in humanistic and scientific studies in order to generate continued interest in the phenomena of Jiving organisms.

Its objectives cannot be divorced from those of medical education itself. The two years of continuous study of premedical science after ten years of school as envisaged in the new pattern of school education should result in a better and more closely integrated premedical education. The basis of medicine lies in biology and it should be taught as a dynamic, multilateral and comparative science ranging from the molecular level to that of individual human beings, communities and populations. Physics and Mathematics are closely allied to one another and their function is to facilitate

precise and accurate habits of thinking. Chemistry is an experimental science and students must be encouraged to make observations on problems rather than observe set demonstrations. The early specialization at secondary school level in vogue until now led to serious inroads into the time available for liberal education in humanities and behavioral sciences. Medicine is practiced not in a world bounded by science alone but in one in which, economic, cultural and social influences play an important role. The study of humanities should provide the student with an intelligent understanding of his past and of the great ideas that have molded human civilization. The content of pre-medical education should thus be deeply embedded in the framework of natural sciences, humanities and social sciences. We are also of the view that premedical education should be provided by the universities, in consultation with the authority to coordinate and determine standards in medical and health education. It should not be provided in medical colleges.

Curriculum of Undergraduate Medical Education

7.07 We do not propose to discuss the curriculum of undergraduate medical education in detail because considerable useful material on the subject is already available. We would, however, invite attention to some important considerations in this regard. For instance, the major challenge before medical education for quite a few years will be, as stated earlier, to give a community orientation to undergraduate medical education and to equip the entire system of medical education adequately for the purpose. The teaching of community medicine has therefore to become a joint endeavor of the whole faculty and not merely a responsibility of the Department of Preventive and Social Medicine. The Department of Preventive and Social Medicine itself will have to be broadened in concept and extended in operational aspects. It will be necessary to provide it with both rural and urban field practice areas in which active health service programmes are in operation and which will be fully utilized in the implementation of the educational programme of community medicine. There should be an emphasis on the teaching of nutrition, maternal and child health, immunology and infectious diseases, and reproductive biology and family planning. The curriculum should also reflect the application of some of the principles of educational science, namely encouraging the students to learn by themselves,

introduction of a system of continuous assessment of student learning, objective methods of assessment, small group teaching, integrated inter-disciplinary teaching, and accent on the experimental method. The development of such a new programme will involve, not only a radical revision of the existing curricula, but also appropriate preparation of teachers, the production of effective teaching and learning materials, the adoption of suitable methods of teaching and evaluation, the creation of the necessary physical facilities in all medical colleges and consequent reform of the hospitals attached to them. This is a programme that will obviously need sustained implementation over the next few years on the basis of a clearly formulated policy supported by adequate authority, funds and continuous evaluation.

Duration of Undergraduate Medical Course

7.8 Certain issues have become irrelevant to the discussion of the problem of duration. For instance, it need no longer be linked up with the problem of producing an adequate number of doctors for rural areas. There are immense socio-economic issues involved in getting doctors to settle in rural areas. While these should be squarely faced and sustained efforts made to overcome them, it is idle to hope that a mere reduction in the course would achieve the result. Similarly, there is hardly any sense in suggesting the reintroduction of the diploma or licentiate course for meeting the needs of rural areas. With the type of reorganization of the health services that we have proposed earlier, what we need, even for rural areas, is a better trained doctor rather than a less trained one. All things considered, we strongly feel that there is no justification to make any change in the present policy of producing an adequately trained general practitioner, both for rural and urban areas. Nor should financial considerations be allowed to outweigh academic needs and standards in medical education should not be diluted to save funds. It may prove to be a. costly and unwise economy in the long run.

7.9 But even on good academic considerations, we do feel that it is possible and desirable to reduce the existing duration of the course by six months to one year and yet ensure an improvement in standards. Several suggestions to this end were put before us. We do not propose to discuss them in detail and it would serve the

limited purpose we have in view to highlight a few major points that arose in our discussions of the problem. For instance, we should emphasize, not the duration of the course but the production of the right type of doctor which is the crucial issue. We do not produce the right type of the doctor even with this long duration and a mere shortening (or lengthening) of the course will not, by itself, produce the basic doctor. There is also the danger that short-sighted administrators may implement this recommendation on financial grounds and without implementing the many others with which it is indissolubly linked so that the bad situation which exists at present will only become worse confounded. Above all, this is not a recommendation Which can be implemented in isolation (it is related intimately to the restructuring of premedical education, definition of the goals of undergraduate education, revision of curricula, provision of adequate facilities in medical colleges, etc.) and not at all unless a good deal of experimentation is undertaken and there is an adequate organization to watch carefully over its implementation.

