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SUMMARY REPORT AND RECOMMENDATIONS

OF THE

SEMINAR ON THE TRAINING AND UTILIZATION OF MEDICAL ASSISTANTS

KHARTOUM, 16 - 20 DECEMBER 1974

SEMINAR ON THE TRAINING AND UTILIZATION OF MEDICAL ASSISTANTS

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ENGLISH ONLY

17 December 1974

I Opening Session

The Opening Session took place in the auditorium of the Faculty of Engineering, University of Khartoum, at 9.30 a.m. on Monday 16 December 1974.

His Excellency Professor Nazir Dafaala, Minister of Health and Social Welfare welcomed the participants and expressed his appreciation to the Regional Director, the WHO Representative and WHO Staff for their contribution to the development of the health services of the country.

His Excellency traced the history of the Medical Assistant in Sudan, indicating that the evolution of this category, and of the health services as a whole, had been undertaken in response to the need for nation-wide coverage of health care in a country of approximately one million square miles with a scattered population of 16 inhabitants per square mile, 81.8 per cent of the population being rural, of whom 20 per cent were nomadic.

Dr A.H. Taba, Director, Eastern Mediterranean Region, WHO, in his Opening Address (Ref , ANNEX) expressed his thanks to the Government of Sudan for the arrangements made for the Seminar and paid tribute to the leadership of Sudan in its training and use of Medical Assistants and other categories of health personnel.

Pointing out that the training of auxiliaries was a fashionable subject at this time, the Regional Director expressed his belief that the "fashion" would not be a temporary one, and that the pattern of medical care which had been emerging in Sudan in recent decades was probably close to the reality of what could be expected to be seen in the next half century in many countries of the world.

It was now very widely recognized that it was no longer acceptable to assume that the health care needs of the huge proportions of the populations of every country who are deprived of medical care of even the simplest kind could be satisfied by relying exclusively on the services of the doctor or physician. It was essential to produce a series of categories of health worker, trained specifically to match the needs of communities, and one such category was the Medical Assistant.

Dr Taba invited the participants to examine the particular problem of how best to train medical assistants to meet the specific needs of the Eastern Mediterranean Region, taking into consideration the total picture of health manpower and health services development in the countries concerned.

In conclusion Dr Taba, expressing satisfaction at the new experimentation and the new approaches being taken in the countries represented, expressed his good wishes for an interesting and productive seminar.

II First Plenary Session

1. The First Plenary Session took place in the Conference Room of the Faculty of Engineering of the University of Khartoum from 10.45 a.m. to 1.30 p.m.

The following Officers were elected:

Chairman - Dr Sobhi El Hakim, Sudan
Vice-Chairmen - Dr Ijazul Hassan, Pakistan
- Dr Mohammad Reza Hariri, Iran
Rapporteur - Dr A.S. Ba Hatab, Democratic Yemen

2. The Provisional Agenda (Ref. EM/SEM.TRNG.UT.MED.ASTS/1) which had been circulated, was approved.

3. His Excellency Majid Rahnema, Imperial Organization for Social Services, Iran, then delivered his address on "The Training of New Categories of Medical and Health Personnel" (Ref. , ANNEX).

In his address Dr Rahnema began by expressing his general unhappiness with terms or titles including such words as "auxiliary" or "assistant". He wanted the problem to be viewed critically by making the familiar look strange. The conventional MDs were not the only ones to make the bio-medical sciences available to the millions, to close the implementation gap. It needed the creation of new categories on the basis of functional needs. For the 30 million population of Iran there are 10 000 physicians, 5 000 of whom were in Teheran, 3 500 in other large cities and 1 500 doctors in the rural areas where 60 per cent of the population is living. 700 doctors graduate every year and with the existing "Brain Drain" and urban concentration, it would never be possible to extend the services of doctors to cover the whole population.

80 to 90 per cent of the sick can be taken care of by the front line health worker. He wanted a humane and democratic outlook. Health preservation is a societal problem calling for the fullest utilization of all human and material resources.

In September 1972 Dr Rahnema had been charged with the responsibility of recommending a health and medical care system for Iran and had submitted his report in April 1974. 20 guiding principles had been developed. A basic principle behind his recommendations had been that: "Every individual regardless of his socio-economic status or geographical location must have access to some kind of on-the-spot and continuous health care".

To attain this objective, a health unit will ultimately be needed for an average community of 500. The creation of some 60 000 health houses of this type, adequately staffed by front-line health workers, requires new structures of health services and training. The very limited number of available doctors and the present situation of services cannot meet the complex problems raised by such structures. Health centres, dispensaries and new categories of personnel are needed, mainly in the fields of primary care. The "Behdar", a primary care physician, functionally trained to meet the new needs, is the key man in filling many of the present gaps.

The speaker mentioned that one of the recommendations of his Commission was to set up a new school for Health Services aimed at training such a primary care physician in three years. Candidates for this function have to be properly selected, preferance to be given to people of a rural background. Serving as employees of the organizations responsible for their future deployment, they serve as Behdars when they receive their B.Sc. degree in Health Sciences. At this stage, they have to work for at least two years in the fields, under the school's supervision. The primary care physician may then apply for a second cycle of studies leading to a new type of M.Sc. or M.D. degree, to meet further needs of their health network and teams at more sophisticated levels. The first school has already started in the Reza Pahlavi Medical Centre, North of Teheran on 1 December 1974. This innovation, in Dr Rahnema's views has two advantages:

1. It was not a dead-end;
2. It could combine the personal aspirations of employee-students with the health needs of the people.

Dr Rahnema was glad to say that people of good-will recognize the need to resolve the crisis of health care delivery which was no longer physician-centred or clinically oriented. National health policies have to be based on systemic analysis. The strategies to be followed by modern public health should take into account the objectives, resources and constraints. The health team has to be viewed in a network of the health care system. While revolutionary action and imaginary short-cuts are needed spectacular crash programmes to compensate for the past are likely to backlash and discredit new ideas. The bottle-neck was to find trainers for the trainees. Ideological victories are now to be translated into the realities of services in a concrete manner.

4. Following the address by Dr Rahnema, Dr Alexander Robertson, Public Health Administrator, Health Manpower Development, WHO/EMRO, then gave a brief outline of the programme and objectives of the Seminar (Ref EM/SEM.TRNG.UT.MED.ASTS/2, ANNEX , and Information Bulletin No. 1 ANNEX), and Dr Sobhi El Hakim, Director of Medical Training, Ministry of Health and Social Welfare, Khartoum, Chairman of the Seminar, gave an introduction to the field trip planned for the third day, which was intended to demonstrate the Medical Assistant at work in the reality of the health services of Sudan (Ref ANNEX).

5. Dr Richard Smith, WHO Consultant, then delivered his address on "Medical Assistants in relation to: Meeting Health Needs, and Delivering Health Services at the Peripheral Level". (Ref ANNEX)

Dr Smith said that doctors were the best category in health manpower development if health manpower is the objective. They were not so if the delivery of health services is the objective. He compared health manpower of the developing countries as not a pyramid but as an hour glass which showed very few middle level health workers. The top was comprised of the professional and the base of the low level indigenous personnel.

Systems analyses should enable us to know which tasks are to be performed and how to get them performed most efficiently. 90 per cent of

health problems can be dealt with by the medical assistant whereas 5 to 10 per cent can be referred or palliated. The history of the medical assistant is one of failures and successes but studies carried out have demonstrated a reduction in infant mortality and morbidity when medical assistants have been used emphasizing child health, especially nutrition.

In curative work the community seeks out the medical assistant. In preventive work he seeks out the community and attempts to change their behaviour and thus becomes an agent of change. Whereas knowledge about problems in prevention can be imparted, littled guidance is available for action for change in this area. This leads to great insecurity and disillusionment.

Dr Smith dealt with characteristics of unsuccessful medical assistant programmes, like lack of local autonomy, over-centralization, lack of coordination, lack of adequately trained technical personnel, dissatisfaction of workers with workload and lack of logistical support. It is in the building of linkages with sources of authority and money, and linkages with community and society as a whole and the imagery of the medical assistant which become paramount determinants of success of medical assistant programmes. He insisted that there should be a job description before training is undertaken and to have knowledge of the places of assignment and to have places ready to receive the new health practitioner. There should be continuing professional development (continuing education). There should also be collaboration with physicians in task analysis and tactics for changing behaviours of people with whom they are working.

It would be ideal to start a small part of each programme with the "septic fringes" of towns and to diffuse into more rural areas from these peri-urban slums, although the rural areas are where most of the efforts are concentrated. He warned against over training. Three months of didactic training and nine months of preceptorship was all that is needed in many settings as has been proven by the HEDEX approach.

Important also is collaboration of government agencies, training institutions and medical associations. A receptive frame work needs to be developed as well as physician involvement in supervision and referral.

Initially in the United States there was one Medex to be supervised by one MD. Gradually MDs in Micronesia started supervising 2 - 3 supervisory Medex, and these in turn supervised 5 - 7 Medex. Public acceptance was obtained and in two American states they could also be members of the medical association.

6. Discussion and Summary

In the questions asked and the discussion which took place together with the summarization by Dr D. Flahault, Chief Medical Officer for Health Team Development, HMD WHO Headquarters, at the end, it was emphasized that the seminar was concerned with the intermediate level health practitioner. There will of necessity, however, be a need frequently to refer to the physician above and the village health worker below the medical assistant all of whom comprise an integral part of the health care team.

An open minded approach to developing medical assistant programmes of the Sudan as well as other countries are viewed. Each country has to develop its programme depending on its own specific needs, resources and motivations.

Dr Taba's opening question after the talks regarding methods of obtaining the cooperation of physicians in a country set the tone for open and frank discussions. Responding, Dr Rahnema and Dr Smith described the need to involve universities, other institutions as well as physicians in a collaborative way to help pave the way. Further, humanitarian, political, economic and other cultural incentives may help to break down frequently occurring professional obstruction.

Supervision should be a means of continuous education and should bring about increased competence and confidence and should not result in perpetuation of mistakes. Selection of candidates for training was also discussed. The composition and role of the various members of the health team and their functions were also touched upon.

III Second Plenary Session

The second plenary session took place in the Conference room of the Faculty of Engineering, University of Khartoum from 8.30 a.m. to 1.30 p.m. on Tuesday 17th December 1974.

In the first part of the session the participants made their presentations regarding the training and utilization of medical assistants in their countries. The second part was devoted to discussions and the answering of questions raised. The session ended with a summarization of the discussion of the day.

The health problems of the countries were most similar, and revealed a pattern of mortality and morbidity, arising from ignorance, poverty and disease, typical to the Region and the developing world as a whole. There was a preponderance of rural over urban population and in some countries there was a sizable nomadic population. Most of the countries had taken a national census relatively recently, and those which had no census so far were planning to hold one in the near future. The population density was generally low, the natural increase was two to three per cent. The infant mortality rate was high and the average life expectancy low. Infectious and parasitic diseases, malnutrition or under-nutrition, and diseases of child-bearing were common priority problems in all countries.

One country considered that it had a complete self-sufficiency of physicians and saw no point in having medical assistants as part of its health care delivery system. This country felt that it could afford to send physicians to neighbouring countries and that its health services were not likely to be adversely affected by such a "brain drain". One other country also did not favour the introduction of the category of medical assistants in the delivery of health care, although the losses therefrom through "brain drain" were about 60 per cent of the annual production of medical graduates. Nevertheless both these countries recognized the need for professional and auxiliary personnel other than physicians to constitute the health team, the leadership of which rested with the physician.

About a third of the countries represented had the medical assistant as the principal means of health care delivery, at least in rural areas. In most cases the medical assistant work under the supervision of medical officers, whether national or expatriate.

All the countries participating in the Seminar either possessed established medical faculties or were in the process of establishing these.

An interesting feature among the presentations was a paper prepared by the Medical Assistants Association of Sudan, on the "Training and raising of the standard of Medical Assistants in Sudan" (Ref , ANNEX). In this paper it is urged that the medical assistants be given opportunity to specialize and that a separate department should be set up for the selection of students, planning of courses, holding of examinations and exersising of supervision. The course is to be extended to three years and the diploma "should have equivalence with that awarded in other countries". A reference Text Book was requested to be issued and prescriptions should be written in Arabic which should be notified periodically through bulletins. Studies in Obstetrics, Gynaecology, Laboratory and Pharmacology should be expanded and specialized sections for Endemic Diseases and Occupational Health should be established. Refresher courses and other incentives were requested especially for those medical assistants who were to serve in remote rural areas.

The discussion on all of these presentations brought out a number of pertinent points.

It was early agreed that staffing patterns should be determined by the functions or services to be performed. It was not always either desirable or economical to use the physician for the performance of those duties which could equally well, or better, be done by the medical assistant. This argument was contested by the country which believes its self to have a total self-sufficiency of physicians, by their saying that a health team composed of public health nurses, laboratory technicians, sanitarians, dental assistants can lead to great economy in the time and effort of the physician who can devote his time to complex problems and to teaching and administration. In their view training of medical assistants, supervising them and providing them with logistical support and referral facilities, and

opportunities of continuing medical education constituted a great commitment of resources in time and money which should not be lost sight of.

The concept of a physician's extender, medical assistant or a Medex valid in the developed as well as the developing countries as outlined by Dr R. Smith in his presentation of the 16th of December apparently was not acceptable to the participant from this country and to the one other country which had no programme of medical assistants nor had any intention of starting one.

The medical assistants taking part in the discussion were of the opinion that it was legitimate for them to aspire to become doctors if they could compete for entry into medical schools and had the prerequisite qualifications for entry and if they had completed the necessary number of years in the service of their country.

This was fully supported by another country which has completed all the formalities for the introduction of a medical assistants programme, a country in which provision has been made for the medical assistant to qualify as a doctor, after completing five years service. The medical assistant entering the medical course will have to complete all the five years required for graduation in medicine in the country concerned and no curtailment of this period would be possible.

