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# **TRAINING OF MEDICAL ASSISTANTS AND SIMILAR PERSONNEL**

**Seventeenth Report  
of the WHO Expert Committee  
on Professional and Technical Education of  
Medical and Auxiliary Personnel**

**WORLD HEALTH ORGANIZATION**

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## CONTENTS

	Page
1. Introduction . . . . .	5
2. Need for auxiliaries in medicine . . . . .	8
3. The training of medical assistants . . . . .	9
3.1 Recruitment and selection of trainees . . . . .	10
3.2 Training objectives . . . . .	10
3.3 Content of the training programme . . . . .	11
3.4 Teaching methodology . . . . .	11
3.5 Judging trainee performance . . . . .	11
3.6 Setting of the training . . . . .	12
3.7 The teaching staff . . . . .	13
3.8 Programme evaluation . . . . .	13
4. Utilization of the medical assistant . . . . .	13
5. Conclusions . . . . .	14
Annex 1. Functions of the medical assistant. Two examples . . . . .	16
Annex 2. Training of medical assistants. Examples from six countries . . . . .	17

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## TRAINING OF MEDICAL ASSISTANTS AND SIMILAR PERSONNEL

### Seventeenth Report of the WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel

The WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel met in Geneva from 4 to 8 September 1967. Opening the meeting on behalf of the Director-General, Dr P. Dorolle, Deputy Director-General, emphasized that medical assistants were not meant to be poorly qualified physicians, and recalled a statement made by the Director-General at the Seventeenth World Health Assembly: "... pitfalls should be avoided. The training programme should not be excessive and not too complex lest its very purpose—the speedy training of a large number of auxiliaries—be lost. The training of auxiliaries in medicine should on no account be confused with full medical education and should never be construed as entailing the lowering of medical education standards in the country concerned."<sup>1</sup> In fact, Dr Dorolle added, the training of medical assistants and the education of physicians in their use as an extension of their own services, could relieve the pressure for undue proliferation of medical schools.

Professor M. Sankalé was elected Chairman, Professor A. M. A. Shamy Vice-Chairman and Dr E. F. Rosinski Rapporteur.

#### 1. INTRODUCTION

The Committee referred to its terms of reference, "to review experience to date, including the surveys made by consultants in 1965 and 1966, and to make recommendations on the training and utilization of medical assistants and similar personnel whose duties characteristically include limited responsibility for deciding on the diagnosis and treatment of patients ...".<sup>2</sup>

<sup>1</sup> *Off. Rec. Wld Hlth Org.*, 1964, 135, 49.

<sup>2</sup> *Off. Rec. Wld Hlth Org.*, 1965, 146, 47.

The Committee attempted to define the meaning of the term "medical assistant and similar personnel" (hereinafter called medical assistant) in terms of existing practices in various countries.

The medical assistant is part of a category of auxiliary health personnel. In contradistinction to professionally qualified personnel—who are fully responsible for the whole range of duties within their profession: medicine, nursing, midwifery, dentistry, sanitation, laboratory technology, etc.<sup>1</sup>—only certain functions are delegated to auxiliary personnel, and they work under the supervision and guidance of a fully qualified person.<sup>2</sup>

The duties that medical assistants are called upon to perform range from simple curative procedures for a particular disease to wider medical care that may include a variety of diagnostic, curative, and preventive practices (Annex 1). During the past decades the range and standard of services provided by medical assistants have shown changes in different countries. A WHO Expert Committee defined the medical assistants as "those health workers whose duties include the diagnosis of, and the prescribing of standard treatment for, common diseases, and who are therefore auxiliary to the fully qualified physician or doctor."<sup>3</sup>

In this report, the term "medical assistant" is used to mean a health worker who has received an appropriate training and who, in the field of promotion, protection and restoration of health (including diagnosis and treatment of disease) has certain clearly defined duties and responsibilities. He is employed within an organized health service under the supervision and guidance of qualified physicians, to whom he must refer all difficult cases.

The Committee reviewed the differences in the extent of general education required before a medical assistant can begin technical training. Such differences range from a few years of primary school to complete secondary school education. The length of technical training may vary from a few months to a few years (Annex 2).

The examples given in Annex 2 show that "medical assistants and similar personnel" who, within limits, are trained to carry out physician's functions of diagnosis and treatment, are known under different

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<sup>1</sup> As defined in an Organizational Study made by the WHO Executive Board, Paramedical professions include "all the professions allied to medicine which together make up the team of health personnel, i.e., nursing and midwifery, sanitation, dentistry, veterinary health, pharmacy, physiotherapy, statistics, microbiology, etc." (*Off. Rec. Wld Hlth Org.*, 1963, 127, 184).

<sup>2</sup> According to the definition accepted by all United Nations agencies, an auxiliary worker is "a paid worker in a particular field, with less than full professional qualifications in that field, who assists and is supervised by a professional worker". Thus, there may be auxiliary personnel in medicine, nursing, sanitation, etc. Furthermore, there can be different levels within the broad category of auxiliaries, e.g., in nursing, there are auxiliary nurses, nursing aides, etc. (*Off. Rec. Wld Hlth Org.*, 1963, 127, 184).

<sup>3</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1961, 212, 5.

names in different countries (medical assistant, feldsher, medical corpsman/clinical specialist, adjoint médical de la santé, health assistant, auxiliar de enfermeria,<sup>1</sup> etc.). According to the level of training, which varies from one country to another, the medical assistant will be either a high-level auxiliary—a real “adjoint du médecin”—or an auxiliary of a lower type.

