

THE TRAINING
AND UTILIZATION
OF FELDSHERS IN THE USSR

A Review Prepared by the Ministry of Health of the
USSR for the World Health Organization



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PREFACE

Health services in the USSR have been the subject of a number of WHO publications, including a comprehensive review of the principles of health planning in the USSR by G. A. Popov, published in 1971.¹ The Soviet health services display a number of distinctive features that make them of particular interest to health administrations and educators of health personnel in other countries. The aim is to provide medical care that is free of charge, of high quality, and at the same time universally available.

In order to fulfil this aim, the USSR not only trains a very large number of doctors (the average for the country is around 27 per 10 000 inhabitants), but also makes extensive use of medical workers with an intermediate level of training, such as feldshers, midwives, laboratory technicians, and nurses. With the rapidly rising costs of health services, not only the developing countries but also the more prosperous ones are becoming increasingly interested in the possibility of using such middle-grade medical personnel to provide some of the services traditionally available exclusively from fully qualified physicians. For this reason, WHO invited the Ministry of Health of the USSR to provide it with a detailed account of the training and utilization of feldshers, feldsher-midwives, and similar personnel.

Although the section on planning for the needs of feldshers contains a number of rather complicated formulae that may appear daunting at first sight, this review of the feldsher system is, on the whole, descriptive rather than analytical and is lucidly written. It should serve as valuable background material for all those interested in the feldsher system and WHO is very grateful to the Ministry staff for its cooperation.

¹ *Public Health Papers* No. 43, Geneva, World Health Organization.

THE DEVELOPMENT OF FELDSHER TRAINING
IN PRE-REVOLUTIONARY RUSSIA
AND IN THE USSR

In Russia, establishments for training middle-grade medical personnel were introduced in the seventeenth century, when hospitals opened schools for apprentice physicians and physicians' assistants.

Specific training for feldshers began in the eighteenth century, after the introduction of the *zemstvo*¹ and the development of public health services under its authority. The regulations of the *zemstvo* feldsher schools (1872) show that they were intended to train literate persons between the ages of 15 and 20 years to become experienced, competent feldshers. The course of study lasted three years and students completing it, after sitting the State examinations, received a diploma and the title of feldsher. In addition to these schools, there were military feldsher schools with a four-year course of study.

Feldshers trained at such schools were employed in *zemstvo* medical establishments as assistants to physicians or sometimes as substitutes for them. There were also a large number of feldsher or feldsher-midwife posts, staffed by a feldsher alone, which provided medical care in rural areas.

By the beginning of the twentieth century, feldsher-midwife schools, providing a special four-year training course, had been extensively developed.

The feldsher-midwife, combining the functions of the feldsher and the midwife, was very useful to the *zemstvo* for economic reasons, even though less thoroughly trained than the feldsher or midwife alone.

In 1915, Russia had 65 civilian feldsher and feldsher-midwife schools with a student population of 8750; there were also 10 military feldsher

¹ *Zemstvo*: a local government authority regulating, within strictly defined and narrow limits, the affairs of a district in pre-revolutionary Russia.

schools.¹ These establishments were mostly in central Russia. Regions such as Kazakhstan, Kirghizia, Armenia, and the industrial districts of the Kuzbass and the Donbass had none at all.

Medical schools were administered by various departments of the Civil Service and middle-grade medical schools applied a variety of training programmes and curricula. Courses varied in length and in the educational requirements for entrance. The medical community in pre-revolutionary Russia repeatedly proposed that the training of middle-grade medical personnel should be reviewed and improved. Between 1907 and 1914, the need to improve feldsher training was stressed at three all-Russia feldsher and midwife congresses and at two Pirogov medical congresses. Decisions were taken at these congresses to improve the quality of training and to raise entrance standards, but they were never implemented.

A radical change took place after the creation of the Soviet State in 1917, when attention was turned to solving the basic problem of providing the entire population with high-quality medical care free of charge. The existing middle-grade medical schools, regardless of which Civil Service department they previously reported to, were brought under the control of the State Commissariat for Health.