Internship

7.10 Internship plays a very important part in the consolidation of skills and the knowledge gained by the medical student. It was with this intention that it was introduced as a regular feature of the undergraduate medical course. All committees have endorsed the need to continue internship training. The Medical Education Committee went even further and recommended that as long a period as of six months (out of a total internship period of one year) should be spent in community health centers. The actual experience of the programme of internship is, however, bitter; and it is agreed by all concerned that the internship training as it is now being practiced is a waste of the most critical period of the young graduates' life. Everyone is dissatisfied with it. The teachers tend to feel that the interns who have already passed out of the medical education system are a burden upon them and they devote more of their time to the undergraduates and to postgraduate and research students, if any, working under them. The position of interns in the teaching hospitals which abound in house-surgeons and postgraduate students is also very tenuous. The interns themselves feel that the period of internship has somehow to be got over before they either go to practice or join the teaching hospital as a house-

surgeon for further specialization. The situation is untenable and needs early remedial action.

7.11 We seriously debated the advisability of doing away with the internship period but came to the conclusion that, even after a modified curriculum involving community teaching is brought into full force, the period of internship which enables an undergraduate to acquire experience and to mature from a fledgling to a fully-grown medico is absolutely necessary. What is needed, therefore, are steps to ensure that this period is fruitfully utilized.

7.12 We recommend that the training of the interns should not be carried out in the teaching hospitals of the medical colleges but in the district, sub-divisional and taluka/tehsil hospitals which should be used as the outreaches, of the medical colleges for entering into the community. At the end of the formal undergraduate course (in fact even before it ends), groups of undergraduate students should be earmarked for being trained at selected taluka/tehsil, sub-divisional and district hospitals where proper facilities are known to exist. Such hospitals should also take on selected communities within their catchment areas whose care would be the responsibility of the interns under the supervision of that particular hospital. The doctor in charge of such hospital, the interns attached to that hospital along with staff of the Department of Community Medicine of the medical college, should practise community medicine in such selected communities. In addition, the interns should be given practical training in curative and hospital practices under the guidance of the taluka/sub-divisional/district hospital doctors. For this purpose, the facilities available at such hospitals should be strengthened where necessary. We should also caution that this linkage should not involve all the departments of the medical college at once. It should first be tried at in the Department of Community Medicine. Once these links are established in respect of the Department of Community medicine, they can later be strengthened and also developed in respect of other specialized departments and faculties.

7.13 It is our view therefore that the internship period should be fully spent in the district/sub-divisional/taluka hospitals with occasional forays into the community through the primary health centres. We also think that internship training should focus on the doctor

a member and leader of the health team, the importance of continuous care, handling of emergencies, the use of combined preventive and curative services to the individual, the family and the community, MCH and Family Planning care, the identification of entry points for family planning, community involvement and the role of the physician as a health educator.

7.14 The utilization of the district sub-divisional and taluka/tehsil hospitals for internship training and development of their linkages with the medical colleges will not only improve the quality of health care and referral provided at these places but will also act as a pacesetter for decentralization of medical education and development of district hospitals in the foreseeable future as centres for imparting of medical education, thus enabling a movement away from the urbanized concept of medical education. The existing medical colleges can then be used more profitably for postgraduate specialization and development of courses of training in respect of various categories of paramedical and technical personnel needed in the health field. In the internship training as suggested by us above, we would also like to attach the greatest importance to the desirability of associating general practitioners of good standing and experience in the training of undergraduates.

7.15 We consider that the desirability of continuing both the internship and first year Junior Residency as organized at present needs careful study. A view has been expressed that educational ends will be better served if either one or the other is retained but not both.

Continuing Education

7.16 In the system of medical education prevalent today, any doctor who goes out of the system of the medical college has little opportunity to come back to update his knowledge and skills; and no facilities exist outside the system of medical education to achieve this objective. It is, therefore, essential to make adequate provision for the continuing education of doctors in the medical pool of the country. In the modern world where a virtual explosion of knowledge is taking place in most sciences and the existing stocks of knowledge are being doubled every seven years or so, a programme of continuing education assumes immense significance.

7.17 By continuing education, we mean the training of a physician, not with a view to gaining additional degrees or diplomas, but with a view to assisting him to maintain and extend his professional competence throughout his life. The basic problem of continuing education for physicians cannot be solved without fundamental changes in the pattern of undergraduate medical education. The implementation of these changes will necessarily take time. But in the meanwhile, the pressing problem is one of arranging continuing education for those who have already been trained in a system that was not conducive to the development of proper attitudes for continued life-long learning. Continuing education for physicians must concern itself with those issues that are of deep significance to the health of the community and also with educational activities for mixed teams of health workers. Inter-professional education is of critical importance for the members of the health team to learn V together how to solve problems. It is, therefore, necessary to develop an organizational pattern for the Continuing education of physicians, whether they be serving in Government or in private, as a joint activity between the medical college, the professional associations and the health service.