In order to determine if an auxiliary falls into the category of medical assistant, and if so at what level, it is necessary to know the extent of his general education and of the technical training he has had, the content of such training, and the work that he is called upon to do.

The opinion of the Committee may be summarized as follows :

(1) The term “auxiliary”, as commonly used, has a generic meaning; it refers to all health personnel below the professional level who assist a fully qualified person.

(2) The term “medical assistant” refers to an auxiliary to a physician. The medical assistant may work in an institution under the direct supervision of a physician; he may perform his duties in an outlying post; or he may be a member of a health team with only remote supervision by a physician. It must always be possible for him to refer cases to a physician.

(3) Although the work of the medical assistant may consist largely of diagnosis and treatment—functions delegated to him by the physician—, prevention of disease and other public health activities, particularly in developing countries, are an important part of his duties.

(4) There should always be a clear distinction between the qualified physician and the medical assistant.

(5) The training of the medical assistant should not be conceived of as a stepping-stone to full medical education; access to the latter, however, should not be barred to him provided that he has the qualifications to benefit from it.

(6) There is no uniform type of medical assistant for all countries. The programme of training and of utilization is related to such factors as local mores, social conditions, patterns of health services, and types of disease.

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<sup>1</sup> The term “infirmier” is also used in some countries in a similar sense to “auxiliar de enfermeria”. The “infirmier” may, within certain limits, diagnose and treat common ailments, but is not so highly trained as the “medical assistant”. “Infirmiers” are often confused with members of the nursing profession (called state-registered nurses, graduate nurses, etc.); the latter have responsibilities in matters of nursing care, including health education and other health activities, but have no authority to make a diagnosis or to prescribe treatment. With the physician’s permission they may, however, perform certain diagnostic or curative functions. (See also *Wld Hlth Org. techn. Rep. Ser.*, 1966, 347.)

## 2. NEED FOR AUXILIARIES IN MEDICINE

The point of view that there is no need for medical assistants because the supply of fully qualified physicians is sufficient, is no longer tenable. There is now an awareness that an auxiliary, similar to the medical assistant, is needed and will continue to be needed. The reasons for this are as follows :

(1) Although the number of medical schools and of medical graduates is increasing, the physician/population ratio has not correspondingly improved everywhere.

(2) In most countries where the physician/population ratio has improved, the maldistribution of physicians within the country constitutes an almost insurmountable problem.

(3) Even in the more prosperous countries, with a relatively high physician/population ratio, the addition of medical assistants to the health team can free physicians, and thus make high-quality medical care more widely available.

(4) In very small communities, where it would be uneconomical to employ qualified physicians, medical assistants can do very useful work.

(5) Many diseases can be treated by health workers who have had a training simpler than that of fully qualified physicians.

It is apparent that a reappraisal of the use of medical manpower is needed. As the trend develops, the need for medical assistants in *total health planning* becomes more obvious. The following appear to be basic factors to be taken into consideration in such planning :

(1) The human resources. These will include the number of educated persons representing the potential pool for medical assistant training ; the number of other health workers ; the desirable ratios between professional health personnel and auxiliaries, and the desirable ratios between the total population and various levels of auxiliaries. Other human resources, such as school teachers and community leaders, should also be considered.

(2) The financial resources. Funds for the development of general health services, including education and training of health personnel, are limited. They will determine the types and the number of health personnel that can be trained and employed.

(3) Government policy and attitudes, which may include the sounding of public opinion concerning the kinds of medical auxiliaries that would be acceptable.

(4) The population pattern. It might be necessary to study the advisability of population regrouping to provide medical personnel accordingly. (Such a situation might not commonly arise, but it provides an example of the total planning that may be necessary due to population scatter, mobility and growth.)

(5) The status of medical assistants and auxiliaries in the health professions. As national goals and priorities change and as medicine advances, the role of the medical assistant may also change.

(6) The nature of the health problems prevailing in a country concerned, the number and distribution of physicians and of other health workers, and the developing health services are paramount considerations in total health planning.

The needs of each country are different ; the type of medical assistant will vary accordingly. Each country must base its plans on objective facts.

It is important to realize that, even though a plan may be sound, it may face medical, psychological and administrative problems in the use of medical assistants. These include the overlapping of duties, conflict with other health workers, the possibility of engaging in private practice, the danger of malpractice, misunderstanding concerning the medical assistant's role and place in the health team, unsuitable training, etc. These problems, which indeed do exist, may be averted by sound planning.

### 3. THE TRAINING OF MEDICAL ASSISTANTS

Historically, the training of medical assistants and of similar personnel started as an apprenticeship, in the armed forces, or as a planned course of study. Teaching staff was usually recruited from among physicians, primarily concerned with patient care, who added teaching to their other duties. This often had undesirable effects because, for example, many physicians failed to appreciate the distinct needs of the medical assistant, the content, orientation and emphasis of their teaching resembled too closely those of the medical course they themselves had followed ; or they approached the task with little appreciation of the basic principles of pedagogy. Knowledge of the principles and methods required in training this type of personnel is as essential as in teaching medical students.

When a training programme proves unsatisfactory, it is usually because, in defining the objectives, insufficient attention was paid to the duties that will be required of medical assistants. It is not possible to prescribe a universally applicable curriculum, but the following are some considerations that may be useful in drawing up programmes to meet local conditions and local needs.