With the socialist victory in the October Revolution, the Soviet health service was faced with the task of developing a rural medical service in which care would be provided by qualified physicians instead of feldshers. Hence the conferences on middle-grade medical education, which took place in 1922–26, decided to replace the network of feldsher schools by feldsher-midwife technical colleges giving a four-year course of training and requiring entrants to have completed seven years of general schooling.

As industrialization and the collectivization of agriculture proceeded, demand was renewed for a large increase in the output of trained medical workers and the need arose for middle-grade medical workers who could work on their own, give first-aid and simple medical care in the absence of the physician (during periods of intensive agricultural work and in industrial establishments), and carry out preventive procedures. During that period, the number of rural and works' feldsher posts increased sharply, and in 1936 the Government decreed that the training of feldshers at feldsher schools should be reintroduced, with a three-year course of study following seven years of general schooling. In 1939, the training of feldsher sanitarians, also by a three-year course of study, was introduced.

In 1940, there were 990 training establishments for middle-grade medical workers with a total student population of 222 800. The health

¹ *40 let Sovetskogo zdravoohraneniia* [40 years of the Soviet health service], Moscow, Medicina Publishing House (1957).

service employed 95 667 feldshers, feldsher-midwives, and feldsher sanitarians (assistants to sanitary physicians and epidemiologists). By 1956 there were 186 568 feldshers, 64 957 feldsher-midwives, and 19 933 feldsher sanitarians working in health service establishments.

Middle-grade medical personnel, including feldshers, are now trained in middle-grade medical schools, which are special secondary educational establishments. They provide training in seven different specialties: feldsher, feldsher sanitarian, laboratory technician, midwife, nurse, dental assistant, and dental mechanic. There are now over 650 such schools in the Soviet Union, with a total student population of over 389 000.

The USSR consists of 15 Union Republics. Each has its own middle-grade medical schools, which operate under the direct control of the Ministry of Health of that Republic and the local health authorities. The Republics' requirements for middle-grade medical personnel are generally met from the output of their own schools. This network of schools is fairly evenly spread over the Soviet Union, with the highest numbers in the following Republics: 366 in the Russian Soviet Federal Socialist Republic, 115 in the Ukrainian SSR, 25 in the Kazakh SSR, 21 in the Uzbek SSR and 17 in the Azerbaidzhanian SSR.

In all, 500 schools have training departments for feldshers and over 120 for feldsher sanitarians. Over 130 000 students are being trained as feldshers and nearly 15 000 as feldsher sanitarians.

Personnel requirements in the various middle-grade medical specialties for which training establishments provide courses are determined by the Ministry of Health of the USSR, the Ministries of Health of the Union Republics, and the Ministry of Higher and Special Secondary Education of the USSR. These authorities are also responsible for planning the training of middle-grade medical personnel.

PLANNING FELDSHER TRAINING

The USSR has a planned economy. This means that the development of all branches of the economy is conducted according to a single economic plan. Personnel planning for the health service forms an integral part of all health planning and ensures that the specialists are available to implement the measures drawn up for the protection and improvement of public health. In other words, the numbers of medical workers required, in this case feldshers, will depend on the health objectives (for feldsher services among others) set for the planning period.

The planning of feldsher training, like any other planning exercise in the health field, is preceded by extensive preparatory work. This involves the preparation, both for the country as a whole and for the individual planning regions, of initial data on morbidity patterns and levels, on developments in the health service, and on the availability and distribution of personnel. Forecasts of such factors as future economic and cultural trends and the growth of the population and changes in its age and sex structure are also considered. Once this work has been completed, concrete development objectives are laid down for the feldsher service and standards are set for feldsher manning requirements at the end of the planning period.

Standard manning requirements play a very important part in personnel planning, and the accuracy of all subsequent estimates depends on their reliability. The numbers of feldshers needed for each feldsher or feldsher-midwife post, and for other curative and preventive establishments, are determined in terms of the standard manning requirements. For planning purposes, the standard feldsher manning requirement is a

mean quantitative index giving the number (per 10 000 inhabitants) of feldshers employed in all branches of the health service.