A National System of Medicine

7.18 A reference has already been made to the need to evolve a national system of medicine for the country by the development of an appropriate integrated relationship between modern and indigenous systems of medicine. We recognize the significance of the issues involved for the development of a comprehensive plan of health services suited to our needs and aspirations although, for want of time, it has not been possible for us to go into details.

Medical Manpower

7.19 Problems of medical manpower needs have not received adequate attention. The number of admissions to medical colleges and the number of medical colleges themselves should be based on a sound policy of Health Manpower Development which, in its turn, should be related to the health needs and national resources. Urgent steps need to be taken to generate such a policy along scientific lines on a national basis. For the present, we are of the view that there is no indication for increasing

the number of medical colleges or admissions. On the contrary, attempts should be made to reduce the admissions to the existing medical colleges so that the teacher-student ratio and quality of education may improve. Similar exercises have also to be undertaken for all other categories of medical manpower. Needless to say, such exercises in forecasting manpower needs and adjusting the system of medical education to them are continuous rather than one-shot affairs.

Content, Structure and Process of Educational Change

7.20 There are three ingredients of every educational change:

—*content* or a determination of the type of change we need;
—*structure* or the creation of a machinery which is charged with the responsibility of bringing about the needed change; and
—*process* or the initiation of the actual process of the educational change needed and nursing it to grow till our main objective of bringing about the needed change is realized.

What is happening at present in education is that everyone is busy about the *content* of change or about determining the type of changes we need. We have no dearth of ideas on the subject and if all the recommendations made by educational committees and commissions were put one after another, instead of going round and round in circles as they often do, we may have a ladder stretching from the earth to the moon. On the other hand, little attention is given to the more important question of creating appropriate structures for educational change although everyone knows that, without the existence of such structures, no planned educational change can be brought about. What is worse, hardly any attention is paid to the most important question of initiating the needed change processes and of carefully nursing them to grow.

7.21 The story of developments in medical education is not any different from that of developments in general education as a whole. We have been able to identify the basic issues in the reform of medical education such as determination of the objectives of undergraduate medical

education and especially the overwhelming need to give a community orientation to it; —revision of curricula, production of learning and teaching materials, adoption of suitable teaching methods, examination reform, improvement of facilities in medical colleges, preparation of teachers and such other issues for the attainment of these objectives; —reform of hospitals attached to medical colleges and their integration into a scheme of national referral services complex; —determination of the right duration of the undergraduate course; —re-organization of the premedical course in 10+2+3 pattern and of the programme of internship; —the future of the first year of junior residency; —provision of continuing education; —postgraduate education and research; —evolution of a national system of medicine; —studies of medical manpower needs;

and so on. We recognize that these problems have now become extremely urgent and complex and demand early and satisfactory solutions. All our attention in the last few years has, however, been devoted mainly to defining the content of change and we have any number of excellent recommendations from all sorts of ad hoc bodies. It is time we realize that a mere discussion of the content of change, however, continuous and learned, cannot bring about the educational change we need and may even confuse the issues. The fact is that there is no structure to bring about the needed changes, and, in the absence of the structure, the question of initiating the change process does not even arise. In a situation of this type, we see little purpose in producing one more learned report and in making yet another series of pious and well-meaning recommendations on the content of the reform of medical education. We may do it as well or as ill as any other group of seven persons and the exercise will meet the same fate as that of earlier attempts on the subject. It is therefore of the utmost importance that a suitable structure or an organizational framework should be established which is charged with the task of implementing the needed reforms and of initiating and nursing the change process. We are thus convinced of the need for

the establishment of a UGC-type body for medical education and reaffirm the recommendation made on the subject by the Education Commission (1964-66). In the absence of some such machinery with the authority and resources to implement the desirable reforms, we are afraid that the quality and relevance of medical education may continue to remain as a no man's land between the Centre and the States; and without such a structure, there is no possibility of initiating a change process to ensure that medical education advances to keep pace, not merely with advances in medical knowledge and technology, but also with the needs and priorities of national health.

7.22 Several other equally weighty considerations can be advanced in support of this proposal. We have already shown that the organization of a national programme of comprehensive health services cannot be attempted unless the entire pattern of medical education is overhauled and that this, in its turn, cannot be attempted, in the absence of an organization, with adequate authority and funds, to decide the complex issues involved, and to implement the decisions through a vigorous and sustained programme of action. The coordination and maintenance of standards in higher education (including general, agricultural, engineering and medical education) is a constitutional responsibility of the Government of India. Institutional and financial arrangements to give effect to this responsibility have been made under the UGC (for general education), ICAR (for agricultural education) and the AICTE (for engineering education). The important field of medical education has unfortunately no such arrangements; and the neglect of this constitutional responsibility of the Centre all these years is absolutely indefensible. The case for the creation of a structure for the reform in medical education is further strengthened by the failure of all earlier attempts to reform medical education through report after report, and recommendation after recommendation, of committees, conferences, working groups, seminars and the like. Let us not forget that the reform of medical education is not a one-shot affair. It needs continuous reaction between the output of the system and its management, between the Centre and the States, and between universities and institutions of medical education. No such reaction is possible unless there is a suitable structure charged with the responsibility

of reforming medical education in all its aspects.