### 3.1 Recruitment and selection of trainees

The success of the medical assistant training programme will depend a great deal on the background, quality and motivation of the selected candidates. The criteria for selection will depend on the programme. There are, in general, two main categories of recruits :

(a) Male auxiliary nurses or other health personnel with some previous training and practical experience.<sup>1</sup> Programmes recruiting such individuals are usually of a shorter duration ;

(b) candidates coming direct from school who take up a career in health. Programmes recruiting such candidates might be of a longer duration.

While it is not possible to recommend specific and rigid criteria of admission for training, the following are suggested as guidelines :

(1) The minimum educational background for admission must be established.

(2) Some standardized examination to measure achievement and aptitude is advisable.

(3) References, especially from the candidate's teachers, are important. These should indicate learning ability, personal character, etc.

(4) Wherever possible, personal interviews should be held.

(5) During the earlier stages of the training programme the trainees should be observed closely so that the unsuitable can be weeded out.

Criteria of admission should not be so strict that well-motivated candidates are precluded. They should not be competitive with the admission requirements of medical schools.

### 3.2 Training objectives

Once the duties of the medical assistant have been defined, the specific teaching objectives can be established. These objectives must be spelled out in detail, for they will determine the curriculum, the methodology of teaching and the evaluation of training. The objectives will depend on the functions of the medical assistant, but they must also reflect local social and economic conditions.

The importance of objectives cannot be overemphasized. In many programmes trainees either learn too much or too little. Furthermore, teachers without well-defined objectives tend to drift away from the programme. Essentially, the objective is not to develop the scientific judgement of the trainee but to prepare him for the specific duties to be performed, correctly and intelligently.

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<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1965, 294, 19-22.

### 3.3 Content of the training programme

It is not enough to give a general outline of the duties of the medical assistant. It is necessary to list the major reasons for which people will have recourse to the medical assistants (e.g. the commonest diseases and ailments) and add some other more general knowledge, e.g. in health education, simple sanitation, nutrition and nursing. In addition the medical assistant will need to have an understanding of the organization of the health services and where he fits in, and of his relations with his supervisors and other members of the health team.

The purpose in training medical assistants is to produce auxiliaries with limited qualification in a minimum amount of time, to perform limited duties as safely as possible. Extended and extensive programmes defeat this purpose. The trainee should learn what he can do and what he *cannot do*.

### 3.4 Teaching methodology

As already mentioned, a frequent criticism of many programmes for medical assistants is that they are modelled on courses designed for medical students. Quite unfairly, teachers often expect trainee assistants to have the same depth of understanding as medical students. Lectures, laboratories, clinical conferences and ward rounds often become replicas of those in medical schools. Trainee medical assistants are different from medical students: they come to the programme with a limited educational background, and the objectives of the programmes also are different. Teaching staff must be fully aware of this. If it is a simple skill that is to be taught, a technique that will effectively develop this skill must be applied; if it is understanding of a particular concept that is to be imparted, demonstrations will be more useful.

Visual aids should be used extensively; the teaching must be dynamic and must provide as much opportunity as possible for learning by doing. The medical assistants need books and mimeographed manuals written specially for them and, except for reference purposes, they should not be expected to make use of textbooks intended for medical students.

Programmes for medical assistants are *training* programmes. The goal is not to have the trainee develop a thorough understanding of complicated physiological, pathological, and clinical concepts; hence the need for a relevant teaching methodology.

### 3.5 Judging trainee performance

A comprehensive programme of progress evaluation is essential.

A well-defined system of evaluation will serve three important purposes: (a) it will provide data on the competence of the trainee, (b) it will give

an indication of the effectiveness of the teaching programme, and (c) it will be another means of learning for the trainee. The last point cannot be overemphasized, for one of the most beneficial uses of examinations is that they serve as a teaching medium.

There should be regular examinations so that a constant appraisal of the trainee's progress is available. Restricting examinations solely to the end of the course limits their use and effectiveness. Examinations should be consonant with the objectives of the training programme; they will thus indicate if the objectives are being achieved. As already stressed, the aim of the medical assistant training programme is not the development of a deep understanding of elaborate concepts, but their training to perform a set of practical tasks. There is need to explore the use of more efficient examination techniques. Objective type examination questions would be appropriate, efficient and economical; the use of check lists to note trainee performance in laboratories, clinics and wards should be investigated.

### 3.6 Setting of the training

This will obviously be determined by many factors. Since the medical assistant will be working primarily in a rural setting, a large part of his training should take place in a similar environment. Some experience in a modern hospital and out-patient unit should also be provided for; he can thus observe and learn new skills and techniques and, at the same time, become aware of his limitations as compared with fully qualified physicians.

If the training institution is in an urban setting, appropriate experience elsewhere is necessary—in rural hospitals, in demonstration and training health centres and in small dispensaries. The future medical assistant, by working under close supervision in these institutions, will thus be prepared for work that may be less supervised.

During his training the medical assistant should spend more time in practical than in classroom work. The same applies to continued training and to refresher or advanced courses.

The advantages of combining training institutions for medical assistants with those for other auxiliary health personnel need exploring. Combined institutions may be more efficient and economical and may contribute to the early development of the health team concept.

If a local university medical school exists, it is advisable that at least one of the teachers sit on the education committee of the school for medical assistants. Co-operation between the two schools, especially in such fields as preventive medicine, needs developing.

In most countries medical assistants are trained in government institutions, but centres sponsored by non-governmental agencies conforming to recognized standards may also serve.