Another country has made it compulsory for the medical graduate to devote one year of training in rural areas during the course of instruction. The general feeling was that continuing education facilities for the medical assistant were essential, and that the career structure should be made rewarding by suitable incentives thoughout the life span of the incumbent. Doubt was, however, cast as to whether "promotion" from medical assistant to physician was in fact true promotion and a strong case was made for a line of continuing education specifically planned for the needs of the growing medical assistant in his own right.

A representation was made that the doctors should develop an attitude of equality and not one of superiority towards their medical assistant colleagues. The latter, as represented in the Seminar, did not seek financial gains in terms of private practice but indicated that they and their

colleagues had a thirst for knowledge for which opportunities should be afforded. The wish was also expressed that training should be made available to qualified medical assistants, so that they could become efficient instructors for the training of other medical assistants, and for other categories of health personnel.

There was a general feeling that private practice should not be allowed to medical assistants and in the course of discussing this subject the question of its desirability in medicine was raised. It was pointed out by one country that this is an unrealistic approach as the salaries in some countries are so low and the cost of living so high that it would not be possible for the doctor to do without private practice, and that, further it would be unrealistic in such countries to deny the medical assistant similar rights. In the programme of that country, the government were allowing private practice as it was very difficult to control it, and therefore, more practical and rational to legalize it.

The day's session pointed up the value of having the medical assistant taking an active part in discussions concerning the planning of services involving their participation, and concerning educational planning for their own profession.

The training and utilization of medical assistants in the Sudan was discussed in detail, on the basis of the paper on "Training Utilization, Role and Significance of Medical Assistants in Medical Care" (Ref , ANNEX).

A presentation was given of the WHO-assisted Health Services Development Project in West Azerbaijan, Iran, in which the survey, problem formulation, proposal development, implementation and wider application into the country's health care delivery system was given.

In summarizing the session Dr Flahault referred to the objectives of the Seminar as stated by Dr Taba in his Opening Address, underlining that ample time for discussion was being provided to the participants to express their own views, to exchange ideas and to benefit from each other's experiences, keeping in mind the need to improve the delivery of health services at the peripheral level.

IV Third Plenary Session

1. The third Plenary Session took place in the Conference Room from 8.30 a.m. to 1.30 p.m. on Thursday 18 December 1974.

2. Dr Ijazul Hasan, Vice-Chairman, from the chair, expressed the thanks of the participants to Dr Sobhi El Hakim for the field trip which had taken place on the previous day, providing an opportunity for participants to see first-hand the role of the Sudanese Medical Assistant in the delivery of health care from the peripheral to the provincial levels.

3. The Daily Record for the first two days was adopted. A revised Programme for the day (Ref ANNEX) was adopted. The eight major topics shown thereon were each opened and discussed as follows:

4. Agencies, Association, Groups and Individuals that must be committed/ involved in Medical Assistant Programmes:

On this topic, Dr Amini stated that, in the past, attempts to introduce Medical Assistants had ended up in either successes or failures. In some cases schemes introduced with the intention of becoming national remained as pilot projects. A nicely produced document or manual does not ensure success. The decision-making bodies not only at the central level but also at the provincial and at the lowest level. The involvement of consumers and the public is very important from the earliest stages of planning a programme.

Dr Amini pointed out that at the rural levels the chiefs of village councils and village leaders have to be involved. Financing agencies, insurance, education and training institutions, ministries of agriculture and interior have to be consulted. The necessary legislation has to be framed. Professional associations such as medical and nursing associations have to be consulted. In the rural areas traditional healers, such as traditional birth attendants have to be consulted. They can be very useful or their lack of understanding can contribute to failures. The programme of Behdars which formerly existed in Iran was an example of failure in the past due to inadequate and (improper) preparation.

In the discussion which followed, the necessity for the Medical Assistant to be a part and parcel of the community and to be accepted therein before a programme will be effective was accepted. It was mentioned that whereas the needs of the population for health care were

usually well recognized, the demands should also not be lost sight of. A rural population should not be made to feel that it is considered inferior to the urban population as a result of an apparently "inferior" type of service being offerred to them.

It is essential that one agency which will usually be the ministry of health, accept responsibility for the overall planning, introduction and operation of a programme of Medical Assistants in the context of the total health services of the country. However, consultation with other agencies and organizations and their approval is essential for success in any programme.

5. Selection:

In his presentation, Mr Horo stated that this depended on many factors which had merits and demerits and it was not possible to lay down a formula which would apply to all situations and all countries. The pattern Sudan could be followed, i.e., of selecting people who are already in the health services. On the other hand selection could be made directly from the schools. The length of the training will then depend on the background of the candidate. The main guidelines and criteria were:

i) minimum standard of education with six, eight or ten years of schooling;

ii) academic requirements should not be so strict as to exclude nomadic people;

iii) individuals selected and going back to the interior should be well acquainted with customs, taboos, local language and should have good knowledge of the community;

iv) age - This will depend on the work to be done, the prestige necessary, the social conditions and the expectations of the community. 18 years may be a minimum after graduation and some supervision may be necessary;

v) physical fitness;

vi) social consciousness, self-reliance; interest in the field, reliability and need. These qualities can be ascertained by interviews and/or referral to testimonials;

vii) pretraining examinations to evaluate the achievements and to test

aptitude and to eliminate those unsuitable. Exceptions may have to be made due to social needs and situations. During training, a constant assessment and evaluation should be done to eliminate those who cannot make it.

During the discussion that followed it was felt that it may not be possible for other countries who are thinking of introducing Medical Assistants to follow Sudan's example of progressing with the training of nurses for training them to become Medical Assistants. It may be necessary for each country to devise its own courses for their special intake, needs and circumstances. It was also felt that for the supervisory level it may be better to train Medical Assistants from the ranks of nurses because of their proven reliability and earlier experience and exposure to sick people. Also past performance is the best predictor of future performance. The need of interviewing was stressed as it was then possible to remove many misconceptions which the applicant may have and maturity was also stressed.

6. Distribution and Utilization:

Dr Sobhi El Hakim said that planned assignment of the Medical Assistant was basic to his proper utilization. This enabled him to perform optimally within the limits of his job description. These will be similar in most countries although the emphasis may vary (e.g., community health, health education or family planning). The utilization will depend in part upon the availability of means of communication: telephone, radio-telephone will help him to carry on his duty in agricultural, rural and industrial settings. These facilities will enable him to augment the potential of his team comprised of the health visitor, the village midwife and the sanitarian. The provision of transporation will enable him to refer cases and to make a regular visit to the dependent health units. The circulation of periodicals, papers and pamphlets help keep him abreast of advances in medical care technology. Refresher courses and seminars serve increase his technical skills. A period of apprenticeship of a year with a physician in a rural hospital will add considerably to his practical ability in his future work. Dr Sobhi concluded by saying that the Medical Assistant role should be given due consideration in the development plans of the country.

In the discussion it was felt that there was often some overlap in the function of nurses and Medical Assistants. It was also felt that whereas rural areas are in need of delivery of health care services we should not lose sight of peri-urban slums where the need is no less urgent. The problems in towns may be even graver than in the rural areas. The need of developing indices as a method of evaluation was also discussed. It was also felt that in some situations the nurse may be pushed unwillingly into the role of a substitute physician and therefore the need of introducing Medical Assistants is real. Nursing has indicated its concern for the psychosocial aspects and longitudinal concerns of health care rather than the diagnostic and treatment aspects performed usually by doctors and Medical Assistants.

7. Dr Hariri the second Vice-Chairman took over from Dr Ijazul Hasan.

8. Training:

Dr Smith said that there were three methods in common use. The first of these is the classical medical school model which was the one used to train doctors and is most favoured by them for training Medical Assistants. It provided for upward mobility in that some of the Medical Assistants could become doctors and the students could learn the "whys" of managing diseases as well as the "hows". Its drawbacks are that doctors are generally poor teachers and talk above the heads of their students. The second approach is the problem-oriented training model. This deals with the major or most common health problems present in a country. It does not prepare Medical Assistants to handle rare eventualities. This model deals with the problems patients complain about as they present themselves, as well as the major preventable health problems in the community. It can be taught by doctors and Medical Assistants alike who are taught specifically how to teach this method. There is no over-training and students learn how to manage problems though they do not necessarily know the "why" of their problem management actions. The disadvantage is that it does not provide upward mobility. However, there is no "brain drain" with this method. A combination of the two is the third and perhaps a better method. Components of a Problem-Oriented Package were described as (1) statement of objectives of the package (2) pretest

(3) training and management protocol (4) reference skills (5) patie t and community health education (6) learning facilitation activities : a) active response sheets, b) patient management exercises, simulated or actual, c) audio-visual materials which include video-tape recordings, slides, tapes (7) formulary (8) post-test.

The presentation was very well received as it was both dynamic innovative and very well illustrated. It offerred very good alternatives to the classical system and the crash approach. It produced a combination of both. The WHO document for the village health worker deals also with the problem-oriented way of teaching and was also used to illustrate Competence Based Training.

The discussion brought out that the problem-oriented teaching was akin to training by apprenticeship, and could help in the rapid production of Medical Assistants. The ue of educational planning and technology was commended and the WHO encouraged and would welcome requests for assistance in this area.

9. Imagery and Career Structure:

Dr Ronaghy stressed the need of upgrading the Medical Assistant to be a good teacher. This will greatly help him in acquiring a better image of himself as well as by others. There should be the provision of a career structure within this category (Ref. "World Health", June 1972, p.13). The aim should be a professionally satisfying career. This may or may not give him much economic gain or reputation or public office. Dr Ronaghy then dealt with the history of medical education in the United States, before 1900 any high school graduate could enter medical school and any G.P. could be on the faculty. The schools were self-supporting and there was very little post-graduate education. After the Flexner Report or the Carnegie Foundation in 1910 only the top quarter of high school graduates cou enter medical schools and the teachers were all super specialists. One result has been that now general practitioners are almost non-existent in the United States.

In the discussion it became apparent that it was not desirable to be too specific about the career structure of the Medical Assistant as there are different levels of entry in different countries. One could not upset t e

career patterns of other disciplines as all have to be inter-related in the context of the overall civil service structure of the countries. It was realized that it would not be desirable to use the word dead-end since it was not used in other professions like nursing. It was also felt that the Medex programme is rather recent and therefore it would be rather premature to draw conclusions from its experiences until at least a few years have passed.

10. Dr A.H. Taba, the Regional Director, before taking leave of the Seminar, expressed great pleasure in the manner in which the discussions were held and the presentations were made. He regretted that it was not possible for him to sit and participate in the Seminar for the whole period as he had other commitments. He held the Medical Assistants in high estime who have produced director generals in national administrations and risen to the rank of ministers. The President of the Sudanese Association of Medical Assistants presented Dr Taba with a souvenir in recognition of his efforts in improving and developing the status and training facilities in the Region.

Dr Taba reciprocated by stating that he was greatly honoured by being made an honorary member of their society which he cherishes. He took leave of the Seminar and looked forward to reading their report as he has a long association with this category of personnel.

Dr Taba thanked the Government of Sudan for the generous hospitality and for making such excellent arrangements for the Seminar. He was convinced that this was the best venue for this Meeting in the Region and in fact could take a place of pride in the world as Sudan was a pioneer in the field of Medical Assistants, as well as of several other categories of health worker.

11. <u>The Relationship of the Medical Assistant with other members of the Health Team above, below and at the same level, including Supervision</u>:

Dr Bo Hatab was of the view that to define this relationship between the Medical Assistant the doctor and other members of the health team greatly depended on the structure of the health services of any country. Further needed is a clear definition of the job descriptions of the various members of the health team. It should result in an efficient organization of their

efforts and a high level of cooperation between different members of the health team in order to coordinate their activities and to get the maximum benefits with the lowest possible costs. He drew a pyramid in which the apex was comprised of physicians, the middle part of the Medical Assistant, nurses, laboratory technicians, etc., and the base comprised of the village health workers or the front line workers. He considered the role of the first to the second levels as that of teaching, receiving referrals and supervision, continuous education and administrative control. The same was to extend from the second to the third level. He amplified teaching as participation in professional teaching and guidance through supervision by regular visits at fairly frequent intervals so as to lead to the development of theoretical and practical knowledge.

The administrative control was to be according to local administrative practices, but should not be at the expense of supervision directed towards continued education and promotion of knowledge and experience of the personnel to be supervised.

One criticism was that it may not be possible for the Medical Assistant to supervise the village health worker. However, this was not accepted by the group as a whole, as it was considered that it should be possible for the Medical Assistant to supervise front line personnel.

12. Continuing Education:

Dr El Bindari Hammad said that continuing education was linked with job satisfaction, imagery and career structure. It can take the form of self-instruction, refresher courses and further education for additional qualifications.

During his working span a person discovers increasing areas of knowledge and skills and sometimes in additional fields like management, administration and teaching methodology. It may be in another profession such as that of a physician. The continuing education can take the form of planned courses, recycling or refresher courses. It may lead to promotion upwards and out of the profession. The teaching in continuing education should be dynamic and minimally didactic and the aim should be to keep the Medical Assistant in the field as often as possible. We should facilitate the learner to learn as much as possible.

The general shortage of text books and other learning materials was complained of. The group was also reminded that both prestige and money are related to certificates. There is a great desire for the health workers to qualify for longer courses and to reach even university levels of recognition. Thus the intake standards are being raised progressively. At this stage a question was raised by a senior nurse participant which implied that the doctors are generally reluctant to delegate their work to other members of the health team and this was generally agreed. It is now increasingly realized that continuing education is the only way of remaining intellectually alive and socially abreast.