A distinction is drawn between *optimum* and *restricted* planning standards, which can be defined as follows:

Optimum planning standards answer the question: what proportion of feldshers to the population *should* there be to ensure that the demand for feldshers is fully satisfied? The use of optimum standards is recommended in long-term planning. *Restricted* planning standards answer the question: what proportion of feldshers *can* be provided in any given year of the planning period, taking account of existing circumstances? Restricted standards are also known as *interim* standards as they represent intermediate stages in the attainment of optimum standards. The use of restricted standards is recommended in short-term planning.

For example, if three planning regions, during the report year, attain the following feldsher manning levels (per 10 000 inhabitants)—I, 1.7; II, 2.5; III, 4.5—then the target for the end of the planning period of 13 years, taking into account the development objectives for the feldsher service and the expansion potential for feldsher training, may be—I, 6.0; II, 7.0; III, 8.0. Once the planning standard has been determined, calculation of feldsher training requirements can begin.

The planning indices for feldsher training are calculated in essentially the same way as those for other health personnel. They are obtained in three successive stages, viz.—

- (1) determination of the total feldsher requirement at the end of the planning period;
- (2) determination of the additional feldsher requirement;
- (3) determination of the student intake into the feldsher departments of middle-grade medical schools.

(1) *Determination of total feldsher requirement.* This is the number of feldshers needed to meet the targets set for the provision of curative and preventive care.

It is given by the formula:

$$N_m D_m / 10,$$

where N is the optimum planning standard for feldsher requirements for every 10 000 inhabitants, D is the size of the population (in thousands) at the end of the planning period, and m is the final year of the planning period (in years).

(2) *Determination of additional feldsher requirements.* This is the number of feldshers who must be trained during the planning period to ensure that the above target is reached. In addition to the feldshers needed because of development objectives, it is also necessary to provide replacements for feldshers who stop working during the planning period.

The additional requirement is clearly the difference between the total

feldsher requirement and the expected number of feldshers in the base-line year. (In the forward planning of personnel training, the base-line year is not the last report year but the year by which all the students entering middle-grade medical schools in the years previous to the report year will have graduated. It is therefore ahead of the report year by the number of years that the school course lasts.)

The total number of feldshers in the base-line year is given by the formula:

$$A_n^{n+k} = A_n + \sum_{n+1}^{n+k} B - \sum_{n+1}^{n+k} Y,$$

where A is the number of feldshers available, B is the number of feldshers graduating from middle-grade medical schools, Y is the number of feldshers expected to leave work (feldsher loss), n is the report year, $(n+1)$, $(n+2)$, ..., $(n+k)$ are the years following the report year, and k is the duration (in years) of the school course.

The additional feldsher requirement needed to increase feldsher numbers is clearly:

$$N_m D_m / 10 - A_n^{n+k}.$$

In short-term planning, the additional requirement needed to make up feldsher loss is estimated by taking the average percentage loss over the previous two to three years. In long-term planning, it is calculated on the basis of changes in population statistics. Data on the age-and-sex structure of the feldsher population, together with the length of their working lives as set out in current Soviet labour legislation, are used to calculate the numbers of feldshers likely to stop work during the planning period. If there are many young women in the feldsher population, corrections must be made to allow for maternity leave for a proportion of them in accordance with the pregnancy and birth rates.

Feldsher loss is represented in calculations by the symbol Y . The total loss, from the base-line year (n) to the final year of the planning period (m), is expressed as

$$\sum_{n+1}^{n+m} Y.$$

The total additional requirement needed to increase feldsher numbers and to make up feldsher loss determines the number of feldshers to be trained at middle-grade medical schools during the planning period, i.e., the total graduate output. This quantity may be expressed mathematically as:

$$B_{n+k+1}^{n+m} = N_m D_m / 10 - \left(A_n + \sum_{n+1}^{n+k} B - \sum_{n+1}^{n+m} Y \right),$$

where the symbols have the same meaning as above.

(3) *Determination of the student intake.* The side of the student intake needed to ensure that the targets for expansion of the feldsher service are met is obtained by multiplying the calculated mean yearly graduate output (B) by $100/(100 - Q)$, where Q is the mean percentage of students who fail to complete the course and is generally established from data for several successive previous years.