The Medical and Health Education Commission

7.23 We therefore recommend that immediate steps should be taken to set up, by an Act of Parliament, a Medical and Health Education Commission for coordination and maintenance of standards in health and medical education. It should be broadly patterned after the UGC with a whole-time Chairman who should be a non-official and a leading personality in the field of health services and education. The total membership should be between 9 and 15, one-third representing the Central and State Governments and the universities, one-third representing the various national councils and one-third consisting of leading persons in the field of health and medical education and services. Its role should be promotive and supportive and it should be responsible for planning and implementing the reforms needed in health and medical education. It should have the necessary administrative machinery and steps should also be taken to place substantial resources at its disposal in the Fifth Five Year Plan so that it can start vigorously and become effective.

7.24 We have deliberately used the term "Medical and Health Education Commission". Let us not forget that, in the totality of health services, the doctor is the most important but not the sole functionary. Equally important are a variety of paramedical personnel who constitute important links of the health service. The nurse, the pharmacist, the technicians in the field of laboratory service such as X-ray, pathology, or microbiology form the essential back-up of medical care. The dentists provide a specialized service in an important and related field. Any programme of training that aims at improving the quality of medical care, or restructuring of the system of medical education towards community care, must recognize the need of assessment of the educational needs of all these other categories of medical and paramedical personnel. What we need, therefore, is an organization, not only for the reform of the undergraduate or even the whole of medical education, but an organization which will be responsible for the reform of the entire field of health and medical education in all its aspects.

7.25 It is for this reason that we are proposing that the Medical and Health Education Commission shall have on it the representations of all the relevant national councils and that it will also work in close collaboration with all of them. The oldest, largest and the most important of these is the Medical Council of India. The others include the Dental Council of India, the Pharmacy Council of India and the Nursing Council of India. We would like the prestige, the authority, and the goodwill of all these Councils to be fully utilized for purposes of bringing about an early and effective reform of medical and health education. As everyone is aware, the organization of all these Councils leaves a good deal to be desired, especially because they were originally set up only to exercise an indirect regulatory function while we are now proposing to vest them with promotive and supportive functions as well. We therefore recommend that the Government of India should open negotiations with all these Councils and amend their Acts, especially with the purpose of making them operationally more viable and efficient to discharge the regulatory, promotive and supportive functions for the improvement of medical and health education. We would also appeal to all these Councils to cooperate with the Government in this programme. In particular, each Council should be required to set up an education panel on prescribed lines and the Medical and Health Education Commission should be under a statutory obligation to implement its programmes of reform and also to operate its financial powers in consultation with the panel of the concerned Council. This will make full use of all the prestige, authority, goodwill and expertise of all the existing Councils and strengthen the hands of the proposed Medical and Health Education Commission in functioning as an apex coordinating organization and in implementing a radical programme of reform in medical and health education.

7.26 We would like to make it clear that the regulatory functions which are now being exercised by the Councils will continue to vest in them unchanged. In addition, they will also take on the responsibilities of advising the Medical and Health Education Commission on promotive and supportive measures in their respective fields.

7.27 It is our considered opinion that the most important step now needed is to establish the Medical and Health Education Commission.

It will be the responsibility of this Commission to then start the process of change and to nurse it to grow. The sooner this basic reform is implemented, the better it will be for the future of medical and health education and all that will follow there from.

VIII

SUMMARY OF RECOMMENDATIONS

8.01 For convenience of reference, our main recommendations have been briefly summarized in the paragraphs that follow.

A Nationwide Network of Efficient and Effective Health Services

8.02 A time has come when the entire programme of providing a nationwide network of efficient and effective health services needs to be reviewed *de novo* with a view to evolving an alternative strategy of development more suitable for our conditions, limitations and potentialities. We recommend that Government should undertake the task of evolving a national consensus on the subject. The general principles stated in paragraph 2 of the report for the development of this network of health services may be taken as a basis for consideration in this effort.