13. The Medical Assistants Role in Rural and Community Development:

Dr Flahault stated that the Medical Assistant occupies the position of an elite in the rural community and this could be exploited in the development of the quality of life in the community. He should join hands with the school teachers, religious leaders and other leaders to overcome nutritional deficiencies as well as other problems. He should participate in disseminating health education materials to the public in prevention of accidents, in the control of endemic diseases like malaria and bilharzia and in the eradication of some pestilential diseases like smallpox; in housing improvement, sport promotion and every possible social or civil activity. The Medical Assistant is an agent of change. A note of caution was however voiced that we should not expect too much from him as he has a lot of responsibilities already and he is more geared to giving and not so much to demanding.

Dr Robertson summarized the discussion by saying that it had been a very profitable session in which all participants had taken an active part and it would be possible for the group to make recommendations which would be presented on the following day for general consideration and debate.

V Conclusions and Recommendations

1. The Seminar agreed that, in most countries at whatever stage of development, medical assistants are one way of answering the basic health needs of the population and improving the delivery of the health services at the peripheral level. They can be valuable contributions to securing the nation-wide coverage which is the aim of all countries.

2. The creation and introduction of a new category of health personnel such as the Medical Assistant should be preceeded by an examination of his functions and training in relationship to other categories of health personnel.

3. The assessment of health demands and needs of the population and the evaluation of health services should determine the functions of the health team and consequently of the medical assistant.

4. To use a type of health personnel for a job which could be adequately done by another one less qualified is both illogical and uneconomical.

5. An image of confidence and trust in the competence of the Medical Assistant should be developed at all times in the planning, implementation and operation of Medical Assistant programmes. His or her image as an integral member of the health team should be accepted by the population served and encouraged by full support from the health services.

6. The terminology used to designate a health worker is important. It should be neither derogatory nor confusing, but should convey respect and acceptance.

7. The health personnel in charge of the delivery of health services at all levels should take part in the training of medical assistants.

8. The delivery of health services has to be considered as a whole. It should be approached as a team effort to which each member contributes at his level of competence.

9. Guidance, supervision and feed back are part of a process of continuing education. They should be brought into a context of team spirit and "esprit de corps". A fixed proportion, at least 5%, of the operating budget of a Medical Assistant programme should be devoted to continuing education.

10. All relevant levels of government, as well as that part of the private sector (e.g. medical associations, nursing associations), as well as private medical practitioners, and community leaders who have an interest in the delivery of primary or basic health services in a country or small community, should be involved and committed from the beginning in any programme to train and utilize Medical Assistants.

11. Governed by local conditions, each country should determine applicable criteria for selection of students to become Medical Assistants, each country bearing in mind the many cultural, social and political factors which influence the best selection of candidates.

12. The distribution of Medical Assistants should follow a course to meet the pressing health care needs of a country, while simulataneously following a pattern which develops the broadest possible national support base. While concentrating efforts on rural populations, due consideration should be given to urban populations, especially the urban - peri-urban groups.

13. Since there may be more than one approach to the training of Medical Assistants, each country should select the one most appropriate to its motivation, needs and resources.

14. A career structure for Medical Assistants should allow the most talented to move into other personnel categories. However, to implement a programme with the most positive cost benefit to a nation's development, every effort should be made to retain personnel as Medical Assistants, by providing for this category of intermediate level health practitioner, a stimulating, satisfying and rewarding career.

15. The ultimate responsibility for the supervision of Medical Assistants should always reside with the physician. However, under condition where the Medical Assistant is too far away from a physician, this supervisory responsibility may be delegated to more senior and more experienced Medical Assistants.

16. When appropriate, in taking basic health services to the periphery at the village level, programmes to have Medical Assistants train Village Health Workers should be encouraged.

17. Each country should determine the method of planning and implementing the Medical Assistant Programme most appropriate to its specific motivations, needs and resources. Whatever approach is chosen, it is recommended that it be flexible and adaptable to changing needs within the country.

18. The prime goal of health services is the health of the people, but beyond this goal and in keeping with the definition in WHO's constitution that "health is a state of complete physical, mental and social well being", there is another broader goal constituted by the development of the community and the country as a whole. Thus the Medical Assistant appears to be a key element in the achievement of the overall development objectives of the community, and therefore of the country.

THE DEMOCRATIC REPUBLIC OF THE SUDAN

MINISTRY OF HEALTH & SOCIAL CARE

KHARTOUM

TRAINING & UTILIZATION OF MEDICAL ASSISTANTS IN THE SUDAN

Here in the Sudan there are many schools for training and utilization of different Medical Assistants according to the syllabus approved by the concerned and to the nature of the profession they will practice after graduation.

A Medical Assistant was known to be as an assistant medical officer or Musaid Hakeem in Arabic, but this definition and description have lately changed very much and now we have the following qualified graduates of the various Medical Assistants Schools; namely :-

1. General Medical Assistants
2. Laboratory Medical Assistants.
3. Dentistry Medical Assistants.
4. Ophtholmology Medical Assistants.
5. Anaesthesia Medical Assistants.

As the necessity for extra medical assistants in other fields of the Medical Profession is urgently needed to cover the requirements of all hospitals, dispensaries and many new Health Centres with other qualified and trained Medical Personnel; a Pharmacy Medical Assistants' School was established and inaugurated in November, 1973 to serve the purpose.

The school started with a batch of 40 students from all Provinces including the Southern Region plus 10 students from the Medical Corps of the armed Forces or a total number of 50 students as a whole batch.

Pharmacy Medical Assistants' Trainees are selected by the Board of Studies of the school from candidates who comply with the following conditions :-

1. They are certified nurses (3 years course)
2. They completed three years after graduation.
3. They completed their Intermediate Course of Education with good English Language
4. They must not exceed 30 years of age.
5. They must be medically fit.

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Thereafter, the Trainees undergo a Theoretical and Practical course of two years at the school. Lectures are given in Arabic language and also in English language for the students from the Southern Region.

The promotion from one year into the second one is conditioned by successfully passing the examinations in the courses of the first year.

Final examinations are conducted by External Examiners approved by the Board of Studies.

During training, the students are distributed and offered the following facilities to practice dispensing in the following teaching hospitals of Khartoum Province :-

1. Khartoum Hospital, Khartoum
2. El Shaab Chest Hospital, Khartoum
3. Khartoum Eye Hospital, Khartoum
4. Khartoum North Hospital, Khartoum North
5. Omdurman Hospital, Omdurman.
6. Mental and Nervous Disorders diseases Hospital, Omdurman.

By the end of the first year's course and after the vacation, the students are also attached to the out -stations Hospitals for further practical dispensing.

On the successful completion of the course, assessed by the external examiners and approved by the Board of Studies, the graduates will be awarded certificates and will be taken up by the Ministry of Health and Social Care and offered careers as Pharmacy Medical Assistants, and also for the purpose of improving the quantity and the quality of Health Services in the Sudan whether in the Government Sector or in the Private Sector.

Knowing that all hospitals in the Sudan are divided into the following categories:-

1. Hospitals of 200 beds and above upto 1000 beds.
2. Hospitals of 100 beds and upto 198 beds.
3. Hospitals of less than 100 beds.

Also as Health Centres used only as out-patients' departments are divided into type "A" and type "B" Health Centres, and as more and more new hospitals and new health centres are being built as well as new extensions are made to meet with the increasing numbers of In and Out-Patients; the urgent needs for more and more Pharmacy Medical Assistants are required to cover the present acute shortage in qualified trained medical personnel in Pharmacy who are needed for a total number of 133 Hospitals of different Categories as mentioned before with a total number of 15670 beds, besides a big number of Dispensaries and Health Centres while there are only 40 qualified Pharmaciests, 15 of them are females:

and in order to replace permanently certified Nurses and Nurses trainees sent periodically for practical training as part of their Nursing Course in Hospital Pharmacies and Dispensaries as they are both utilized as Pharmacy Assistants.

On the other hand and in the Domestic Market in Private Practice, Pharmacy Medical Assistants will be of great value to the Medical Profession, as they will eventually replace ignorant Sales - Men who are working now in Private Pharmacies and Drug Stores.

In the conclusion, a comprehensive Annual Report about the Progress of the School is submitted to the Permanent Under-Secretary, Ministry of Health & Social Care and those who are concerned for following.

A copy of the Syllabus of the School in English Language, by the Dean, is attached herewith.

Encls.

K.A.Sh./Fatin

THE DEMOCRATIC REPUBLIC OF THE SUDAN

MINISTRY OF HEALTH & SOCIAL CARE

PHARMACY MEDICAL ASSISTANTS' SCHOOL

SYLLABUS : BY KAMAL ABDALLA SHAFIE

DEAN/ PHARMACY MEDICAL ASSISTANTS' SCHOOL

FIRST YEAR

FIRST TERM

PART ONE

THEORETICAL PHARMACY NOTES

INTRODUCTION

DEFINITION AND PREFACE

1. Pharmacy
2. Materia Medica
3. Dispensing
4. Pharmacognosy
5. Pharmacology
6. Practical Pharmacy
7. Pharmacopoea - B.P. & U.S.P.
8. Extra - Pharmacopoea
9. National Formulary.

CHAPTER I

DRUGS

1. A General Survey
2. How much to learn about Drugs
3. Nomenclature - Names of various substances.
4. Pharmacology, Toxicology, Therapeutics, Administration, Cautions, Indications & Contra-Indications.
5. Types of Drugs.

CHAPTER II

METROLOGY

1. Weights and Measures
2. Avoirdupois Weight - Imperial System
3. Measures
4. The Metric System.
5. Weighing & Measuring.
6. Metallic Weights used in Pharmacy.

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CHAPTER II

METROLOGY

(cont'd)

7. Measuring Liquids
8. Relation and Conversion as applied in Pharmacy
9. Domestic Weights & Measures
10. Weighing & Measuring Technique
11. The Balance.

CHAPTER III

HEAT AND ITS USES

1. Methods of Measuring heat.
2. Rules of Conversion
3. The Water Bath
4. The Salt Water Bath
5. Conversion Table

CHAPTER IV

1. Vaporisation of Liquids
2. " " Solids - Fixed
3. " " " - Volatile
4. Distillation
5. Condensation
6. Apparatus used in Distillation
7. Fractional Distillation
8. Destructive Distillation
9. Sublimation
10. Desication
11. Comminution
12. Solution
13. Solvents - used in Pharmacy
14. Decantation
15. Straining
16. Filtration.

CHAPTER V

EXTRACTION

1. Maceration
2. Digestion
3. Expression.
4. Percolation
5. The Percolater
6. Infusion
7. Decoction.

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CHAPTER VI
DISPENSING

1. Making Doctor's Prescriptions.
2. Preparing the Medicine
3. Preparing a Potion.
4. Preparing Lotions
5. Preparing Powders
6. Preparing Drops
7. Preparing Ointments
8. After Preparing a Medicine
9. Domestic Measures Indicated.
10. Preparing Mixtures.

EMULSIFICATION

1. Emulsions
2. Natural Emulsions
3. Manufactured Emulsions
4. The English Method
5. The Continental Method
6. The Emulsifying ~~Powder~~ Agents.
7. Preservation of Emulsions.

GENERAL :

1. Some Dont'ts.
2. Some Dongers
3. General Guide and Advice

End of Part One

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PART TWO

First Year

1st.Term

OFFICIAL PHARMACY NOTES

CHAPTER VIII

1. Aquas Solutions - Waters.
   (Medicated, Aromatic & Distilled Waters)
2. Liquores - Solutions
   (Simple Solutions & Chemical Solutions)
3. Syrupi - Syrups
   (Simple, Medicated or Flavoured)
4. Mel et Oxymel - Honey & Oxymel
5. Mucilagiones - Mucilages
6. Emulsa - Emulsions (Un-official)
7. Misturae - Mixtures
8. Lotions - Lotions
9. Glycerita - Glycerines
10. Alcoholic Solutions - Spiritus - Spirits
11. Aetherial Solutions. Collodia - Collodions
12. Oleaginous Solutions. Linimenta - Liniments
13. Nebulae - Sprays (Un-official)
14. Injectiones - Injections.

CHAPTER IX

Liquids Made by Percolation or Maceration

1. Aqueous Liquids
2. Infusa - Infusions - Decocta - Decoctions.
3. Alcoholic Liquids. Tincturae - Tinctures
4. Vina - Wines
5. Extracta Liquids - Fluid Extracts.
6. Oleoresinous Liquids - Oleoresinae - Olseresins
7. Acetous Liquids - Aceta -Vinegars.

CHAPTER X

Solid Preparations Made by Percolations

EXTRACTA - EXTRACTS

1. Solid Extracts
2. Soft Extracts.
3. Powdered Extracts.
4. Resina - Resina - Un - Official

End of Part Two

PART III

First Year
2nd Term

MAGISTRAL PHARMACY NOTES

Solid Preparations made without percolation

CHAPTER X

1. PRESCRIPTIONS :
   a. Parts of a Prescription
   b. Superscription or Heading "R"
   c. Name of the Patient
   d. Inscription or names and quantities, of Ingredients.
   e. Subscription or directions to the Dispenser
   f. Signa or Directions for the patient
   g. Name or Initials of the Physician
   h. Date of Prescription
2. Abbreviations in writing prescriptions
3. Incompatibility in Prescriptions :
   a. Chemical Incompatibility
   b. Physical Incompatibility
   c. Therapeutical Incompalibility
4. Chemical Incompatibility occuring in Liquids
5. Physical Incompatibility occuring in Liquids
6. Chemical Incompatibility occuring in Solids
7. Physical Incompatibility occuring in Solids
8. Immiscibility

CHAPTER XI

1. Solid Extemporaneaus Preparations:
   1. Pulvers - Powders
   2. Tabellae - Tablets
   3. Trochisci - Troches or Lozenges
   4. Pillulae - Pills
   5. Capsules
   6. Film-tabs
   7. Cachets
   8. Sachets
   9. Granula-Effervescent preparations.
2. Suppositoria - Suppositories
3. Unguenta - Ointments.