The complete formula for calculating student intake is therefore:

$$\frac{P_{n+k+1}^{n+m}}{P_{n+k+1}^{n+m}} = \frac{N_m D_m / 10 - A_n - \sum_{n+1}^{n+k} B + \sum_{n+1}^{n+m} Y}{\frac{R_{n+k+1}^{n+m}}{n+k+1}} \cdot \frac{100}{100 - Q},$$

where P is the mean yearly student intake, R is the number of years from the base-line year to the end of the planning period, and the other symbols have the same meaning as above.

A sample calculation of the mean yearly student intake for the three different planning regions mentioned earlier can be illustrated as follows:

	Planning regions		
	I	II	III
<i>Total population (in thousands)</i>			
for the report year, 1972 (D_n)	45 750	28 200	9 550
for the base-line year, 1975 (D_{n+k})	50 000	30 000	10 000
for the final year of the planning period, 1985 (D_m)	65 000	36 000	11 500
<i>Feldsher density (number per 10 000 inhabitants)</i>			
for the report year, 1972 (N_n)	1.7	2.5	4.5
for the base-line year, 1975 (N_{n+k})	2.0	3.0	5.0
for the final year of the planning period, 1985 (N_m)	6.0	7.0	8.0
<i>Feldsher population (number)</i>			
for the report year, 1972 (A_n)	7 780	7 050	4 300
mean feldsher output from middle-medical schools $\frac{B_{n+k}^{n+m}}{n+1}$	1 680	1 230	440
duration of middle medical school course (in years) (k)	3	3	3
mean yearly feldsher loss during planning period (Y)	1.5%	1.8%	2.0%
mean percentage of students failing to complete course (Q)	5%	5%	5%

Student intake for planning region I is:

$$\begin{aligned} \frac{P_I^{n+m}}{P_I^{n+m}} &= \frac{(6 \times 65\,000/10) - 7\,780 - (3 \times 1\,680) + 4\,550}{10} \cdot \frac{100}{100 - 5} \\ &= 3\,073 \div 0.95 = 3\,235. \end{aligned}$$

Student intake for planning region II is:

$$\begin{aligned} \frac{P_{II}^{n+m}}{P_{II}^{n+k+1}} &= \frac{(7 \times 36\,000/10) - 7\,050 - (3 \times 1\,230) + 3\,770}{10} \cdot \frac{100}{100 - 5} \\ &= 1\,823 \div 0.95 = 1\,920. \end{aligned}$$

Student intake for planning region III is:

$$\begin{aligned} \frac{P_{III}^{n+m}}{P_{III}^{n+k+1}} &= \frac{(8 \times 11\,500/10) - 4\,300 - (3 \times 440) + 1\,750}{10} \cdot \frac{100}{100 - 5} \\ &= 533 \div 0.95 = 560. \end{aligned}$$

From these calculations it is clear that, if the 1985 feldsher targets are to be met, the student intake will have to be increased as follows, in comparison with the figures for the years 1970-72:

	Planning regions		
	I	II	III
Actual mean yearly student intake in 1970-72	1770	1300	460
Calculated mean yearly student intake for 1973-82	3235	1920	560

The figures obtained for the increase in the number of feldshers under training are only a first approximation. They have still to be balanced against other figures relating to the expansion of teaching and clinical facilities at middle-grade medical schools, the existing and potential numbers of teaching staff at such schools, and financial considerations.

FELDSHER TRAINING

Since the middle-grade medical school is a special secondary educational establishment, its effect on all general organizational educational and methodological matters is governed by the regulations and instructions issued by the Ministry of Higher and Special Secondary Education of the USSR and the Ministry of Health of the USSR.

The basic document governing organization of work is the 'Regulations for Special Secondary Educational Establishments in the USSR', which lays down the structure of such establishments, and defines the rights and obligations of the head of the establishment, its teaching staff, auxiliary teaching staff, administrative staff, and students.