### 3.7 The teaching staff

There is no doubt that, for the moment, the backbone of the teaching staff should be made up of physicians. Other teachers could come from related health professions—nursing, sanitation, health education, the laboratory, dentistry. The staff should also include experienced medical assistants who have shown special aptitude in teaching.

Except for one or two physicians, a nurse, and two or more medical assistants, the teachers would be part-time. With such part-time teachers duplication must be avoided and the teaching offered must be appropriate to the level of medical assistants.

The director, most often a physician, should not only be a competent teacher but should also have experience in public health and administration. He should be familiar with the duties of the medical assistant. Continuity of staff, especially in the case of the director, is important.

### 3.8 Programme evaluation

Unless a programme is evaluated continuously it is in danger of becoming outdated. It is essential to adjust the training programme to changing circumstances. For example, a large segment of a programme devoted to preparing medical assistants to deal with a particular disease becomes obsolete once the disease is controlled. Training objectives and priorities must then change. Not only new programmes but also existing ones must be reviewed regularly. Follow-up, through correspondence and visits, of medical assistants in the field is desirable.

## 4. UTILIZATION OF THE MEDICAL ASSISTANT

To attract capable and devoted persons to the ranks of medical assistant, and to retain them, career incentives must exist. Promotion policies are essential and must be made known to potential candidates as well as to medical assistants in the field. The place of the medical assistant in the public health service, and particularly his relation to the physician and other members of the health team, should be well established.

Some of the elements that contribute to the medical assistant's satisfactory performance within his limited training, are the following :

(1) In no circumstances should the medical assistant be allowed to undertake private practice, that is, become an independent purveyor of medical care on a fee-for-service basis.

(2) In most countries the majority of qualified medical assistants are employed in organized government services, but other legally recognized

avenues (e.g., medical services associated with mines, plantations, factories, and services of voluntary agencies) may also be open to them.

(3) Selected medical assistants may be given additional training for promotion (a) to supervise and guide other medical assistants, (b) to become instructors in medical assistant training programmes, and (c) to gain competence in a particular field.

(4) Arrangements must be made (a) to enlist the support of the medical profession in developing a scheme for medical assistants, (b) to advise physicians on the functions they may delegate to medical assistants, (c) to prepare physicians for their supervisory role over medical assistants,<sup>1, 2</sup> and (d) to provide referral services.

In any organized health service which employs medical assistants, it is essential that (a) their duties be well defined, (b) their work be regulated and supervised, (c) provision be made for their further training, and (d) career incentives be offered.

## 5. CONCLUSIONS

The following conclusions of a general nature are considered useful in the development of medical assistant training and utilization programmes.

(1) A number of simple functions usually performed by physicians can be delegated to medical assistants, within an organized health service providing for supervision.

(2) It is not necessary for every country to have medical assistants. However, in many countries the medical assistant does or could play an important role in the health services.

(3) The medical assistant is an auxiliary health worker; he should be recognized as such and employed only in that capacity.

(4) The type of medical assistant needed in a country must be determined in the context of total health planning.

(5) The training programme must be planned according to the duties expected of the medical assistant.

(6) No training programme is applicable to all countries. Programmes should be formulated to meet specific needs.

(7) Training programmes should be based on pedagogical principles; objectives, content, teaching methods, and criteria for the measurement of

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<sup>1</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1957, 140, 15.

<sup>2</sup> *Wld Hlth Org. techn. Rep. Ser.*, 1964, 269, 8.

student performance should be determined and adhered to. They should be efficient, effective, economical, and, foremost, practical.

(8) Programmes should not be the same as those for medical students.

(9) Criteria for admission to training should be determined by the type of programme and by the availability of candidates. They should not be those used for admission to medical school.

(10) Programmes should be evaluated continuously and, if necessary, should be modified or discontinued.

(11) Automatic upgrading of medical assistants to the level of fully qualified physicians should not be allowed.

(12) In order to attract able candidates into the training programmes and retain them afterwards career incentives should be provided.

(13) Refresher and advanced courses should be planned and attendance at them encouraged.

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**Annex 1****FUNCTIONS OF THE MEDICAL ASSISTANT :  
TWO EXAMPLES****1. Functions of the Medical Assistant in the Sudan<sup>1</sup>**

1. First aid in medical and surgical emergencies.
2. Diagnosis and out-patient treatment of common diseases ; minor surgery in dispensaries and health centres.
3. Referral to the nearest hospital of emergencies and cases requiring hospitalization.
4. Public health functions :
  - (a) To carry out all the functions required of the public health services if no public health officer or sanitary overseer is in the area.
  - (b) Liaison and co-operation with the public health officer or public health authorities in the area.
  - (c) Liaison and co-operation with the licensed midwife of the area.
  - (d) Immediate initiation of epidemic control measures.
5. School health and related activities ; health education.
6. Registration of births and deaths and the issuing of certificates.
7. Vaccination and preventive measures for communicable diseases.
8. Simple administrative work, record keeping, care and management of equipment and stores, public health laws, vital statistics.
9. Environmental sanitation, housing and latrines, disposal of sewage and of refuse, safe water supply ; food hygiene, including meat and milk inspection and sampling ; industrial hygiene. The medical assistant is regarded as the first line of attack against diseases arising from environmental sanitation defects.
10. Nutrition and dietetics.
11. Dental care.
12. The preparation of simple medico-legal reports in relationship with the local administration.
13. Visiting the villages of the area.

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<sup>1</sup> From an unpublished document prepared by the Medical Assistants Training School, Omdurman, Sudan (1967).