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CHAPTER XII

Sterilization

1. Methods of Sterilizations :-

   a. Dry Heat
   b. Moist Heat
   c. Steam under pressure - autoclaving
   d. Tyndallization.
   e. Sterilazation of Oily Solutions
   f. Emergency Method of Sterilization
   g. Ultra Violet Ray
   h. Super - Sohic
   i. Chemicals
   j. Direct Flame

End of Part III

THE SYLLABUS (SECOND YEAR) 1ST TERM

MATERIA MEDICA

PART I

Substances used chiefly for their local action :

1. Demulcents, Emollients and Dusting Powder.
2. Carbohydrate Nutrients and Flavouring Agents
3. Bitters
4. Volatile Oils and Cantharidine
5. Digestive Ferments
6. Purgatives
7. Astringents
8. Cholagouges
9. Antholmintics
10. Antiseptics, Disinfectants and Deodorants.

PART TWO

Substances used chiefly for their General Action

1. Water, Chlorides, urea and suramin
2. Potassium and Sodium - Hydrates, Carbonates, Acetates and Citrates
3. Ammonium
4. Saline Diuretics
5. Calcium & Barium
6. Acids
7. Charcoal
8. Carbon Dioxide and Oxygen
9. Iodides, other Iodine Compounds & Bromides
10. Alcohols, Volatile anaesthetics & Nitrous Oxide
11. Hypnotics
12. Drugs acting chiefly on the Nervous System
13. Vegetable Drugs acting chiefly on the Spinal Cord.
14. Drugs acting chiefly on Autonomic Ganglia and Nerve Endings
15. Nitrites
16. Antipyretics
17. Cinchonabark, Quinine, Quinidine. Pamaquine & Mepacrine
18. Salicine, Salicylates - Benzoin & Benzoates
19. Sulphonamides
20. Digitalis, Digoxine Strophanthus. Squill and Ouabain.
21. Emetics and Expectorants
22. Prussic or Hen-Acid and Syrup pruni
23. Colchicum and Cinchophen
24. Drugs Acting on the Uterus.

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PART TWO (cont'd)

25. The Heavy Metals.
26. Metalloids
27. Hormones
28. Vitamines
29. Anticoagulants
30. Antitoxic Sera & Toxins
31. Vaccines
32. Antibistamines
33. Antibiotics
34. Ephedrine
35. Amphetemines
36. Tranquillizers and Antidepressants
37. Spasmolytics, Sedatives and Analgesies.
38. Insecticides and Aerasols

PART THREE Second year (2nd Term)

TOXICOLOGY
(POISONING)

Toxicological Hints

Symptoms and Treatment of Acute Poisoning

General Procedure

1. Removal of Poison
2. Hasten Elimination of Poison
3. Administer Physiological Antidote
4. Treat other Symptoms :-
   1. Syncope
   2. Respiratory Failure
   3. Severe pain
   4. Collapse
5. Lavage Repeated
6. Antidotes
7. Emetics
8. Demulcents
9. Stimulants
10. Some Reminders

Treatment and Antidotes of :-

1. Mineral Acids, Acetic Acid and Trichloro Acetic Acid.
2. Carbolic Acid, Lysol, Creosols and Disinfectants.

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PART THREE (cont'd)

Treatment and Antidotes of :- (cont'd)

3. Ethyl Alcohol, Methyl Alcohol, Spirits & Wines
4. Potassium Hydroxide, Sodium Hydroxide and Ammonia
5. Antimony and Arsenic
6. Belladonna, Atropine, Hyoscyamine and Stramonium
7. Chloroform and other Volatile Amaeathetics
8. Cocaine and Substitutes of Cocaine
9. Food Poisoning; Bacteria or Ptomaines
10. Gases: Bromine, Chlorine, Carbon Dioxide, Carbon
11. Hypnotics - All
Monoxide and Acid Fumes
13. Tranquillizers
14. Phenothiazine Derivatives
15. Antihistamines.
16. Mercurials: Metals, Salts, and Derivatives and Iodine
17. Morphine & Opium - Papaverine & Heroin
18. Pethedine
19. Strychnine and Nux Vemica
20. Chronic Poinsoning by Mercurials
21. Chronic Poisoning by Opium and its Deriv tives
22. Chronic Poisoning by Antimony & Arsenic
23. Kerosene, Turpentine, Spirit and Petrol.

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Second Year-2nd Term

PHARMACOGNOSY

The Macroscopic and the Microscopic Characters, the biological geographical sources and the Constituents of some Botanical Species.

1. Acacia
2. Aloes
3. Amylum
4. Anethum
5. Aurantii Cortex
6. Belladonna
7. Benzoin
8. Buchu
9. Calumba
10. Capsicum
11. Cardamom
12. Carum
13. Cascara
14. Nux Vomica
15. Senega
16. Stramonium
17. Cinehona
18. Cinnamon
19. Coriander
20. Digitalis
21. Ergot
22. Centian
23. Glycyrrhza - Liquorice
24. Hyoscyamus
25. Ipecac
26. Jalap
27. Opium
28. Scilla
29. Senna
30. Tragacanth
31. Zingiber - Ginger

Second Year - 2nd Term

PUBLIC HEALTH

Sanitary Overseas' Course in Arabic is suggested and recommended.

A Lecturer from School of Hygiene for this prupose is required on Part Time Basis.

End of the Syllabus

KAMAL ABDALLA SHAFIE

DEAN/ PHARMACY MEDICAL ASSISTANTS' SCHOOL

ON THE TRAINING & RAISING THE STANDARD OF MEDICAL ASSISTANTS.

It has been acknowledged in the recommendations and instructions of WHO Experts Conference convened in Khartoum in 1961, that 90% of the Sudanese people are treated by Medical assistants; that efficiency and ability of medical assistant are abreast of cultural, economic, social, political and human progress in the country. The situation urgent as it is, requires the launching of a long-term policy geared to utilizing qualified medical assistants to meet the growing need of many countries for medical personnel.

The Sudan had certainly developed much in all these spheres particularly in the period between the 25th. of May 1969 and the year 1974; nobody would deny that. The Sudan, more still, is striving to double its progress through achieving the various development programmes, which are largely dependant on and closely related to the activities of medical assistants. However, the contemplated results cannot be attained only by cultivating vast fertile lands, neither by cutting irrigation canals nor by using mechanical equipment alone; they are only achieved by the healthy and physically fit citizens who are able to produce and multiply production in order to build a sound national economy, to implement development projects and to change the course of life to the best. It is achieved through sound minds who are capable of creation, perfection and invention. " sound body sound mind".

The developments and changes we have indicated, as they were conceived in the WHO conference were amazingly reached. However, the blunt fact is that such progress was not coupled by any attempts to raise the standard of medical assistants, though this was recommended and illustrated in the reports of the Experts Conference; not to mention some occasional attempts from the part of medical schools' Principals, to whom we are much indebted, along with the efforts of medical assistants - despite meagre potentialities - to enlighten and

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educate themselves and hence to cope up with progress.

The awaited progress, especially of rural areas, cannot be realized by cherished hopes; speedy efforts should be exerted to raise efficiency and ability of medical assistants, who should be scientifically qualified and capable of answering the needs of their patients, and also able to meet all the challenges they might face in excersing their duties.

In short, we believe that it is high time, though it is a bit late, to implement the recommendations and instructions of the previous Experts Conference. We call upon this gathering to put the ground work for serious and effective measures for the training and utilization of medical assistants. These efforts as I have previously stated will be indispensible for realizing the society of affluence the Revolution is looking forward to. While we are engaged in putting these measures, we should remember that we are one among three countries who are expected to provide abundant food supplies to the world. I don't need to remind you of how much it is of vital importance to give utmost concern to those who toil the land and produce our bread; they are the overwhelming majority of our people to whom medical assistants are held responsible to give due health care.

Thereupon we, the Medical Assistants, propose the following:-

(1) A department for specialized studies should be established comprising principals of the various Schools of Medical Assistants, Senior specialists, representatives of medical assistants, and to be headed by the Under Secretary, and shall be directly responsible to the Minister in person.

(2) The Department shall be responsible for selecting students, promoting courses, putting examinations and exercising suprevision thereof.

(3) The course of study should be extended to become three years.

(4) Names of M.A. schools shall be changed to "Institutes" or "Colleges" for medical assistants.

(5) The awarded degree should be revalued academically and technically and shall be deemed to be a Diploma instead of a granted certificate. It shall be modified to tally with similar certificates in other countries.

(6) Programming and promoting courses now available in medical schools ~~...~~ with view to compiling these in one text-book to be distributed to all medical assistants to serve as a reference book to be consulted whenever need arises. Such book shall be obtained against a special price, to meet costs of printing.

prescribed

(7) Prescription should be ~~...~~ reduced, and sent in periodical bulletins to all medical assistants.

(8) Establishment of specialized sections for endemic diseases such as tuberculosis, leprosy, kalazar, malaria, bilharzia, worms, small pox, meningitis and occupational health.

(9) It is imperative to expand studies on obstetrics and gynaecology, laboratory and pharmacology.

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(10) Medical Assistants schools should be enhanced by introducing specialists in various fields.

(11) It is found necessary to obtain fellowships and scholarships from international Organizations to increase efficiency of medical personnel.

(12) Refresher courses for veteran medical assistants.

(13) Granting incentives to medical assistants' cadres working in remote rural areas and giving them priority to obtain fellowships, higher studies, and to raise up a special fund to encourage such cadres to work in any rural area, and also to provide them with all means of comfort and entertainment.

In brief, these are our humble suggestions before you; we are confident that they will meet with your utmost care, full attention and entire approval and endorsement, as we believe they are part of the objectives of this seminar.

In conclusion we wish you a nice stay in the Sudan, a happy return to your homes; May Allah guide your steps, and may you remain for ever on the service of mankind.

Thank you.

The first Maternity and Child Health Care Centre came into existence in EL MUWADA Dispensary in 1941 under the guidance of the Senior Midwife from Midwifery School Omdurman and this marked the initiation of the training of the health visitor.

Two Health Visitors were graduated in the first batch in 1947, and their training was conducted practically in this dispensary and the mother's homes, Lodgin was provied for the health visitors trainees in Omdurman Midwifery School.

In 1948 a Central Committee was formed to draft a curriculum for the School.

In 1953 the first boarding house was established in the vicinity of Omdurman Midwifery School accommodating six trainees. In 1954, 22 health Visitors completed their training course.

In 1959, the Health Visitors School was inagurated officially in the present existing buildings.

HEALTH VISITOPS TRAINING

QUALIFICATIONS REQUIRED:-

Not less than the primary certificate and junior secondary certificate is prefarable.

PERIOD OF TRAINING:- A Complete Acadamic Year.

TRAINING PROCESS:-

FIRSTLY: The health visitor's training starts by joining the staff of one of the country's hospitals where she recives a nursing training course to aquire the nursing certificate.

SECONDLY: Then that certified nurse will join one of the midwives training schools in Omdurman or Medani to spend a period of one year to have the Midwifery Certificate. She returns then to her home hospital to spend a period not less than two years working under the supervision of a Gynaecologist for the continuity of training.

THIRDLY: The same nurse is then selected to join the Health Visitors School. This selection is based on her success in the examinations including Arabic, Science and Mathematics in addition to the reports and the advice of the Supervising Gynaecologist.

HEALTH VISITORS TRAINING SCHOOL

The training in the school is divided into two periods to cover one complete year:-

THE FIRST PERIOD:

This is wholly spent in the Midwives School to aquire the practical experience in relation to:-

a) Midwives School Administration.

b) Training of the traineee Midwives.

c) The daily Reports about the internal and external activities of the school.

d) Book-keeping, and personnel management.

e) Store keeping.

f) The supervision of rural midwives' work in homes(this work is directed by the Headmasters and the Senior Midwife).

SECOND PERIOD:

This period is wholly devoted for practical and theoratical studies in the health visitors school and is summarized in the following.

PRACTICAL WORK WITHIN THE PERIOD OF TRAINING

a) She participates the health visitor her activities in the maternity and childcare centre so as to be accustomed to the administration of the health centres and the care of expactant mothers till they dilIver their infants.

b) Instructs and educates the mothers about health.

c) She gives lectures about health care.

d) She works in the infancy and children diseases wards

e) She works in the chest diseases hospitals and she visits the patients and contacts at home.

f) She works in the Psychatric Clinics.

g) She is prepared to manage the medical officers of the expactant women, children and the aged.

h) She prepares all clothes needed by expactant women and children.

THEORATICAL TRAINING:-

The students receive lectures dilivered by Senior Officials of the Ministry of Health, Specialists and Head of Departments. These Lectures include the knowledge and

understanding that should be possessed in relation to:-

1. Personal and Public Health.
2. Infancy and children's disease.
3. Infectious, endemic and traopical diseases.
4. Post natal and antinatal care.
5. Tuberculosis.
6. Mental Health (Psych. Nurotic Disorders).
7. Child Health.
8. Local Governments(Local Peoples' Rule).
9. Vital and bio-statistics.
10. Occupational Health.
11. School Health.
12. Social Affairs(Social Welfare).
13. Nutrition of the pregnant,suckling women and child.
14. Cevic Education and General knowledge.
15. Eye Diseases.
16. Health Education.

After the finishing of the practical and theoratical Course she will sit for the Final Examination to aquire the Health Visitors Certificate.

THE RESPONSIBILITIES OF THE HEALTH VISITOR

After the graduation as a Health Visitor she starts her vital role among the families in the Urban and Rural Centres giving help, instruction and advice for the abatment of bad customs, providing child care services such as those related immunization and nutrition and at the census and soreening posts, as well as carring control activities for specific diseases. The Health Visitor also participates in all the social activities above her significant role in developing and improving the Sudanese homes and infants health.

THE HEALTH VISITOR GRADUATION:-

The Health Visitor holds the following Certificates:

1: Nursing Certificate.
2: Midwifery Certificate.
3: Higher Course Certificate(as a Health Visitor).