Pard professional or Semi-professional Health Workers in the Community itself:

8.03 We recommend that steps should be taken to create bands of para-professional or semi-professional health workers from the community itself to provide simple promotive preventive, and curative health services which are needed by the community. They will include *dais,* family planning workers, persons who could provide a simple curative service, and persons trained in promotional and preventive health activities, including the control of communicable diseases. They need not be multipurpose. The young persons in the community, elementary school teachers, and particularly educated and willing housewives would be the pool from which these workers could be drawn. There is no need to regulate their numbers nor to form them into a cadre and pay them a remuneration from public funds. It would be desirable to leave them to work on a self- employment and part-time basis. The responsibilities of Government in their regard will be to make careful selection, to provide training and retraining, and guidance and counseling (including

periodical evaluation), and supply materials needed at reasonable prices. The Director-General of Health Services should be requested o work out all the details of the programme during the current rear and it should begin, as a centrally-sponsored scheme, in 1976-7. A fairly large part of the country should be covered by the scheme before the end of the Fifth Plan and the entire country should be covered by the end of the Sixth Plan.

From the Community to the PHC

8.04 Between the community (and the local para-professional, semi-professional or professional health workers within it) and the PHC, we should develop two cadres—health workers and health assistants.

(1) At present, there is a male health worker for every six-seven thousand population and one female health worker for every ten thousand population. The proposed target for the Fifth Five Year Plan is to have a male and a female worker each for a population of light thousand. We recommend that, by the end of the Sixth Plan, we should strive to provide one male and one female worker each for every 5,000 population. We also recommend that every health worker should be trained and equipped to give simple specified remedies (including proven indigenous remedies as well) for day-o-day illnesses.

(2) Between the health workers and the PHC, there should be a low cadre of health assistants. We should strive to provide one male and one female health assistant for two male and two female health workers respectively. The existing multipurpose supervisors should be incorporated into this cadre after suitable training and it should, in future, be treated as an incentive and promotional cadre for health workers. The health assistants should be invariably located at the sub-centres and not at the PHC. Like the health workers, they should also be trained and equipped to give specific remedies for simple day-to-day illnesses. While they have a supervisory role, they should also function as health workers in their own areas and carry out the same duties and responsibilities, but at a higher level of technical competence.

(3) The PHC itself should be strengthened by the addition of one more doctor, especially to look after maternal and child health

services and one nurse. The existing allotment of Rs. 12,000 earmarked for the purchase of drugs at each PHC is inadequate and should be increased. The possibility of utilizing the services of senior doctors at the medical college, regional, district or taluka hospitals for brief periods of work (say, two years at a time) at the PHC level should also be explored.

The Referral Services Complex

8.05 We recommend that the Primary Health Centres, as well as the taluka/tehsil, district, regional and medical college hospitals should each develop living and direct links with the community around them as well as with one another within a total referral services complex. This linkage can best, be secured through a properly organized internship programme. The way in which the internship programme is organized at present is wasteful. We recommend that, for purposes of training the interns, the district sub-divisional and taluka/tehsil hospitals should be used as the outreaches of the medical colleges for entering into the community and the programme itself organized on the broad lines indicated in paragraphs 7. 10-13. We attach great importance to the desirability of associating general practitioners of good standing and experience in the training of undergraduates. The desirability of continuing both the internship and the first year of the junior residency a organized at present also needs examination.

Establishment of the Medical and Health Education Commission

8.06 There are several important issues in medical and health education which need discussions in depth and decisions and what is every more important, immediate, vigorous and sustained implementation These include: the determination of the objectives of undergraduate medical education and giving a positive community orientation to the entire programme the reorganization of premedical education in the 10+2+3 pattern; revision of the undergraduate curriculum including the preparation of teachers, production of teaching and learning materials, adoption of suitable methods of teaching and evaluation the creation of necessary physical facilities in all medical colleges and consequent reform of the hospitals attached to them; determining the duration of the course and reducing it, if possible, by six months to

one year, even while improving the standards; reorganization of internship programme and of postgraduate teaching and research; continuing education; and studies of medical and health manpower needs; evaluation of a national system of medicine; and so on. No useful purpose would be served by continuing an endless debate on the content of these reforms. What is needed most is the creation a suitable structure, with adequate administrative machinery and funds at its disposal, and to charge it with the responsibility of determining and implementing a radical programme of reform in medical and health education in the years ahead. From this point view, we recommend that the Government of India should, under Act of Parliament, immediately set up a Medical and Health education Commission for coordination and maintenance of standards in medical and health education.

8.07 The Medical and Health Education Commission should be broadly patterned after the UGC with a whole-time Chairman who should be a non-official and a leading personality in the field of health services and education. The total membership should be between *9* and 15, one-third representing the Central and State Governments and Universities, one-third representing the various .National Councils and one-third consisting of leading persons in the d of health and medical education and services. Its role should promotive and supportive and it should be responsible for planning implementing the reforms needed in health and medical education. It should be provided with the necessary administrative machinery and steps should be taken to place substantial resources its disposal in the Fifth Five Year Plan.