## 2. Functions of the Medical Assistant according to G. A. Canaperia and M. Kivits

The medical assistant may be broadly defined as a physician's auxiliary who, mainly in the rural areas, is entrusted with the following duties, carried out under supervision (most often from a distance):

1. In the field of curative medicine the assistant examines patients and, with the possible help of nursing aides, ensures the treatment of simple diseases and common infections. He refers patients whose condition requires the physician's care to better-equipped treatment centres.

2. In the field of preventive medicine (with the possible help of other auxiliaries) he ensures the prevention of communicable diseases (case finding, treatment, vaccinations, chemoprophylaxis, vector control), elementary sanitation measures, health education of the public and health control of vulnerable groups, such as pregnant women, infants and school-children.

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### Annex 2

#### TRAINING OF MEDICAL ASSISTANTS — EXAMPLES FROM SIX COUNTRIES

The following schemes illustrate the great diversity of training programmes for auxiliaries in medicine to whom limited medical functions, including decisions on the diagnosis and treatment of common diseases, are delegated by fully qualified physicians in organized health services providing in varying extent for guidance, supervision and referral. They are among those visited by WHO consultants. (Schemes which aim at training quasi-doctors or which are stepping stones to full medical education have been excluded.)

Feldshers, USSR (WHO Travelling Seminar, 1963) . . . . .	Scheme 1
Medical corpsmen, US Army (H. Pollack, 1967) . . . . .	Scheme 2
Adjoints médicaux de la santé, Algeria (G. A. Canaperia & M. Kivits, 1966) . . . . .	Scheme 3
Health assistants, Burma (F. Merle & H. Pollack, 1965) . . . . .	Scheme 4
Medical assistants, Sudan (B. Kesić, 1967) . . . . .	Scheme 5
Auxiliares de enfermería, Venezuela (B. Kesić, 1966) . . . . .	Scheme 6

**SCHEME 1**  
**CURRICULUM FOR THE TRAINING OF MEDIUM-GRADE**  
**MEDICAL PERSONNEL, USSR**  
**FELDSHER<sup>1</sup>**

NAME OF SUBJECTS	NUMBER OF HOURS		DISTRIBUTION ON COURSES AND SEMESTERS													
	TOTAL	OUT OF THIS NUMBER	1 <sup>st</sup> COURSE								2 <sup>nd</sup> COURSE		3 <sup>rd</sup> COURSE		4 <sup>th</sup> COURSE	
			CLASS WORK	LABORATORY WORK AND PRACTICAL TRAINING	1 <sup>st</sup> TERM 1 <sup>st</sup> WEEKS	2 <sup>nd</sup> TERM 1 <sup>st</sup> WEEKS	3 <sup>rd</sup> TERM 1 <sup>st</sup> WEEKS	4 <sup>th</sup> TERM 1 <sup>st</sup> WEEKS	5 <sup>th</sup> TERM 1 <sup>st</sup> WEEKS	6 <sup>th</sup> TERM 1 <sup>st</sup> WEEKS	7 <sup>th</sup> TERM 1 <sup>st</sup> WEEKS	8 <sup>th</sup> TERM 1 <sup>st</sup> WEEKS	9 <sup>th</sup> TERM 1 <sup>st</sup> WEEKS	10 <sup>th</sup> TERM 1 <sup>st</sup> WEEKS		
1	2	3	4	5	6	7	8	9	10	11	12	13				
<b>CYCLE OF GENERAL SUBJECTS</b>																
HISTORY OF THE USSR	185	185				2	2	2	3							
BASIC KNOWLEDGE IN POLITICAL SCIENCES	89	89								3	2					
LITERATURE	218	218				2	2	2	2	2	2					
MATHEMATICS	317	317				8	5	3	3							
PHYSICS	281	237	44			6	4	3	2							
CHEMISTRY	171	125	46			5	4									
FOREIGN LANGUAGE	183	183				2	2	2	2	1	1					
<b>TOTAL</b>	<b>1424</b>	<b>1334</b>	<b>90</b>			<b>23</b>	<b>16</b>	<b>12</b>	<b>12</b>	<b>6</b>	<b>5</b>					
<b>CYCLE OF GENERAL MEDICINE</b>																
LATIN	78	78				4										
BIOLOGY	78	80	16			4										
ANATOMY	152	112	40			3	5									
PHYSIOLOGY	95	74	21				5									
MICROBIOLOGY	78	58	20				4									
PATHOLOGICAL ANATOMY AND PATHOLOGICAL PHYSIOLOGY	95	70	25					5								
PHARMACOLOGY AND PRESCRIPTIONS	185	123	42					6	3							
HYGIENE	88	50	18						4							
PUBLIC HEALTH ADMINISTRATION	45	26	19										5			
<b>TOTAL</b>	<b>848</b>	<b>647</b>	<b>201</b>			<b>11</b>	<b>14</b>	<b>11</b>	<b>7</b>				<b>5</b>			
<b>SPECIAL CYCLE</b>																
INTERNAL DISEASES AND CARE OF PATIENTS	489	210	257					6	4	4	4	6	5			
SURGICAL DISEASES	447	210	237					5	4	3	5	8	5			
OBSTETRICS AND GYNAECOLOGY	347	180	167						5	4	4	4	8			
CHILDREN'S DISEASES	282	130	132							4	4	4	6			
EPIDEMIOLOGY	85	40	55							5						
INFECTIOUS DISEASES	189	108	81							3	4	4				
SKIN AND VENEREAL DISEASES	78	38	40							4						
NERVOUS AND MENTAL DISEASES	80	40	40								5					
EYE DISEASES	88	30	35									4				
TOOTH AND MOUTH CAVITY DISEASES	45	24	21										5			
EAR, NOSE AND THROAT DISEASES	88	30	38									4				
PHYSIOTHERAPY, MASSAGE AND MEDICAL EXERCISES	104	50	54									4	4			
STUDY OF ADDITIONAL SUBJECTS	104	104					2		2		2					
<b>TOTAL</b>	<b>2354</b>	<b>1172</b>	<b>1182</b>				<b>2</b>	<b>11</b>	<b>15</b>	<b>27</b>	<b>28</b>	<b>38</b>	<b>31</b>			
<b>PHYSICAL TRAINING</b>																
	234	30	204			2	1	2	2	3	3					
<b>TOTAL</b>	<b>4880</b>	<b>3183</b>	<b>1877</b>			<b>38</b>	<b>38</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>	<b>36</b>			
<b>PRACTICAL TRAINING AND IMPROVING OF PROFESSIONAL SKILL</b>																
KINDS OF PRACTICAL TRAINING AND INDEPENDENT WORK	TOTAL		DISTRIBUTION ACCORDING TO COURSES AND SEMESTERS													
	WEEKS	HOURS	1 <sup>st</sup> COURSE		2 <sup>nd</sup> COURSE		3 <sup>rd</sup> COURSE		4 <sup>th</sup> COURSE							
			1 <sup>st</sup> TERM WEEKS	2 <sup>nd</sup> TERM WEEKS	3 <sup>rd</sup> TERM WEEKS	4 <sup>th</sup> TERM WEEKS	5 <sup>th</sup> TERM WEEKS	6 <sup>th</sup> TERM WEEKS	7 <sup>th</sup> TERM WEEKS	8 <sup>th</sup> TERM WEEKS						
HOURS PER WEEK																
1) EDUCATIONAL TRAINING:																
a) IN HOSPITALS AS HOSPITAL ATTENDANT	2	82		41												
b) IN HOSPITALS - CARE OF PATIENTS AND USE OF MEDICAL EQUIPMENT	4	184					41									
c) IN HOSPITALS AND OUT-PATIENT DEPARTMENTS AS MEDICAL NURSES	5	205							41							
2) CLINICAL TRAINING ACCORDING TO SPECIALITY (FIELD PRACTICE):																
PRACTICAL WORK IN REGIONAL AND DISTRICT HOSPITALS	10	410											41			
<b>TOTAL:</b>	<b>21</b>	<b>881</b>		<b>82</b>			<b>82</b>		<b>184</b>		<b>205</b>		<b>410</b>			
<b>STATE EXAMINATIONS</b>																
(LIST OF SUBJECTS: ) 1. INTERNAL DISEASES 2. SURGICAL DISEASES 3. OBSTETRICS AND GYNAECOLOGY 4. CHILDREN'S DISEASES																