After these three Certificates and after a serious practical period, the Health Visitor is paid an Annual Salary of LS.174 plus 160 annually as Living Allowance till she reached the Consolidated Segment of 280. Then she is appointed as Senior Health Visitor in the Segment 280-440 plus 209 annually as living Allowance.

After that she is appointed as an Assistant Nursing and Midwifery Officer(aast.chief health visitor) in the Segment 425-560 with 245 annual living allowance.

The assistant chief health visitor is then appointed to be a chief health visitor starting with the Segment 560-740 plus 270 as an annual living allowance.

DUTIES OF THE HEALTH VISITOR

THE WORK IN THE HEALTH CENTRE:-

She receives the health centre with all its equipments and medicines and so she is solely responsible for conduct and activities of centre personnel which includes the clerks, the guard(Khafir), the gardener and the (farash) she has to organize and manage them.

Above she has to manage her own affairs which include the following:-

1: After reception post for expactant women during gynaecological and medical consultation twice a week

2: Preparation of the Centre to receive the expactant women twice a week for medical examination, in the same day she supervises the work of the certified rural midwives different categories on practicing the medical examination and the other collecting handling specimens for laboratory examination.

3: Training the rural midwives student.

4: Preparing and organizing all the needs of the gynaecologist who calls for the examination of the extraordinary cases shown by the health visitor.

5: She helps the clerk in the issuing, counting, collecting and arranging the cases medical cards.

6: She instructs and advice pregnant women about their feeding, sports and the way they should follow to prepare themselves for dilivery. She has to follo-up the achiving of these instruction of home.

7: She keeps and distributes UNICEF's aids like milk and vitamins in her store and she has to write, monthly, four months and an Annual Reports concerning the intake out-take and the remaining stock.

8: Recording of all the centre visitors number.

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9: Teaching sewing art for mother twice a month.

10; Teaching mother about proper family life for instruction purposes to mothers and infants twice a week.

(a) She receives infants from their first month till they reach the age of five(enterance of the kindergarten.

(b) Gather women to teach them about infants breeding, postpartum, intrapartum and the modern style of instructions concerning cleaning, clothing and nutrition.

(c) Preparing the needs of the Physician when he comes to review cases refered to him.

(d) Assists in the training of the Health Visitors students.

(e) Instruct women about the proper methods to control and eradicate bad customs and traditions.

(f) Teaching mothers cookery, sewing art, and children affairs practically at the centre and by repeated visits at home.

HER ACTIVITIES WITH THE CERTIFIED MIDWIVES:-

1: Daily rounds with midwives to observe the routine work concerning the doshing and dilivery and supervising the mother and infant health other emergent case.

2: Reviewing once a week at noon with rural midwives all their cessons and clarifying any misunderstanding.

3: Distribution of the monthly dressings and medicines to the midwives and inspects their cases at noon.

4: Receiving citizen's complains against any midwife charged of carelessness towards a child or his mother and the announcement of authorities.

HER ACTIVITIES AT THE HOSPITAL:

She is required to carry out the following activities:-

1: Visiting the children wards to continue the follow-up procedures towards them after their discharge from the hospital.

2: Visiting the gynaecological wards as a part of her daily work pattern for the continuity of treatment and after care.

3: Visiting tuberculosed patients at home for continuing care and given instructions and advice for both the patient and contacts(family members).

4: Assists in the leprosy colonies work, if any, otherwise at the patients home.

5: She is often asked to report about families social status to the authorities so as to give them aid and to sustaine them if possible.

HER ACTIVITIES IN THE OTHER SOCIAL FIELDS:

1: She participates in the social welfare sociaties, women unions, and the other democratic institutions without hiderance of the activity of her own job.

2: She is often asked to provide other services related to immunization and census campaignes.

3: Carrying control activities against epidemic diseases.

4: She assists and participate in the family planning programmes in the health centre and in the immunization of infants.

5: She gives help to the poor families by all possible means and she asks the local and People's Councils for handouts in such cases.

TRAINING AND UTILIZATION OF MEDICAL ASSISTANTS IN THE SUDAN

CONTENTS:

With the Compliment of
DR. ABDEL-AZIZ. M.A. NIGUD

TRAINING UTILIZATION, ROLE AND SIGNIFICANCE OF MEDICAL ASSISTANTS IN MEDICAL CARE

I. Introduction:

Health Protection of the Public is closely interconnected with the preparation of highly competent medical personnel (doctors and para-medical workers).

There are ~~40~~ 94 medical schools that train the medical auxiliaries with student bodies of more than 2910. Out of this number five are training the general Med. Assistants located one in each of the following Towns, Omdurman, El Obeid, Atbara, Juba and Port Sudan. The enrolment of candidates into these schools is planned in a way that all the requirements of the Country for general Medical Assistants can be fully met with.

The main figure in the medical care is the doctor, both in the out and in-patient departments. The para-medical workers are the assistants of the doctors. The Medical Assistants are the most qualified from among the para-medicals. The Med. Asst. differs from the nurse in the training that he gets, and therefore is used in the more serious medical work.

N.B. For duties of the Med. Asst. and his Role in Urban and Rural Medical Care, please see pages 6 + 7

II. Historical Development.

Training of the general Med. Assistants in the Sudan start in the year 1918 when it was considered at that time that it is most essential for the country to offer empirical medical training to the most outstanding male nurses with a view to qualify them for the carrying out of specific practical duties under constant and organised supervision by qualified doctors.

This decision was considered and taken because of the following reasons:

1/ The impossibility of establishing hospitals in every locality of the country or of employing qualified doctors in villages or groups of villages or even in urban or Rural Towns.

2/ Because of the extreme shortage of qualifieddoctors in the Country.

3/ Because of immensity and hugeness of the country with its small scattered settlements. The Country covers an area of about 2½ million square kilometers and with a population of about 8-10 million souls at that time scattered over long distances from each other.

4/ It is also not economical to place highly trained personnel among small scattered groups of population where every body rarely requires more than simple curative and preventive skills i.e. the use of medical

The above same reasons have remained just as valid up to the present time and will remain so for some years to come until the requirements of the country are fully met. Thus it no exaggeration to say that Med.Assts still are and will be so for many years the community health workers of the country health services.

Looking upon whole problem from this angle the training of Med.Assts of the different categories must be given special emphasis and consideration and that all the necessary visual teaching aids, equipments, tools, books, make-ups etc must be available for training for both the teacher and the trainee.

It is through Med.Assts that we will be able to expand our health services-therapeutical and preventive-to such an extent that they cover every village whether sedentary, nomadic or lying amidst forest.

III. Training of Medical Assistants:

As mentioned previously training of general Med.Assts in the Sudan began in 1918 and the first centre to be opened had been in Khartoum Civil Hospital with a body of 5 to 10 students and for a course period of two years training. The training was mainly clinical, practical and therapeutical and conducted in the hospital wards and in the out-patient department by the physician and the surgeon of the hospital and the public health by the Medical Officer of Health and his Assistants. The main subjects taught were medicine, surgery, general public health and practical pharmacology.

The centre in Khartoum Hospital continued to function till 1924 and the graduates used to be called "Assistant Medical Officers".

In 1925 the Khartoum Hospital Centre was closed and centres for training with teaching schools were opened in some of the big cities of the Sudan (Port Sudan, Wad Medani, Sennar, Kassala and Omdurman) and the title of the graduates changed from Asst.Med. Officer to a dispensary hakim; and in 1946 all the above training centres were closed and the training centred in Omdurman city for the students of the Northern Sudan Provinces and in Juba for those of the Southern Provinces and the name of graduates changed from a Dispensary Doctor to the present name "Medical Assistant".

The Omdurman School is located within the enclosure premises of Omdurman Hospital so that the students can use its different units for the clinical, practical and the in-service training of the students.

IV. Criteria for enrolment of candidates to the Medical Assistants Training School.

In the past when need for Med.Assts arose, selection of candidates to the Med.Assts Training School used to be favoured from the most outstanding senior Nurses and not conditioned to any criterian or fulfillment of certain standardsor qualifications. This system continued to be practised for nearly thirty years and it was only from 1946 that certain criteria for selection of candidates to the school had been worked out and put into force

The Criteria the candidate should fulfill for enrolment into the school are the following:

1/ The candidate must be in possession of the Nursing Certificate (N.C.) which is granted to the nurse after compeletion of at least three years training in one of the nursing training schools and after having successfully passed the examination for the certificate at the end of the three years training course and which examination comprises preliminary medicine, surgery and general and special nursing. The examination is written, practical and oral.

2/ That the candidate with the above nursing certificate should have done at least 3 years work in either a hospital, health centre, dispensary or dressing station after his obtainment of the N.C. i.e. in all to have spent 6 to 7 years work as a nurse.

3/ Educational level: Candidate must be of a certain educational standard at least to have completed the six years of his elementary schooling with success. He should also be of a fairly good cultural background and general knowledge of the social and community life. He should have also good knowledge of the history, geography of the Sudan and the habits of its different tribes.

The elementary education referred to above comprises arabic literature, composition and arithmetic.

4/ Age limit: Minimum of 21 years and maximum of 35 years.

5/ Health status: Candidate must be medically, physically and mentally fit and free from ailments, deformities and chronic dibilitating diseases.

6/ Entrance examination: Candidates who have fulfilled the conditions of enrolment to the school are required to sit for the competitive examination held by the school and those who pass it successfully and obtain the highest marks are taken in the first place according to the number required by the school for that year and that no credit is given to a candidate in virtue of his previous studies or experience and that he must pass the examination at the same level as other candidates. The average number of competing candidates ranges between 150 and 200. This entrance examination comprises the following materials:- dictation, composition, general knowledge, combined paper in elementary medicine, surgery and preventive and social medicine and a separate paper in nursing and first aids.

7/ In addition to the above there are some other pre-entrance attributes such as:- character, personality, interest in community and social affairs. Attention is also given to initiative, self reliance, aptitude and motivation.

8/ There is an imposition of a probationary period of 3 to 6 months for orientation and for the possible

unable to continue the course because of his very low standard or of his continual absence from the school or from his clinical rounds.

V. Length of the Training Course:

The period of training in the school is from two to three years.

VI. The Training Programme:

The training programme consists of 2420 hours out of them 928 hours are for theoretical and 1492 hours for clinical and practical works.

In the first year of training the students study:

1/ Anatomy and physiology.
2/ Medicine and surgery.
3/ Infectious and communicable diseases and diseases endemic in the country.
4/ Paediatrics.
5/ Ophthalmology.
6/ Industrial and occupational medicine.

The 2nd and part of the 3rd year covers the following:-

1/ Continuation of medicine and surgery(theoretical).
2/ Clinical rounds in medicine and surgery in wards and out patients.
3/ Preventive and social health and envrionmental sanitation.
4/ Midwifery.
5/ Psychiatry.
6/ Forensic Medicine.
7/ Pharmacology.

The training programme aims at:

(a) Students to be aware of the nature of the function they are to carry out when qualified as medical assistants.
(b) Emphasis on social and cultural matters affecting health with special emphasis laid on care for the patient.
(c) Integration of theoritical with practical work with emphasis on practical.
(d) Familiarity with the gross physical signs through incessant practice.
(e) To give sound knowledge of the basic elements of the subject and less time for details.

The whole training programme in the school is the responsibility of 4 full time doctors of the Ministry of Health - one of them being the Principal of the School who is in addition responsible for the administrative, discipleine and the welfare side of the students. There is also in addition to the doctors a Senior Med.Asst.helping in teaching of the infections and communicable diseases because of his experience in this field of work which he gained during his long service in epidemic campaigns.

At the end of the term of training and before graduation to Medical Assistants and before the final examination of graduation students do an interval of two months work teaching visits outside the school in dispensaries, health centres and in environmental sanitation.

They do a period of 40 days work in the Health Centres and Dispensaries of Khartoum Province under the supervision of the Province Medical Officer of Health and his prov.Medical Asst. and the School Principal and Tutors whenever their time permit.

They also do a period of 20 days visits to the following places and sites:

(1) The industrial areas visiting the ginning, spinning and weaving factories, food and allied products industry e.g. oil production, biscuits brewery, distilleries, soap etc. leather and shoe industry and steel industry etc.

(2) Graphic Museum, Mental institution, Province Prison, Juvinile infirmary.

(3) Visits to Milk dairies; slaughter places, offensive trade quarters, markets of meat, offal, fish and vegetables, bakeries and restaurants, regions of the disposals of refuse, waste-matter, waste water and trenches of manure disposal and animal carcases. This sanitary work is under the guidence of the Public Health Officers of the three Towns of Khartoum.

The aim of this work is:

(1) To cement the theoretical knowledge and practical skills received during the study of clinical subjects.

(2) To get acquainted with the work of the various therapeutical and preventive units and establishments.

(3) To cement the technical methods in carrying out treatment.

(4) Teaching the students the correct way of handling patients.

VII. Syllabus:

The syllabus of the subjects taught in the Medical Assistants Training Schools comprises the following:

(1) Elementary Anatomy and physiology.

(2) Medicine.

(4) Public Health (Preventive,Social & Environmental).

(5) Midwifery and Gynaecology.

(6) Paediatrics.

(7) Ophthalmology.

(8) Psychiatry.

(9) Industrial and Occupational Health.

(10)Forensic Medicine.

(11)Pharmacology.

Details of the syllabus subjects attached. Please se pages from 9 to 16.

VIII. Duties and Role of Medical Assistant in Rural Medical Care:

Public health organs are always interested in using medical personnel most effectively. In industry there are many engineering and technical jobs which are fulfilled by people with a secondary education,in public health services there are also certain types of services,which are successfully fulfilled by middle medical workers(Med.Assts) whom it is faster and cheaper to train than doctors. Since long,long ago medical assistants have acted as assistant doctors. Med.Assts are of great importance in providing medical care to the rural population.