8.08 The Medical and Health Education Commission should function as an apex coordinating agency and in close and effective collaboration with the National Councils. For this purpose, the Government of India should open negotiations with all the Councils and amend their Acts, especially with the purpose of making them operationally viable and efficient to discharge the regulatory, promo-e and supportive functions. We also appeal to all these Councils cooperate with the Government in this programme. In particular, each Council should be required to set up an education panel prescribed lines and the Medical and Health Education Commission

should be under a statutory obligation to implement its programme of reform in health and medical education and also to operate its financial powers in consultation with the panel of the concerned Council. This will make full use of the prestige, authority, goodwill and expertise of all the National Councils and strengthen the hands of the Medical and Health Education Commission in implementing a radical programme in health and medical education.

J.B. Shrivastav
C. Gopalan
V. Ramaiingaswami
P.N. Chuttani
J.P. Nair
C.R. Krishnamurthy
Sharad Kumar

New Delhi
11th April 1975

APPENDIX I

Z. 21015/1/74—PPH *IMMEDIATE*
Government of India
Ministry of Health and Family Planning
(Department of Health)

New Delhi, the 1st November, 1974

To,

The Director-General of Health Services, New Delhi.

Subject—Setting up of a Group on Medical Education and Support Manpower.

Sir,

I am directed to say that Medical Education in India over the years has been essentially urban-oriented, relying heavily on curative methods and sophisticated diagnostic aids, with little emphasis on the preventive and promotional aspects of community health. Programmes of training in the fields of nutrition, family welfare planning, maternal and child health have tended to develop in isolation from medical education, and thus do not sub serve the total needs of the community. Although the number of doctors has steadily increased over the successive plan periods, the alienation of doctors from the rural environment has deprived the rural communities of total medical care. Realising the situation, the Fifth Plan document has stated—

> "Teaching in medical colleges still requires a radical change. The undergraduate medical education would have to be re-oriented towards the needs of the country and emphasis would have to be placed on community care rather than hospital care in view of the importance of Family Planning programmes in

the country, teaching in various aspects of Family Planning should form an integral part of education."

A change in the structure of medical education is, therefore, called for to meet the changing requirements and to provide adequately for future needs, particularly of the rural community.

2. Improvement in the delivery of Health Services in the field is also being attempted by integration of Health, Family Welfare and Nutrition Services through the medium of Multi-Purpose Workers by better trained and more-qualified personnel working under the supervision of fully-equipped medical doctors to provide essential and immediate medical aid and to ensure smooth implementation of Health, Family Welfare and Nutrition Services in the field.

3. Having regard to the foregoing, the Government of India have decided to set up a Group on Medical Education and Support Manpower with the following composition:

1. Dr. J.B. Shrivastav, ... *Chairman* Director-General of Health Services
2. Dr. C. Gopalan, ... *Member* Director-General, Indian Council of Medical Research, New Delhi
3. Prof. V. Ramalingaswami, —*do*— Director, All India Institute of Medical Sciences, New Delhi
4. Dr. P.N. Chuttani, —*do*— Director, Postgraduate Institute of Medical Education and Research, Chandigarh
5. Shri J.P. Nair ... —*do*— Member-Secretary, Indian Council of Social Science Research, New Delhi
6. Shri C.R. Krishnamurthy, —*do*— Director, Ministry of Health and Family Planning

7. Dr. Sharad Kumar, ... *Member-Secretary*
Deputy Director-General of Health Services
(Medical)

4. The terms of reference of the Group will be as follows:

(a) to devise a suitable curriculum for training a cadre of Health Assistants conversant with basic medical aid, preventive and nutritional services, family welfare, maternity and child welfare activities so that they can serve as a link between the qualified medical practitioners and the Multi-purpose Workers, thus forming an effective team to deliver health care, family welfare and nutritional services to the people;

(b) Keeping in view the recommendations made by earlier Committees on Medical Education, specially the Medical Education Committee (1968) and the Medical Education Conference (1970), to suggest suitable ways and means for implementation of these recommendations, and to suggest steps for improving the existing medical educational processes so as to provide due emphasis on the problems particularly relevant to national requirements; and

(c) to make any other suggestions to realise the above objectives and matters incidental thereto.

5. The Group may consult such other persons and institutions they consider necessary as

6. The Group will submit its report to the Government by the 31st January,1975.

7. The expenditure on T.A. and D.A. of the officials is to be met from the source from which their pay is drawn. The T.A. and D.A. of non-officials will be governed by the orders issued by the Ministry of Finance from time to time. The expenditure involved on T.A. and D.A. of non-officials, if any, will be met from the sanctioned budget allotment of the Directorate General of Health Services. The Directorate General of Health Services will provide the necessary secretarial assistance to the Group.

8. This issues with the concurrence of the Ministry of Finance vide their U.O. No. 5146-H/74, dated the 1st November, 1974.