The conditions for enrolment in a middle-grade medical school are governed by the 'Rules for Admittance to Special Secondary Educational Establishments in the USSR', which are issued annually by an order of the Ministry of Higher and Special Secondary Education of the USSR. Entrants must be under the age of 30 years and have completed at least 8 years of general schooling. Prospective entrants sit an entrance examination for the school of their choice. Those who have completed 8 years of secondary schooling sit an examination in Russian (dictation) and mathematics (oral), whereas those who have completed the full course of 10 years take a written examination in Russian language and literature (essay) and an oral examination in chemistry. In addition, before sitting the examination, each prospective student is individually interviewed by the head of the establishment to assess his vocation for medical work, his overall maturity, and other characteristics desirable in a medical worker.

The length of the course depends on the educational background of the student and on the specialty chosen. Courses for feldshers, midwives, and feldsher sanitarians last $3\frac{1}{2}$ years for students who have completed 8 years of secondary schooling and $2\frac{1}{2}$ for those who have completed the full 10 years. Comparable courses for laboratory technicians, nurses, and dental mechanics last 2 years 10 months and 1 year 10 months, respectively.

The training in these schools (as in other educational establishments in the USSR) is provided free of charge, as are equipment, reagents, and preparations. All the schools have libraries, from which students may borrow any book or other publication without charge. Most students also receive a government stipend. The overall responsibility for organization and methods in middle-grade medical education is exercised by the Central Board of Educational Establishments of the Ministry of Health of the USSR. The Board, in consultation with very experienced and highly qualified specialists, prepares measures relating to the organization and improvement of the system of middle-grade medical education and to the general application and dissemination of those teaching methods proved in practice to be the best, and works out uniform teaching plans and curricula for all the schools and curricula for specialist and further training of middle-grade medical personnel. It also draws up publishing programmes for textbooks and visual teaching aids, selects textbook authors, and organizes discussions on textbooks.

The curricula for middle-grade medical personnel are prepared by the Ministry of Health of the USSR and approved by the Ministry of Higher and Special Secondary Education of the USSR, thus ensuring uniformity of training standards. The curricula are generally reviewed and reapproved every five to six years. At this time, account is taken of any changes that have taken place in the general schooling system, and consideration is given to scientific and technical progress, economic development, and improvements in the structure of the health service. Typical curricula for feldshers and feldsher sanitarians are shown in Annex 1 and Annex 2, respectively.

The academic year is divided into two terms: autumn and spring. Courses begin on 1 September and finish on 5 July. Students have a winter vacation of 2 weeks and a summer vacation of 8 weeks. The student has a 36-hour week with 6 hours of classes a day. The curriculum of the feldsher course, lasting $3\frac{1}{2}$ years for students who have not completed their secondary schooling, is discussed below.

All subjects covered in the curriculum fall into one of three groups: general studies, general medical studies, and clinical studies. The curriculum occupies a total of 5176 hours, of which 2991 (57%) are devoted to theory and 2185 (43%) to practical studies.

General studies occupy 1262 hours (24%) of the total curriculum. The subjects comprise: history, social science, principles of scientific atheism, literature, mathematics, physics, chemistry, and a foreign language. Study is evenly spread over the three years of training, and by the time he has completed the course, the graduating feldsher will also have completed the full course of general secondary schooling.

General medical studies (Latin, biology, anatomy, physiology, microbiology, morbid anatomy and physiology, pharmacology and prescription, and public health administration) take up 850 hours (641 hours of theory and 209 hours of laboratory work) and represent 16% of the total curriculum. These subjects, which form the theoretical basis for the special clinical studies, are taught during the first and second years of training. Theoretical instruction is given to groups of 30 students, and practical instruction in laboratories and special units to groups of about half that number, viz., 12–15.

Study of the subjects in the special (clinical) cycle begins in the second year and continues to the end of the course. These subjects (internal diseases and care of the sick; surgical diseases; midwifery and gynaecology; children's diseases; epidemiology; communicable diseases; skin and venereal diseases; nervous and mental disorders; eye diseases; diseases of the teeth and oral cavity; diseases of the ear, nose, and throat; physiotherapy, massage and remedial exercises) occupy 2828 hours, i.e., 54.5% of the curriculum. Of this total, 926 hours (32%) are devoted to theoretical instruction and 1902 (68%) to practical instruction.