The scope field of duties the medical assistant has to carry out are enumerated as under:-

(1) Extend therapeutical and preventive aid to the population.

(2) Diagnosis and prescribing of standard treatment for common diseases and ailments.

(3) He has to give first Medical Aid during accidents and acute diseases and has to carry out special treatment prescribed by the doctor.

They are allowed to carry out a number of minor surgical operations (e.g. the extraction of foreign bodies not requiring any complicated methods, deal with surface abscesses circumcisions,traumas anti shock measures,simple fractures,sprains,superficial burns etc.

(4) To receive patient, make and answer domiciliary calls and under no circumstances may fees be charged for any medical advice or treatment given by him or by his dispensary staffs.

(5) He has to carry out measures aimed at the early detection of acute-infectious and the most important non-endemic diseases.

(6) Referral of energencies and sending of the acute complicated cases requiring hospitalization to the nearest hospital and provide transportation for them when necessary. If he consider it necessary he may call for a doctor to his station.

(7) In his area he has the authority to decide whether or not a person is fit to work and has the right to free the worker from work for not more than two days.

(8) Health Education: Carry out health education work on questions of protecting the health of the people and organising self-service in preventing diseases. It is his task to educate the population to carry out sanitary and healthy building measures, to plant greenery in the gardens and streets, to have clean yards, premises and place of work.

(9) Public Health and Hygiene duties:

a) Carry out all the functions of public health services if no public health officer or sanitary officer in the area.

b) early dection of acute infectious diseases and immediate initiation of sanitary and epidemic control measures and the report of the occurence of such cases to the province med.officer of health or to the med. inspector of the area by the quickest possible means.

c) close liaison and co-operation with the public health and administrative authorities in the area.

(10) Environmental Sanitation: Housing and latrines, disposal of sewage and refuse safe water supply to the people, food hygiene including meat and milk inspections and sampling inspection of hawkers.

The Med.Asst. may suspend the sale of any article of food under suspicion until it has been cleared off at a high level.

The Med.Asst. is regarded as the first line of attack against diseases arrising from environmental sanitation defects.

(11) he has to do occasional touring of the villages of his area and respecially during times of epidemics.

(12) egistration of Births and Deaths and of issuing the corresponding Certificates.

(13) imple Medico-Legal Reports.

(14) imple Administrative work - Records keeping and filling in of Ministry of Health Forms regarding Dispensaries. Care and Management of Equipments, Instrument tools and stores.

(15) Carrying out simple examinations with the facilities in hand (Microscope, stains, reagents etc.)

(16) Vaccinations and Immunization against diseases Small-pox Yellow Fever, Diptheria, Tetanus, Whooping Cough, Poliomyelitis, Typhoid etc.

(17) School Health: To do Medical Medical examination of School Children in his area and keeping Medical Records for every child and treatment of those with minor ailments he should pay special attention to children with helmenth infection skin diseases, teeth and vision.

IX. Selection of the Teaching Staff to the School:

The following points should be kept in view when selecting teaching doctors to the school:

(1) Teacher should have an extensive knowledge of his subject with ability to provide a balanced presentation of its essentials.

(2) Should be a patient and an interested person with willingness to use several methods of presenting the same facts with the object of achieving instructive repitition without appearing to do so.

(3) Should be fully acquainted with the functions for which his students are being trained and with the local pattern of the disease and of the area in which they will work and with the work they are going to perform after qualification.

(4) Ability to keep abreast of modern requirements.

(5) To give sound knowledge of the basic elements of the subject and less time for the details and to concentrate on familiority with the gross physical signs through incessant practice.

X. Graduates and students under training:

From 1918 to 1974, 1488 Medical Assts. have completed their training and graduated as General Medical Assistants. There are at present 282 students under training in the 5 Med. Asst. Training Schools. In the Omdurman Medical Training School there are at present 66 students -two of them from the Democratic Republic of Yemen.

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PRINCIPAL MEDICAL ASSISTANTS
TRAINING SCHOOL
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MEDICAL ASSISTANTS TRAINING
SCHOOL OMDURMAN

SYLLABUS OF THE SUBJECTS TAUGHT IN MEDICAL ASSISTANTS SCHOOLS OF THE DEMOCRATIC REPUBLIC OF THE SUDAN

1. Elementary Anatomy and Physiology of the Systems of the Body with stress on the applied in Relation to Surgery and Medicine.

2. Medicine.

3. Surgery.

4. Public Health (Preventive, Social and Environmental Sanitation).

5. Midwifery and Gynaecology.

6. Paediatrics.

7. Ophthalmology.

8. Psychiatry.

9. Industrial and Occupational Health.

10. Forensic Medicine.

11. Pharmacology.

DETAILS OF THE ABOVE SUBJECTS:

1/ ANATOMY AND PHYSIOLOGY:-

Of the important and Vital Organs of the systems of the body in relation to Surgical applied Anatomy relating to Surgery and applied Physiology in relation to Medicine.

ANATOMY- consists of 68 Lectures in 60 hours and the Physiology of 48 lectures in 144 hours.

2/ MEDICINE: Consists of 144 lectures and of 432 hours Theoretical and 768 hours Clinical Stores and special attention is laid on the early detection of infectious and the common Endemic Diseases in the Country and their ways of infection and measures of control and treatment.

THE DISEASES TAUGHT ARE:-

a) DISEASES CAUSED BY VIRUSES AND THE MADE OF THEIR SPREAD AND CONTROL.-

Chicken Pox, Small Pox, Measles, Mumps, Influenza, Herpes Zoster, Coryza(Common Cold), Acute Poliomyelitis,(infantile paralysis), Yellow Fever, Infective Hepatitis, Dengue Fever, Sand Fly Feber, Rabies and other Viral Diseases.

b) Diseases due to Bacteria:

Tonsillitis and Vincents Angina, Diphtheria, Pneumonia; Whooping-cough; Cerebro-Spinal Meningitis, Bacillary Dysentery; Cholera; enteric fevers (Typhoid and Para-typhoids); Food-poisoning; tuberculosis; Leprosy; Anthrax; Tetanus; Plague; Brucellosis (undulant fever).

c) Disease due to Spiral Organisms:

Syphilis; Yaws; Relapsing fever, Lepto-spirosis (spirochaetal jaundice).

d) Diseases due to Protozoa:

Amoebic dysentery; Hepatic amoebiasis; amoebic abscess of liver; Malaria, Black-water fever; Leishmaniasis or Kala-Azar (Visceral, Cutaneous and espundia); trypanosomiasis (sleeping-sickness). Giardiasis, trichomoniasis.

e) Diseases due to Helminthic infection and Metazoa:

Schistosomiasis (urinary & rectal); tape-warms; Hydatid cysts; ancylostomiasis (Hook-worm); oxyuris (thread-worms); Ascaris (round-worms); Dracontiasis (ginea-worms) Filariasis; strongyloidiasis; intestinal flukes.

f) Miscellaneous Conditions and Regional Disorders:

Malnutrition, affections of the skin. Allergic diseases. Deficiency diseases (scurvy, Rickets; Beri-beri; pellagra, Protein deficiency; kwashiorkor); disorder of the endocrine glands; diseases of the Haemopoietic organs; certain diseases of the Degestive, cardio-vascular, Respiratory, urinary & Nervous Systems; Diseases due to certain chemical and physical agents; Rheunatism, syncope. Bites of snakes, scorpions, bees & wasps etc.

3/ Surgery: This subject covers all the surgery the Med.Asst. should know, the surgical nursing, the first aids for all accidents and injuries and the minor operations allowed for the Med.Assts to perform in their out-stations.

The surgery consists of 80 lectures and of 120 hours theoretical and 144 hrs clinical.

The subjects taught are:

(1) Introduction of the human body and the organs and systems comprising it with detailed description of the bony skeleton of the head, thorax and pelvis.

(2) The general surgical procedures: Asepsis and antisepsis, sterilization, preparation of patients, after-treatment of operation cases and post-operative complications.

(3) Infection and Bacteriology of surgical diseases.

(4) Inflammations.

(5) Shock; general body collapse; Haemorrhage; surgery of certain blood vessels and varicose veins.

(6) Injuries comprising contusions, wounds, cross-infection, Burns and Scolds, short accounts on effects and injuries of atomic bombs&tear bombs and biological war; injuries of bones including skull and its contents; injuries of the bony thorax and pelvis and certain special fractures of certain bones; dislocation of special joints.

(7) Specific and Non-specific infections.

(8) Injuries and diseases of the skin and sub-cutaneous tissues; affections of the nails; infection of the hands and fingers including serious hand infection and fascial spaces.

(9) Ulceration and gangrene.

(10) Diseases of the Nipple and Breast.

(11) Diseases and infections of pleura and lungs.

(12) Tumours and cysts in general.

(13) Surgery of the mouth (tongue, floor of mouth and cheeks).

(14) Salivary glands.

(15) Surgery of the neck (its injuries, anomalies, cervical rib, inflammatory conditions in the neck, wry neck etc.)

(16) The thyroid gland (goitres, tumours & cysts).

(17) Surgery of the pharynx (Tonsils, adenoids & throat).

(18) Surgery of the Larynx and Trachea (infection & growths).

(19) Short account on surgery of the ear, Nose & air-senuses.

(20) Madura foot & actinomycosis.

(21) Surgery of the Urinary system.

(22) Diseases & injuries of the Penis, Prepuce and Male Urethra.

(23) The scrotum and testes (varicocele, hydrocele, Testicular swellings); enlargement of the prostate & retention of urine and Anuria.

(24) Anatomy of the anterior abdominal wall & abdominal Hernias-external and internal.

(25) Surgery of the alimentary canal (stomach, duodenum, liver, gall-bladder and appendix).

(26) Differential Diagnosis of Acute abdomen.

(27) Ways and Methods of examinations of the various surgical cases and the taking of their histories.

(28) Chemotherapy in relation to surgery.

(29) Minor surgery practical (circumcision, phimosis, paraphimosis, opening of Abscesses, paracentesis of bladder, Hydroceles, Ascites, aspiration of chest fluids, catheterizations, ear examination and their syringing, lumber punctures, infusion of fluids, stomach wash, teeth extractions, bleeding controls and sites, Tourniquet appliance, Bandaging and splinting etc.

(30) Knowledge and use of certain and common surgical instruments and apparatuses.

(31) Nursing of certain surgical cases and the care and method in the transport when sending serious cases to hospital especially the position of the patient.

4/ Public Health(Preventive,Social and Environmental)

Consists of 30 lectures in 38 hours and 312 hours for practical and visits.

(1) Introductory account on history,conception of general public health,its international relation and organization and the importance of epidemiology.

(2) Public Health Legislations.

(3) Communicable Diseases and Quarantines.

(4) Health Education (its aims subjects covering it, Role of Med.Asst. in preventive and social health, Health & Religion, Nutrition).

(5) School Health.

(6) Immunization and Vital Statistics.

(7) Environmental Sanitation (personal hygiene,method of premises inspection,disposal of waste-matters water,refuse, Manure & Carcases).

Flies,Mosquitoes, Lice,Rats,fleas and bugs etc. their control and the diseases they transmit.

Milk,food and their diseases and control .

Housings (sites,construction,orientation,Ventilation,water-supply)kitchen and requirements, bath-rooms waste-water disposal, latrines accomodation and their types and sites.

Prevention of disease (how conveyed-source of infection and its means,susceptible person, isolation, disinfection, vaccination-carriers and their control-hawkers and their dangers and diseases likely to spread through Hawking.

5/Midwifery and Gynaecology:

Consists of 15 lectures in 22 hrs theory and 22 hrs practical.

(1) Brief account on anatomy and physiology of the female genitalia external and internal.

(2) Menstruation and Fertilization.

(3) Pregnancy and its diseases esp.toxaemias.

(4) Labour and its complications.

(5) Parturition,puerperium and lactation.

(6) Ante and Post partum Haemorrhages.

(7) Abortions.

(8) Ante and Post Natal Care.

(9) Care of the Child-Normal and abnormal.

(10)Feeding of the child-natural and Artificial.

(11)Some gynaec logical diseases;congenital,acquired and physiological.

(12)History taking; general examinati n of patient,sample-taking for test and culture.

6/Paediatrics:

Consists of 24 lectures in 30 hours and 10 hrs clinical.

(1) Introduction and factors affecting the health of the child (poverty,ignorance, starvation,neglect,atmosphere, habits and traditi ns-weight).

(2) Growth and Development of the child.

(3) The new-born.

a)Signs of disease in the new-born and the conditi ns that occur in the first 24 hours.

b)Feeding during weaning.

(4) Premature Baby.

(5) Diseases of the gastro-intestinal system.

(6) Mal-nutrition(Kwashiorkor) and Marasmism.

(7) Anaemia.

(8) Respiratory system diseases.

(9) Urinary system diseases.

(10)Nervous system diseases (Meningitis,infantile paralysis, encephalitis, tetanus etc).

(11)Skin Diseases.

(12)Tuberculosis.

(13)Rheumatic Diseases.

(14)Prevention and immunity against disease natural and acquired.
(diphtheria,whooping cough,tetanus,yellow-fever,small-pox,typhoid,Poliomy-elitis).

(15)Certain special diseases in certain regions of the Sudan (Kala-Azar,goitre,Leprosy etc).

(16)Measures of resuscitati n,Hyper-pyrexial fits,dehydrati n.

(17)Clinical Rounds in children wards.

7/ Ophthalmology:

Consists of 13 lectures in 20 hrs and 6 hours for clinical and 2 nre demonstration by the magic lantern.

(1) Anatomy and physiology of the eye.

(2) Syntoms and signs in eye diseases.

(3) Methods of examination of the eye.

(4) Diseases of the eye-lids.

(5) Conjunctivitis.

(6) Trachoma.

(7) Diseases of the Cornea.

(8) Cataract and glucoma.

(9) Diseases inside the eye.

(10) General diseases affecting Vision.