<sup>1</sup> Admission requirements (general education): 8 years. Length of training: 3 years and 10 months. The total length of training includes the completion of secondary (middle) education. Thus the person qualifying as feldsher also obtains his secondary school certificate.

**SCHEME 2**  
**CURRICULUM FOR THE TRAINING OF US ARMY**  
**MEDICAL CORPSMEN <sup>1</sup>**  
**BASIC COURSE**

(For medical corpsman, with duties as attendant in ward or dispensary)

Subject	Number of hours
Character guidance, inter-personal relations, courtesy	4
Programme orientation	2
Preventive dentistry	1
Organization & functions of medical services	5
Basic anatomy & physiology	17
Sanitation & prevention of disease	14
Basic emergency medical treatment	58
Medical records	2
Common drugs & their uses	9
Care of supplies & equipment	1
Transportation of the sick & wounded ; transit of emergencies	20
Medical symptomatology	12
Field surgery	17
Basic nursing procedures	124
Psychological care	3
Screening of patients	4
Burns, Sutures	4
Scrub & operating room techniques	6
Holidays, registration, examinations, field visits, physical training, etc.	96
Other, mainly relevant to the military	81
	<u>480</u>

<sup>1</sup> Admission requirements (general education) : 12 years or equivalent. Length of training : 10 weeks. The basic course is followed by a period of "on the job" training under direct supervision. After satisfactory performance and with increasing responsibility, the medical corpsman may be selected for an advanced course to become a clinical specialist (see Scheme 2.A).

## SCHEME 2A

## CLINICAL SPECIALIST COURSE

(For duties as Hospital Medical Assistant or  
US Army Field Medical Assistant)