Yours faithfully,
Sd/- N.S. BAKSHI
Under-Secretary

No. Z. 21015/1/74—PPH

1. Copy forwarded to all the Members for necessary action.
2. Copy forwarded for information to:

1. A.G.C.R., New Delhi.
2. Planning Commission, New Delhi.
3. Ministries of Education and Social Welfare/Food and Agriculture/Finance (Health Branch).
4. All State Governments and Union Territories (Health Department).
5. All Sections in the Department of Health, Department of Family Planning and Directorate General of Health Services.

Sd/- N.S. BAKSHI
Under-Secretary

APPENDIX II

Recommendations of various conferences, committees and papers, memoranda etc. received from various individuals, associations etc. considered by the Group.

(a) Recommendations of Various Conferences!Committees

1. Relevant recommendations from the Bhore Committee Report—1946.
2. Recommendations made at the Conference on Medical Education—1955.
3. Recommendations made at the Conference on Medical Education—1958.
4. Recommendations made at the 1st Conference of Deans and Principals of Medical Colleges in India—1960.
5. Relevant recommendations from the Mudaliar Committee Report—1961.
6. Recommendations made at the 2nd Conference of Deans and Principals of Medical Colleges in India—1962.
7. Recommendations made by the Chadha Committee for the strengthening of health services in the Malaria Maintenance Phase—1963.
8. Recommendations of Mukherjee Committee Report on strengthening of health services—1966.
9. Recommendations made at the 3rd Conference of Deans and Principals of Medical Colleges on Undergraduate Medical Education—1967.
10. Recommendations made by the Mudaliar Committee on maintenance of a high standard of preparatory training in the Premedical course—1967-68.
11. Recommendations made by the Medical Education Committee in its Report of 1969 which were modified or enlarged at the

Medical Education Conference held in 1970 and finally accepted by the Government of India in its Resolution of 8-10-1970—1970.

12. Recommendations made by the Kartar Singh Committee on multi-purpose health workers—1973.

(b) References, memorandum, papers etc., received from various associations, individuals etc.

1. Anand, D. Professor of Preventive & Social Medicine, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry.	Note on the proposed plan for training of paramedical workers.
2. Association-Indian Medical Pamphlet No. 37 of 8-4-74	Suggestions regarding changes in medical education.
3. Association-Trained Nurses of India	Memorandum opposing the new cadre of health assistants
4. Banerjee, D. Jawaharlal Nehru University, New Delhi.	An article on Social & Cultural Foundations of the Health Services System of India.
5. Bisht, D.B. Principal, Jawaharlal Institute of Postgraduate Medical Education and Research, Pondicherry.	Note on approach to the training of medical students suited to Indian conditions.
6. Chaudhry, S.M. Maulana Azad Medical College, New Delhi.	Suggestions on changes in medical education.
7. George, G.M. Trichur.	Opposition to health assistants cadre. Suggestions on reduction in MBBS course & opening of new medical colleges.
8 Ghoshal, B.C., ADG(HA), Dte. G. of H.S., New Delhi (formerly DAD(CH).	Report on the activities of the Chittaranjan Mobile Hospitals prepared at the end of the 4th plan.

9. Health & Family Planning— Ministry of	Views of the. Group on the suggestions for national service for a specified period as a precondition for the grant of a degree.
10. KasIiwaI,'R.M. Jaipur.	Suggestions regarding training of health assistants.
11. Kumar, Sharad Deputy Director General (Medical), Dte. General of Health Services.	A note for rationalization of undergraduate medical curriculum in the Indian medical colleges.
12. Mathur, P.D., Jaipur.	Suggestionsfor improvement of teaching in medical colleges.
13 Murthy, T.S. Warangal.	Support for health assistant cadre & proposal to re-introduce B.Sc. (PH) school at Warangal if central assistance is forthcoming.
14. Naik, J.P. Member of the Group.	Papers relating to a seminar on the problems of training medical & health personnel in Iran.
15. NIHAE	Report of the Task Force on Operation Research for improved delivery of health services (1974)
16. Nayar, Sushila Kasturba Health Society, Sewagram.	Suggestions regarding change in the pattern of undergraduate & Postgraduate medical education.
17. Pradhan, P.N. Nagpur. .	Need for curriculum in rural medicine at undergraduate and postgraduate level for a degree or diploma course.
18. Puri, V.V. Ex-Secretary, Medical Council of India.	Suggestions regarding changes in medical education.
19. Ramalingaswami, V. Director, A.I.I, of Medical Sciences, New Delhi.	A note on some features of undergraduate medical education.

20. Sanjivi, K.S. Madras.	Paper on training of medical & health assistants and changes in the contents of curriculum for medical graduates.

APPENDIX III

TRAINING OF HEALTH ASSISTANT

Venue of Training

Since the Health Assistant will be working primarily in the rural setting, a large part of his training should take place in that environment. Appropriate experience is necessary in rural hospitals, in demonstration and training health centres and in small rural •dispensaries. Thus the Health Assistants by working under close supervision in these institutions will be prepared for work that may be less supervised. During his training the Health Assistant should spend more time in practical field work rather than in the classroom. The Health Assistant should be trained in Government institutions.