(11) Onchocerciasis (Turblindness).

(12) Drugs used in eye diseases.

(13) How to care for eye and vision.

(14) Weakness of vision and its causes.

(15) Demonstrations by the magic lantern and clinical work in out-patient.

8/ Psychiatry(Mental Diseases and Disorders)

Consists of 24 lectures in 24 hours and 10 hrs clinical and practical.

(1) Introduction to the subject.

(2) Aetiology and classfication.

(3) General symptomatology.

(4) Psycho-neurosis.

(5) Schizophrenia.

(6) Affective disorders and depression anxiety.

(7) Personality disorders.

(8) Symptomatic psychosis.

(9) Treatment and Drugs used in psychiatry.

(10) Epilepsy and its complications.

(11) Mental dificiency.

9/ Industrial and Occupational Health:

Consists of 8 lectures in 12 hours and 20 hours field visits.

(1) Introduction to occupational health, definitions and historical back-ground.

(2) Factors in the physical environment working adversely on health and efficiency.

(3) Chemical factors.

(4) Duties of occupational safety and health specialists and those engaged in this line toward occupational health problems:

a) Public Health Inspectors(Sanitorians)
b) Role of the Medical Assistant.
c) Occupational Health Nurse.
d) Factory Inspectors.

(5) Occupational safety and legislations.

(6) Occupational Diseases and means of prevention.

(7) An idea about the Tools(instruments and equipments) used for measurements of environmental conditions at work.

(8) Field Visits: These visits are meant to augment the lectures.

a)Canning, spinning and weaving industries.

b) Food and allied products industry e.g. oil production, soaps, brewery, distillers,biscuits etc.

c)Leather and shoe industry.

(1)Tannery (2)Shoes Factory

d)Steel Industry (e.g.African Holloware,Sudanese Iron and Steel Factory,Sudan Mint, Sheet Metals etc..)

10/ Forensic Medicine:

Consists of 10 lectures in 16 hours.

(1) Introduction to police and Legal procedure and medico-legal reports.

(2) The signs of death and the phenomena occuring subsequent to death - cooling; Rigor Mortis; Hypostasis; Putrefaction etc. Adipocere formation(saponification), Mummification.

(3) Identification.

(4) Death from Natural causes.

(5) P.M.examination of body; exhumation; embalming.

(6) Wounds and Injuries.

(7) States of insensibility and their differential diagnosis.

(8) Injuries from Burns and Scalds; electric currents and from lightning. Death from heat, cold, starvation and neglect.

(9) Violent death from asphyxia; hanging; strangulation, throttling smothering,choking etc. Asphyxia from breathing irrespirable gases.

(10)Drowning.

(11)Rape; virginity; Sodomy, Bestiality and indecent offences.

(12)Impotence and sterility.

11/Pharmacology:

Consists of 10 lectures in 22 hours and 120 hours practical.

(1) Introduction and definitions.

(2) Weights and Measures.

(3) Modes and time of administration of drugs.

(4) Dosage of drugs - adults and children.

(5) Drug classifications and uses
(Anaegesics Hypnotics,antacids anti-histamine; authelmintics,anti-biotics sulphonamides Mixtures

drops; sprays, Sera and vaccines infusions etc).

(6) Drugs and Mixtures in common use in the various units of the Ministry of Health especially those in use in health centres and dispensaries.

(7) Certain emergency and life-saving drugs which should always be available and at land e.g. Morphine, adrenaline, atropine, coramine; digoxin etc.

(8) List of Dangerous drugs part I- their **coustody** and use.

(9) Drugs used for certain special diseases and the diseases endemic in the country.

N.B. After the completion of the syllabus and before the final examination of graduation of the students to General Medical Assistants, students do an interval of about 1½ month work in the Health Centres and Dispensaries of Khartoum Province.

And about a fortnight in environmental sanitation in the three municipalities of the province under the guidance of Public Health Officers.

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THE MEDICAL ASSISTANT

— Meeting Health Needs

— Delivering Health Services at the Peripheral Level

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THE MEDICAL ASSISTANT

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An increasing number of countries are reluctantly realizing that health manpower planning which concentrates mainly on producing physicians is inappropriate. Doctors should be at the top of the educational, supervisory and referral pyramid, but in numbers smaller than supporting categories of other health professionals and auxiliaries. However, many developing countries feel that having medical services provided solely by physicians is a status symbol. These countries find that their manpower configuration thus resembles an hourglass (rather than a pyramid) with relatively large numbers of doctors at the top, large numbers of poorly trained indigenous workers at the bottom, and few middle-level health service providers.[1]

Part of this problem is due to past health planning concentrating its efforts on development of health manpower rather than on the delivery of appropriate health services. To put it another way, if one is planning production of the best possible health manpower, one would concentrate on training doctors. On the other hand, if one is planning production of the best possible health services which are to be accessible to the largest number of people, a different approach needs to be taken. This approach must primarily be concerned with developing a system which determines which tasks need to be performed to meet the most pressing health needs of a country. Then the decision should be made regarding the most realistic and efficient method of having these tasks performed and the services delivered.

It is widely accepted that many health service functions performed only by physicians in the past can be performed by appropriately trained middle-level health workers. The delivery of 90% of basic or primary health services can be taught to medical assistants.

These functions do not require the sophisticated training and experience of a full-fledged doctor. The remaining 10% of health care can either be referred or palliated.[2] The time and money required to handle some of that remaining 10% could in some instances consume more resources than could ever be made available.

In these times it is an accepted fact academically that there is a need for medical assistants. However, it is foolhardy to assume that just because there may be intellectual agreement on the need for such a cadre that they will be developed automatically. In fact, there have been industrialized countries as well as developing nations faced with such overwhelming health problems there has been a tendency to develop manpower programs whether or not they were really effective. There have been pilot projects initiated which have had no chance whatsoever of replication on a national scale.[3] The time has come for us to look at a replicable, systematic approach to the development of middle-level manpower (or medical assitants) in order to meet today's health needs. Further, we must think of alternative systems which can deliver health services at the urban and rural periphery. Most of the world's populations are rural dwellers and it is at those peripheral levels that efforts must be concentrated.

But first, we must put today's interest in this not-so-new concept into its historical perspective. We need to understand the thinking and logistical mechanisms which have contributed to so many false starts and failures in this field. There also needs to be an appreciation for successful programs, especially those that have been replicated on a national scale.

The medical assistant has heretofore occupied a distinctly inferior position relative to the "proper" medical doctor. The medical profession in many underdeveloped countries formed a national elite

which would not permit encroachment on their sacred domain by those they considered improperly trained. These same doctors, however, had no reluctance to push nurses to perform tasks which were ordinarily reserved for physicians.[4] Perhaps the established public acceptance of nurses who did not carry the pejorative aura of "assistant" permitted an intriguing paradox to occur: Doctors have been comfortable to have a person perform medical tasks who has been trained in another discipline (nursing) rather than training someone new specifically to perform tasks in the discipline of medicine. This may have been the result of a combination of elitism and imagery.

The relationship between medicine and nursing will be discussed later. However, the matter of imagery should be introduced early since it is critical in this emerging field. And as a beginning, examination of both French and English terminology in this field encourages programmed inferiority. Medecin Africaine and Medecin Indochinois, by the very nature of their geographic adjectives connote an inferior status of "near -doctors" or "mini-doctors". The term assistant definitely denotes an inferior status and in many instances is appropriate. When a medical assistant or physician assistant is in close proximity to physicians or working in a hospital or clinic where a licensed doctor is actually being assisted, the term is appropriate. However, as Fendall and others point out, the type of intermediate-level health manpower called a medical assistant that is most needed in the developing world now often works alone as a substitute for a physician he is not assisting.[5] He could properly be called a physician extender. However, since the term medical assistant is used globally to describe both the assisting and substitute role, this paper will use the term medical assistant in lieu of physician extender and other terminology.

Medical assistants is not a new concept. Rural health care programs which have the predominant need for their services have also been around for some time. The first medical assistants were probably the feldschers created by Peter the Great in the 17th century. The Soviet Union began emphasizing rural health care in 1918 through its health centers. The Rockefeller Foundation Primary Health Care Centers promoted this area of concern in Sri Lanka beginning in 1926. We will learn more of the Sudan's Medical Assistant program which began about this time also, during the next few days. The Rural Health Centers Movement has spread throughout the developing world and has been present in South Asia, East and West Africa, and in the Eastern Mediterranean area since the early 1940's.

Now in the mid-seventies, one sees the same issues being discussed that have been discussed since the early thirties in terms of rural health programs and since the late 19th century in terms of medical assistants. One wonders if each country is "rediscovering the wheel". As one reviews the history of rural health programs and the long history of medical assistant programs, one wonders 1) if these programs have been a success, 2) if they have not been a success, what factors might have contributed to their failure, 3) why have medical assistants in different countries seemed to have had flows of popularity and unpopularity, and 4) for what kinds of roles have these individuals been trained in the past.

Professor Milton Romer of the University of California in Los Angeles reviewed the literature on evaluation of health centers in a WHO publication in 1972. He evaluated these health centers by checking the WHO files and reviewing the published literature up to that time. He analyzed health program evaluations on a number of levels, but of key importance is his analysis of evaluations of rural health programs in terms of improving the health status of the population. He found at least five studies of major importance in the literature since 1934

that have been carried out to evaluate the impact of health programs on the population. His statement with regard to these evaluations is as follows: "With the possible exception of an investigation carried out in Ethiopia, these studies have been fairly inconclusive."

Professor Romer found the soundest methodology and most carefully designed study to be the study by Doug Spruyt undertaken in Ethiopia from 1961 to 1967. A review of this study showed that there was a reduction in the infant mortality rate in the villages served by health centers as compared with control villages. These six villages were served by medical assistants who were graduates of the Ethiopian Public Health College at Gondar. There were no physicians or fully registered nurses in these centers.

Since Professor Romer's study, new information has become available on the evaluation of another rural health program that is a success. This program was the Narangwal rural health program run by the Rural Health Research Center in cooperation with the Indian Council of Medical Research at Johns Hopkins University School of Hygiene and Public Health in Narangwal Village, Punjab State, India. They found a striking decrease in the mortality rate in children ages 1-3 years who received both medical and nutrition services. They also found that their post-neonatal death rate in villages with medical services and nutrition was almost 50% lower than their control villages. Recent reports from Jamaica and from Guatemala tend to corroborate these findings and suggests the importance of keeping children well-nourished in rural health care programs. The backbone of each of these programs was appropriately trained medical assistants, middle-level health practitioners.

However, one must bear in mind that the studies quoted of successful rural health care programs were demonstration projects run on a relatively small scale by highly motivated and trained research staffs.

Should one then expect large-scale government intervention programs to be able to achieve these kinds of successes in health care?

Our experience suggests that success can be anticipated if we profit from the successes and failures of others who have been working in the field. We need to look at what we have learned from the programs developed in Fiji, the promotores in Colombia, the physician assistant programs in the United States and similar programs in Korea and Nigeria,and here in the Sudan.

Most international health experts would agree that the Narangwal program presented an up-to-date, medically sound rural health care program. Certainly, these activities can be carried out as large scale rural health programs in other countries. What made Narangwal a success was not only the kinds of services offered but the fact that they were offerred on a regular and recurring basis by competently trained medical assistants who were highly supervised and who worked in a highly structured, well-managed program. In other words, the results of this program were due to a combination of sound medical care plus excellent program management.

A problem emerges upon further examination of a highly successful program like this, however. Funds have run out and whether or not this program will be replicated is questionable. It worked as a pilot program, but what happens to it now? Can a small, highly sophisticated technical staff change their program from a small geographically circumscribed operation into a national program? Similar problems confront other pilot programs, which, although they are successful, cannot be replicated because they are local in scope and the elements of replication and expansion on a national scale were not built-in initially.

Other programs have suffered from their development solely as rural projects, separated from urban health care and not integrated into the total system of health care in a country. After many successful years, Gondar is now experiencing this difficulty.

Still other programs are experiencing success in the development of physician extenders or medical assistants and are doing so because they have embarked upon replicable systems of training and deployment which are totally integrated into the country's overall health care system.

The experience in Tanzania is one such experience. Following the 1967 Arusha Declaration by President Nyerere which put Tanzania on a new path of development, the static number of various categories of health personnel began to change. (See Appendix I). It began to change to reflect the creation of a health care system that served and was accessible to the whole population. This system depends in great part upon a newly expressed self reliance.[4] We shall continue to look at Tanzania's bold efforts.

The People's Republic of China has developed a unique system which has produced a multi-tiered hierarchy for getting some form of medical care for all of its millions. Not to be confused with the higher level, intermediate or middle-level medical assistant, the barefoot doctor nevertheless has established a role model which has added additional dignity to the medical assistant concept all over the third world. However, cultural and political dynamics different from the Chinese experience have been reported when attempts have been made to transplant the concept.[6]

Holding major promise also is the newly developing system for training medical assistants and other types of health workers in

Iran's emerging medical education plan. That country also is developing useful experience in training those types of personnel in programs that have been underway for a few years outside major metropolitan areas.

The model I am most familiar with is, of course, the MEDEX program which is operational throughout the United States and Micronesia and about to begin in Thailand and two African countries. I shall briefly detail the MEDEX concept shortly, but there are other important matters that need to be discussed first regarding the role of medical assistants in meeting health needs, especially at the peripheral level.

The rural health worker in most health care programs provides services of two kinds to a population. These are curative medical services and preventive and promotive services. The curative role of these persons is to provide primary care. In this role, the medical assistant gives treatment to persons who seek out his care. These persons, by seeking out care, proclaim their belief in his role and in the treatments he prescribes. In this role, the medical assistant functions as a provider of technical services to an accepting community. The preventive and promotive role is altogether different. In this latter role, the medical assistant seeks out the community rather than the community seeking out the health worker. In this role, the rural health worker attempts to change the behavior of persons who do not necessarily want the change. Thus, the medical assistant in this role is a change agent.