Subject	Number of hours
<b>A. CLASSROOM SUBJECTS AND EXERCISES</b>	
<i>Course Orientation</i>	6
<i>Administration and Personnel Development</i>	104
Publications and correspondence	7
Medical records and reports	14
Inter-personal relations	5
Techniques of instruction	31
Techniques of management	24
Organization of medical services	23
<i>Professional Subjects</i>	586
Introduction to medical science	20
Pharmacology in patient care	38
Concepts of patient care	16
Advanced principles & practices of patient care	82
Medical-surgical nursing & care of patients with disorders of :	(246)
Musculo-skeletal system	28
Nervous system	33
Respiratory system	29
Circulatory system	30
Digestive system	35
Genito-urinary system	26
Endocrine system	21
Allergies, skin	18
Eye, ear	14
Intensive surgical nursing care	12
Mental health & mental illness	23
Care of the obstetrical patient & of the newborn	18
Care of the paediatric patient	21
Dispensary procedures	17
Surgery in the dispensary & health station	26
Emergency medical & dental care	33
Medical management of mass casualties	16
Sanitation & preventive medicine	30
<b>B. CLINICAL EXPERIENCE</b>	768
Care of the medical patient	128
Care of the surgical patient	128
Surgical aseptic technique & immediate postoperative patient care	128
Obstetrical & newborn patient care	64
Paediatric patient care	64
Clinic & dispensary patient care	128
Orthopaedic patient care	64
Genito-urinary & gynaecological patient care	64
<b>C. HOLIDAYS, REGISTRATION, EXAMINATIONS, PHYSICAL TRAINING, FIELD VISITS, etc.</b>	296
	<u>1760</u>
<i>Type of instruction :</i>	
Conference	414
Demonstration	71
Practical exercise	119
Training films	22
Examinations	70
Practical experience	768
Non-academic	296
	<u>1760 (40 weeks)</u>

**SCHEME 3**  
**CURRICULUM FOR THE TRAINING OF MEDICAL ASSISTANTS,<sup>1</sup>**  
**ALGERIA**

Subject	Final examinations	Hours of study : practical and theoretical	School years											
			1			2			3					
			Trimesters											
			1	2	3	4	5	6	7	8	9			
			Weeks											
13	12	12	13	12	12	13	12	12	13	12	12			
<b>General</b>														
History, geography	1	61	1	1	3									
Social and civic subjects	1	62	2	2	1									
Arabic		87	1	2	1	1	1	1	1					
French		74	1	1	1	1	1	1						
Mathematics & physics	1	141	9	2										
General chemistry	1	26	2											
Physical education		348	4	4	4	4	4	4	4	4				
<b>Medical</b>														
Natural sciences (Botany, zoology, geology)	1	6	0.5											
Anatomy	1	126	3	4	3									
Histology	1	24		2										
Physiology	1	62	2	3										
Biochemistry	1	62	2	3										
Microbiology and parasitology	1	72		3	3									
Pathology	1	84		3	4									
Medicine	2	324			8	15	3							
Nutrition & dietetics	2	49			1	1	1	1						
Communicable diseases	2	240					10	10	3					
Public health	3	75								3				
Surgery	2	99				3	3	2						
Hygiene & environmental health	2	123			3	3	4							
Radiology		4												
Minor surgery & first aid	1	62	2		3									
Obstetrics	2	48					2	2						
Paediatrics	3	63								5				
Pharmacology & therapeutics	3	125							5	5				
Maternal & child health	3	39								3				
Dermatology	2	48							4					
Ophthalmology	2	36							3					
Otorhinolaryngology	3	39								3				
Kinesitherapy	3	13								1				
Health statistics	3	26								2				
<b>Total study hours</b>		<b>2 689</b>	<b>29.5</b>	<b>30</b>	<b>35</b>	<b>28</b>	<b>34</b>	<b>40</b>	<b>23</b>					
<b>Hospital practice</b>		<b>1 008</b>	<b>2</b>	<b>2</b>		<b>20</b>	<b>20</b>	<b>20</b>	<b>22</b>					
<b>Public health practice</b>		<b>960</b>								<b>40</b>	<b>40</b>			
<b>Total hours of training</b>		<b>4 657</b>	<b>31.5</b>	<b>32</b>	<b>35</b>	<b>48</b>	<b>54</b>	<b>60</b>	<b>45</b>	<b>40</b>	<b>40</b>			

<sup>1</sup> Adjoints médicaux de la santé. Admission requirements (general education) : nine years. Length of training : three years.

## SCHEME 3 (continued)

Year	Practice	Subjects	Hours
1	Hospital care and methods	Medicine Surgery	4 hours/week 12 weeks : 48 hours
2	Hospital	Tuberculosis 4 weeks Paediatrics 7 weeks Obstetrics and gynaecology 6 weeks Surgery 7 weeks Medicine 8 weeks Laboratory 2 weeks Radiology 2 weeks Ophthalmology 4 weeks	20 hours/week for 36 weeks : 720 hours
3	Hospital	Dermatology 3 weeks Otorhinolaryngology 4 weeks Stomatology 1 week	20 hours/week 12 weeks : 240 hours
	Public health	Public health administration 4 weeks Health education 4 weeks Environmental health 4 weeks Nutrition 4 weeks Malaria 4 weeks Communicable diseases and mobile teams 4 weeks	40 hours/week 24 weeks : 960 hours

SCHEME 4  
CURRICULUM FOR THE TRAINING OF HEALTH ASSISTANTS,  
RANGOON, BURMA <sup>1</sup>

Year & subjects	Theory	Practice or tutorial	Total
	Hours		
<i>First</i>			
Mathematics	30		30
Chemistry & physics	80	20	100
Anatomy & physiology	80	40	120
Hygiene & public health			120
Pharmacology	60	20	80
Bacteriology & pharmacology	20	10	30
Entomology & malariology	20	10	30
Meat inspection			16
Health education			24
Medicine	40	20	60
Surgery	40	20	60
Total, classroom			670
<i>Second</i>			
Hygiene & public health			140
Sanitary engineering			20
Medicine	40	30	70
Surgery	40	30	70
Tuberculosis	12	28	40
Veneral diseases	12	48	60
Leprosy	8	48	56
Ophthalmology	10	15	25
School health	5	6	11
Paediatrics	10	6	16
Nutrition	10	10	20
Total, classroom			528
Grand total (classroom, not including service assignments)			1,198
<i>Third</i>			
Field training assignment			3 months

<sup>1</sup> Admission requirements (general education) : 10 years. Length of training : 2 years, plus 3 months of field training.