Outline of the Curriculum

Curriculum for Health Assistants as well as curricula for existing health supervisors to qualify for Health Assistant after an orientation course as well as for regular training of new entrants have been framed after a detailed study of the course contents of training for the current categories of health workers and also proposed course contents for basic health workers, Health Assistant and other such categories of workers available in the field.

FUNCTIONS OF THE HEALTH ASSISTANT

1. *Curative*
   - *(a)* first-aid in medical and surgical emergencies;
   - *(b)* diagnosis and outpatient treatment of common diseases, minor surgery in sub-centres;
   - *(c)* referral to the primary health centre of emergencies and cases requiring hospitalization.
2. *Public Health Functions*
   - *(a)* to carry out all functions required of the public health services

and family planning and maternity child welfare services;

(b) immediate initiation of epidemic control measures;

(c) Initiation and supervision of vaccination and preventive measures for communicable diseases;

(d) school health and related activities, including nutrition and dietetics, dental and health education;

(e) registration of births and deaths;

(*f*) environmental sanitation, housing and latrines, disposal of sewage and refuse, safe water supply etc.

(g) regular visits to all the villages in his area for the above functions.

The Health Assistant is required to act as the first line of attack against diseases arising from environmental sanitation defects.

3. *Supervisory Functions*

1. The Health Assistant will exercise supervision over the area covered by the multipurpose health workers both male and female.

2. The Health Assistant will check the work of the health workers both male and female.

In the course of tour, the Health Assistant will ensure the regularity of visits, authenticity of records, rigid implementation of instructions issued from time to time and maintenance of adequate standards of work by the subordinate staff.

ORIENTATION TRAINING COURSE FOR EXISTING HEALTH SUPERVISOR TO QUALIFY FOR HEALTH ASSISTANT

Total duration of training	— 6 months
Institutional	— 4 months
Field Experience at PHC	— 2 months
Total number of working hours in 4 months	— 5x20x4=400 hrs.

* Five hours a day and twenty days in a month, ten days being allowed for Sundays, holidays, and monthly test.

Knowledge and Skills required

1. Supervision, guidance and control
2. Storekeeping, accounting and book-keeping
3. Treatment of emergencies
4. Medical treatment for various common ailments at PHC
5. Health administration

Subjects to be covered

1. Anatomy and physiology	— 25 hours
2. Microbiology, Parasitology and Entomology	— 30 hours
3. Pharmacology and Pathology	— 50 hours
4. Public Health Administration, including store-keeping, accounting and book-keeping	— 90 hours
5. Treatment of emergencies and diagnosis and treatment of common diseases	— 80 hours
6. Hospital and casualty posting	— 100 hours
7. Environmental sanitation	— 25 hours
8. Examinations etc.	— 20 hours

REGULAR TRAINING COURSE FOR HEALTH ASSISTANTS FOR NEW ENTRANTS

Minimum qualifications for admission	—	*Higher Secondary pass examination or its equivalent with medical group of subjects and mathematics
Total period of training	—	2 years
Period of institutional training	—	11/2 years
Period for field posting (internship)	—	*6* months

*With the adoption of 10+2+3 system of education the minimum educational qualification will become 10+2 i.e. after 12 years at the school.

No. of working hours in one day	5 hours
No. of working hours in one month	5x20 = 100 hours
No. of working hours in one semester 6 months	100x5=500 hours

1st and 2nd semester (1000 hours) training in basic sciences, lab-procedures and health organization practices.

3rd Semester (500 hours) for training in first aid and treatment of minor ailments.

Details of subjects and topics with time distribution (didactic and practicals):

1.	Introduction	- 20 hours
2.	Basic sciences and lab. procedures Anatomy, Physiology, Microbiology, Parasitology and Entomology, Pathology and Pharmacology	100 hours
3.	Health Services Administration	100 hours
4.	Control of communicable diseases and epidemiology and national programmes	80 hours
5.	Statistics, social sciences and research methodology (data collection, compilation, tabulation and presentation)	
	—	
6.	Environmental sanitation	— 105hours
7.	M.C.H.	— 75 hours
8.	Growth and development	— 100 hours
9.	Nutrition and nutritional programmes	— 20 hours
10.	School health	— 50 hours
11.	Industrial health	— 20 hours
12.	Health education	— 20 hours
13.	Family Planning and population education	75 hours
	—	100 hours
14.	Nursing techniques and arts	— 40 hours
15.	Laboratory techniques	— 50 hours
16.	Immunization and injection techniques	— 50 hours
17.	Examinations	50 hours
18.	First aid and treatment of minor ailments	330 hours
		1584 hours