Certainly, it is obvious that the medical assistant in his role of educating mothers to feed their children different kinds of food is a change agent. Certainly it is clear that the medical assistant who attempts to motivate people to accept sanitary waste disposal, child-spacing, new ways to increase pregnancies, or immunizations is a change agent. Since the Narangwal experience and other recent

programs have shown the importance of nutrition and other community health needs to improving the total well being of populations, it is obvious that for a health program to be successful, the medical assistant must meet the challenge to be a change agent.

A review of the curricula of most medical assistant training programs shows that the training institution faculty do pay attention to community health problems. These community health problems are problems that require a change agent behaviour. However, the usually public health oriented courses, such as sanitation and health education, have given the students a knowledge of the problem but have given them little guidance in the action that is required to produce a change. The curricula of programs from a variety of countries make little or no mention of the kinds of action needed for change. Further, how to produce change action is not clearly delineated in any of these curricula.

Of great concern is the problem that change agents face in their role in rural health work. The medical assistant is the link between the health care delivery system and the village system in which he or she works. This is an extremely difficult role for anyone to fulfill and is particularly difficult for the level of sophistication that most medical assistants have. After their training they often do not fit either the village social system from which they came or fully fit into the health care delivery system which is usually organized by urban-based administrators. Medical assistants have to decide with whom they will identify and how they will identify with each group to accomplish their objectives.

The role of the change agent is very ambiguous. There is no firm body of change-action knowledge so that medical assistants can act in a technical role in preventive and promotive medicine as they act when they practice curative medicine. Because of these problems,

the change agent always faces a high degree of insecurity, a high degree of risk in undertaking activities that will potentially harm his or her position in the community. The result of this insecurity and risk is that change agents in most rural health programs suffer an acute disillusionment once they are deployed to their area of work. They soon feel alienated from the village culture which causes a high degree of anxiety and frustration.

Two results can occur. One is that the rural medical assistants will revert to the village social pattern into which they were born and reared and then they will only practice curative medicine because it is there that they get motive rewards from the population. The only other alternative is to escape from the village social system and to migrate into more urban areas. Either way, the role of preventive and promotive medicine, which is the major way in which a health care system can improve the health of the population is not fulfilled and one would expect an unsuccessful effort. This area requires special attention.

The role of the rural health care system parallels the role of the rural medical assistant. The system has a curative role in which it provides technical clinical services for an acceptant population. It hasalso the role of a change system for its preventive and promotive activities. Unfortunately, most program administrators have not conceived of themselves as a change system dedicated to the development of human beings in matters of health. For this reason, they do not have change plans which allow them to consider that some of their outputs should be measured in terms of behavioral changes in the population and not just health statistics. In talking to health program managers, one does not hear talk of change strategies, influence structures, communication channels, and change outcomes.

Medical assistant training programs have been organized and run on a variety of bases. Some of these are run by the government and are not affiliated with a university system. Others do have university connections. Many of the medical assistant training schools have been started with one or two physicians and a very small budget. Some of these have become more formalized (e.g. the Gondar School in Ethiopia and the programs here in the Sudan and in Tanzania). Many training schools often have low budgets and few people trained in educational science as part of the faculty. The curricula of these schools have tended to follow the medical school model of a classroom phase followed by on-the-job training with practicing physicians or medical assistants.

There are innovative training approaches such as the one found in the medical assistant school in Zaire and the MEDEX Program in Micronesia where strong educational science techniques are being implemented. The function of a training school for medical assistants should be to work closely with the people who run the health services to determine by task analysis what the major problems of the community are that can be dealt with. This should perhaps be supplemented by basic surveys of needs in the area of nutrition, sanitation, health education, etc. To avoid what has been called the "Great Training Robbery", training is specific and basic to manage only the problems found in the community. Overtraining is thus avoided and training can be accomplished in a shorter-than-usual time period.

The training institution should then work with the rural health care system to decide what policies and guidelines should exist for training the students. Policies and guidelines must be determined primarily by the rural health care system which will be the eventual employer of these students. It is quite important to tailor-make the student for his job. Therefore, having an accurate picture of where the student will be employed upon graduation is very helpful in

establishing a reasonable curriculum. The role of the training institution then becomes one of selecting students in accordance with the wishes of the rural health care devliery system and developing an appropriate curriculum that tests students in their skills before allowing them to graduate. Task analysis of identifiable health care problems is now being done more frequently as seen in Iran and Micronesia. By this I mean that what needs to be done is carefully defined, and then a curriculum is designed specifically to train the students to perform these specific tasks.

The training institution should not consider its responsibility ended upon graduation of its students. In the Narangwal experience, their training system remains in effect after the orientation program and, in fact, over 10% of the work time of the graduate was in continuing education and educational supervision.

It is the responsibility of the training institution to support students after their graduation to continue their education in such areas as maintenance of skills, improvement of skills, and addition of new and relevant skills. The training institution should also work with the rural health delivery system to promote the acceptance of program goals that is required to have an integrated system. It should be involved in evaluation of the programs of the rural health care delivery system and of the role of its graduates in these programs.

Since villages and villagers differ and exist in a spectrum ranging from traditional to modern, it is important for the change agency (that is, the rural health care system) to be aware that these differences exist. It is important for them to seek out innovative village leaders and encourage the changes in the health field that will lead to less illness and fewer deaths. This kind of community preparation produces the kind of collaboration needed to produce a successful program.

A review in the community development literature showed that the following are the strongest characteristics of unsuccesful projects: 1) lack of local autonomy, 2) centralization of authority away from the villagers, 3) lack of coordination between the services, 4) lack of trained technical personnel, 5) worker dissatisfaction with the workload, 6) lack of knowledge of the project objectives by the government, 7) improper training of the field personnel.

Studies by an international research group have suggested that building up a rural health care system for any institution has certain stages that one must go through and they suggest these stages: 1) building linkages with sources of authority and money, 2) building linkages with complementary and competing organizations, 3) building linkages with the community and 4) building linkages with the society as a whole through various approaches to public relations.

To these stages of developing a new organization, one can add others that have been developed by the business community and by other specialists, such as those in the nine MEDEX programs. These include 1) imagery - the developing of a distinctive competence or distinctive area of operations, 2) building linkages with power sources - this may be similar to what was just mentioned above, 3) developing a competency-based program of training that will supply the needs of the organization and strive for the goals being developed, 4) develop the job description of personnel to be trained before they are trained and have them know where they will be deployed and for what job prior to their training, 5) have continuing staff education and development to constantly upgrade the personnel in the system.

The training of the medical assistant should include a great amount of orientation to the country's health goals. It is crucial for a successful change organization to have stated objectives and goals so that all persons in the program are working towards a mutually supportive goal. This requires continual reevaluation and reorienta-

tion during the training phase and during the graduate phase. This orientation training should start the first day of class and be carefully worked out by the rural health system and the training institution so that the ideas are mutually reinforcing at all times. A key concept in this training is that the rural medical assistant is responsible for the health of his or her community. The training of the rural health practitioner should emphasize practical work, should emphasize competence in skills and not education, should encourage collaboration with physicians, and be based on task analysis both of the health problem and also of the problems and tactics in changing people.

One might also consider that the medical assistant should not go only into the remote rural areas in the early phases of a program. In fact, a significant way to change health status is to concentrate on those kinds of people who are more likely to be susceptible to behavioral changes. This could mean an interim step of deploying some of the initial graduates of medical assistant programs to small and medium-sized towns and to the peri-urban slums which are developing all around the world. It is these people in transition who are taking a chance and have left the village culture to try something new. They are the ones who have person-to-person communication back to the villages. It is not callousness, but good planning to deploy limited resources in areas where they are most likely to have success. From the point of view of change behavior and from the point of view of easing the development of the institution, one should definitely consider deploying workers both to these smaller towns and to the peri-urban areas even though predominate emphasis is in the rural areas. Simultaneously, or possibly in the next phase, the graduates should be spread out to try to create the diffusion effect into the more remote areas.[7]

In those countries which have a significant number of nurses, one might consider training them for the initial supervisory or highest

ranking medical assistant category. After additional training they are usually perfect for this new role which in MEDEX we consider to be an interface between the discipline of medicine and the discipline of nursing. This interface brings the diagnostic, treatment, and preventive aspects of medicine together with the psychosocial and longitudinal health care concerns of the discipline of nursing.

I would like to take just a few minutes to pull much of what I have been discussing into sharp focus. As I have stated there are many lessons to be learned from history. The result of studying the pros and cons of various approaches to training and utilization of medical assistants led a group of us to develop the six-step flexible approach to training and deploying medical assistants we call medex. It has been adapted into the highly industrialized setting of the United States as well as the developing country setting of Micronesia. In that Pacific Ocean community of three million square miles, medex are providing health services to some of the most remote populations in the world.[8]

Briefly, I would like to describe the six basic elements of the MEDEX system:

1. COLLABORATIVE MODEL
   - A. Government Agencies
     1) Ministry of Health
     2) Ministry of Education
     3) Ministry of Economic Development
     4) Divisions/Departments of Health Planning
     5) Divisions/Department of Personnel
     6) Divisions/Departments of the Budget
     7) Divisions/Departments of Training
   - B. Training Institutions
     1) Academic
        a) University Medical School
        b) University School of Public Health
        c) Hospitals, Clinics
     2) Government
        a) Government Hospitals, Clinics
        b) Special Projects (Nutrition, MCH, Disease Control Programs, etc.)

C. Medical Associations (Organized Medicine, governmental and private)
D. Practicing Physicians (Government and/or Private)
E. Other Health Organizations

2. RECEPTIVE FRAMEWORK

A. Governmental Support Directives
   1) Policy
   2) Sponsorship
   3) Announcement
B. Legal Preparation (licensing)
C. Status in Personnel Structure
   1) Professional
   2) Administrative
D. Imagery
E. Community Preparation
F. Economic and Logistical Support System

3. PHYSICIAN INVOLVEMENT

A. Problem Identification and Task Analysis
B. Selection Process
C. Teachers in Didactic Training
D. Preceptors in Preceptorship Training
E. Supervision and Referrals in Deployment
F. Continuing Education and Professional Development

4. COMPETENCY-BASED TRAINING

A. Predicated Upon Relevant Data Base
   1) Community Data Base (disease patterns, demographic data)
   2) Socio-economic and Political Data Base (governmental priorities and strategies)
   3) Professional data Base
      a) Identification of Health Problems
      b) Task Analysis
B. Emphasizes Common and Priority Problems in Locale
C. Directed Towards Proficiency in Task Performance
D. Uses Existing Resources
E. Efficient (Appropriate training for performance level)
F. STEM (System for Teaching Essentials to Medex)

5. DEPLOYMENT SYSTEM

A. Directed to Areas of Need
B. Professional Supervision System
C. Administrative Structure

6. CONTINUING EDUCATION AND PROFESSIONAL DEVELOPMENT

A. Planned Periodic Training to Extend Capabilities
B. Continued Professional Stimulation to Refine Capabilities[9]

We have discussed many aspects of a very complex issue. I hope that I have been broad and general enough to set the stage for dialogue. I hope I have been specific enough to draw your constructive criticism of new concepts out into the important meeting that we begin today.

* * *

BIBLIOGRAPHY

1. Smith, R.A., Towards Solving the "Great Training Robbery." The Pharos, April 1974, Vol. 37, No. 2, pp. 47-52.

2. Taylor, C.E., Health-Care Lessons from International Experiences, New England Journal of Medicine, June 13, 1974, Vol. 290, No. 24, pp. 1376-77.

3. Scrimshaw, N.S., Myths and Realities in International Health Planning. American Journal of Public Health, August 1974, Vol. 64, No. 8, pp. 792-7

4. Gish, O., Doctor Auxiliaries in Tanzania. Lancet, December 1, 1973, Vol. II, No. 7840, pp. 1251-4.

5. Fendall, N.R.E., Auxiliaries in Health Care. John Hopkins Press, Baltimore and London, 1972.

6. Ronaghy, H.A., Solter, S., Is the Chinese "Barefoot Doctor" Exportable to Rural Iran? Lancet, June 29, 1974, Vol. I, No. 7870, pp. 1331-3.

7. LeSar, J.W., Success and Failure in Rural Health Programs—Issues in Medical Assistant Training and Deployment. Unpublished Manuscript.*

8. Smith, T.A., MEDEX. Lancet, July 14, 1973, Vol. II, No. 7820, pp. 85-87.

9. Smith, R.A., MEDEX: A New Approach to the Global Health Manpower Problem. Bulletin of the Pan American Health Organization, October 1973, Vol. VII, No. 3, pp. 15-25.

* Dr. LeSar's document accounted for much of the historical analysis and present evaluation of rural health care and medical assistant programs presented in this paper.

Appendix I

MEDICAL PRACTITIONERS IN TANZANIA: INDEPENDENCE TO 1973*

	1961	1970	1971	Train-ing intake	972	Train-ing intake	1973	Train-ing intake	1974 1980 Planned annual training intake
Graduate doctors	403*	489	479	48	494**	48	n.a.	64	64
Assistant medical officers	22	100	115	22	140		n.a.	24	30
Medical assistants	n.a.+	285	289	115	335	146	n.a.	201	210§
Rural medical aides	n.a.+	473	544	124	578	146	n.a.	338	560§

n.a. = not available

*Of the total: 35% in government service; 20% employed by the voluntary agencies(missions); and 45% in private practice. Of the 403 medical graduates only 12 were citizens.

+The combined training output of M.A.s and R.M.A.s for 1961 was 74.

**Of the total: 62% in government service; 23% employed by the voluntary agencies; and 15% in private practice. Of the 494 medical graduates, 195 were citizens.

§Wastage from training approximately 15%

This table is from Oscar Gish's "Doctor Auxiliaries in Tanzania," Lancet, December 1, 1974, p. 1251.