SCHEME 5  
TRAINING PROGRAMME FOR MEDICAL ASSISTANTS  
OMDURMAN, SUDAN<sup>1</sup>

1. *Anatomy — physiology*

The human skeleton and muscles, heart and circulation, the alimentary, respiratory, and central nervous systems, neuromuscular mechanism, urinary excretion and deficiency diseases.

2. *Medicine*

The early detection of infectious diseases : smallpox, chickenpox, measles, mumps, diphtheria, typhoid, whooping cough, relapsing fever, yellow fever, malaria, blackwater fever, Malta fever, kala-azar, rabies, tuberculosis, pneumonia, the dysenteries, cerebrospinal meningitis, tetanus, leprosy, influenza, sandfly fever, gastro-enteritis of children, bilharziasis, ancylostomiasis, intestinal worms, guinea-worm, sleeping sickness, filariasis.

3. *Surgery*

Sepsis, asepsis, antiseptics, immunity, haemorrhage and its control, fractures and dislocations, burns, bandaging, the acute abdomen, syphilis, gonorrhoea, soft sores, Madura foot.

4. *Nursing*

Personal hygiene, ward hygiene, ward routine, the temperature chart, bed making, bed bathing, special techniques, enemata, catheterization, dressing and local applications, special nursing, preparation for operation.

5. *Pharmacy*

Nature and source of drugs, weights and measures, incompatibility, modes of administration of drugs, dispensary routine.

6. *Public health*

Public health organization, housing, water supply, insect- and animal-borne diseases, social medicine, market and shop hygiene, communicable diseases, notifiable diseases, epidemics, quarantine, school and industrial health, village and district health, personal health, community health, public health legislation, propaganda, vital statistics in the Sudan.

7. *Special lectures*

Skin diseases, diseases of the eye, mental diseases, women's diseases, children's diseases, forensic medicine, pharmacology.

<sup>1</sup> Admission requirements : 4 years of primary school, plus 4 years in nursing training and 6 years of practical field experience. Length of training : 2 years.

**SCHEME 6**  
**TRAINING PROGRAMME FOR "AUXILIARES DE ENFERMERIA",<sup>1</sup>**  
**VENEZUELA**

1. Health conditions in dispersed rural populations, socio-cultural and economic factors, the care of dispersed rural populations, rural auxiliaries and their utilization, general working plan, organization, supervision and evaluation; problems of secluded areas.

2. Health and sickness, infection; tetanus, hookworm, rabies, immunity, development of disease, control of infectious diseases, transmission of disease, protection of the healthy, vaccination, disease vectors.

3. First aid to the acutely ill, pneumonia in children and in adults, diarrhoea in children, dysentery, influenza and the common cold, pharyngitis, measles, pertussis, yellow fever, rabies, infectious diseases of the eye, reactions and diseases of the skin, first aid in chronic disease, intestinal parasites, privies, sewage, tuberculosis, malaria, leprosy, Chagas' disease, asthma, syphilis, gonorrhoea, leishmaniasis, carate.

4. Anaemia and malnutrition.

5. First aid in accidents, haemorrhage, head injuries, wounds of the thorax and abdomen, facial wounds, burns, fractures in general, fractures of the extremities, fractures of the spine, foreign bodies in the eye, throat, nose and ear, fainting, heat and sunstroke, suffocation, transport of the sick and the wounded, snake bite, stings and bites.

6. First aid in pregnancy, labour and the puerperium, care of the newborn and the premature child, infant feeding and hygiene, supervision of practical midwives.

7. Recording births, deaths, first aid, vaccination, incidence of leishmaniasis, monthly reports, annual reports.

8. Health education, personal, food and general hygiene, sanitation and vaccination.

With the aid of an instruction manual which sets out clearly and easily the required procedures, these auxiliaries are trained to work at the rural local level, in rural dispensaries, which are small health stations responsible for first aid in illness or accident, health education, vaccination, etc. They provide to the rural population care for the simplest and most common medical cases which are readily recognizable. Auxiliaries work under the supervision of the area health centre physician who visits once or twice a week. In 1962 there were 1050 such small units each staffed by one health worker trained only in so-called "simplified medicine".

The simplified medical service has the following characteristics:

1. Preventive medicine is not separated from curative medicine.
2. The only kind of curative action offered is routine treatment of common and readily recognizable diseases.

<sup>1</sup> Non-professional personnel working in "simplified medical services". Admission requirements (general education): four years of primary school. Length of training: this course started tentatively as a three months course but it has been extended to six months.

## SCHEME 6 (continued)

3. A minimum integrated service is offered at the lowest local level which is the rural dispensary.
4. Suitable supervision is provided.
5. Basically the procedure serves as an organized system of referral to levels where medical services are available.

These courses are also open to missionaries, veterinary inspectors, to military personnel and guards in rural and border areas.

Mention should be made of courses for physicians directing health centres. These courses aim at developing an understanding and knowledge of various fields of public health practice and of supervision, guidance, and in-service training auxiliaries. The courses are organized by the School of Public Health in Caracas. They extend over 18 weeks (700 hours) — 10 weeks at the School and 8 weeks at training health centres (Centros de Salud Villa de Cura y San Sebastian). These physicians are a key element in the success of the simplified medical service.