Students spend 236 hours, i.e., 5.5% of the total, on physical education.

The greater part of clinical studies is devoted to internal diseases, surgical diseases, midwifery and gynaecology, and children's diseases. The aim is to give future feldshers a thorough grounding to enable them to work without direct supervision at a feldsher or feldsher-midwife post, emergency care centre, etc. 'Internal diseases and the care of the sick' is one of the most important subjects.

This course is intended to train the feldsher to give the patient medical care in the absence of the physician, correctly and without supervision. He is also taught to prescribe an appropriate treatment, to carry out basic medical procedures, to organize and attend to the care of the sick, to prepare case reports for visits to a physician, to carry out preventive measures, and so on.

In the course on surgical diseases the feldsher must master the diagnosis, clinical features, and principles of treatment of the main diseases requiring surgery, particularly those requiring an immediate or emergency operation, so as to be able to call in a doctor at the proper time or to refer the patient to a hospital.

In the midwifery and gynaecology course the future feldsher learns

to provide the proper assistance at deliveries and to give health education to the general population.

Practical work is carried out in three stages:

(1) *Laboratory and practical work.* This is carried out in groups of 8 to 10 students in specially equipped teaching units at the school (this is called 'preclinical practice') and also in the curative and preventive establishments which form a teaching base for the school. The latter are specially selected for the purpose and are assigned to specific schools. The doctors and middle-grade medical personnel of these hospitals include teaching as part of their normal duties.

Generally, a physician is in charge of each group as instructor and directs its theoretical studies in the relevant subject. Practical work on the care of the sick, operating theatre procedures, application of dressings, etc., is carried out under the most highly qualified of the senior nursing staff in the various hospital departments.

(2) *Practical training periods.* Six weeks of the curriculum (410 hours) are allotted to these. There is a practical training period at the end of the first, second, and third years of training. During these periods, students do not attend classes on theory.

At the end of the first year's training, students spend a 1-week practical training period working in hospital as orderlies. After the second year of training, a 4-week period is spent on medical procedures and care of the sick. After the third year, a 5-week period is spent working as a nurse in a hospital and a polyclinic.

(3) *A period of practical experience.* This forms the final stage of training, lasts 10 weeks, and is spent in a curative or preventive establishment (hospital, feldsher post, maternity home, etc.), often the one in which the feldsher will be working after qualifying.

The programme for the period of practical experience includes compulsory night duty on the medical and surgical wards of the hospital and in a maternity home, as well as a domiciliary epidemiological investigation and some health education work.

The training of the feldsher sanitarian reflects the special features of his future duties as a sanitary physician's assistant in sanitation and epidemiological establishments of various types.

The curriculum for the feldsher sanitarian, in addition to general studies and general medical subjects, allots much time to special subjects such as epidemiology and parasitology, disinfection, food hygiene, community hygiene, occupational health and industrial hygiene, children's and adolescents' health, public health administration, and health education.

The future feldsher sanitarian studies the social and hygienic conditions under which epidemic and non-epidemic diseases occur and the clinical aspects of these diseases. A large portion of the curriculum is given over to practical training at sanitation and epidemiological centres, and bacteriological and public health laboratories, where students work as assistants to laboratory technicians and epidemiologists.

At the end of their second year of training, students in feldsher sanitarian departments spend a 4-week period of practical training working as laboratory technician's assistants in bacteriological and public health laboratories. At the end of their third year they spend 6 weeks at a sanitation and epidemiological centre as epidemiologists' assistants and in disinfection units as disinfection instructors and disinfectors.

On completing the training course, students spend an 11-week period gaining practical experience in the following fields: epidemiology and the organization of sanitary and anti-epidemic measures, health statistics, disinfection, food hygiene, household and community sanitary inspection, industrial sanitary inspection, and health education.

Future feldsher sanitarians are taught how to carry out the whole range of epidemiological measures used in the prevention and eradication of communicable diseases.

On successfully completing the training course, middle-grade medical students sit their final examination in four subjects, which depend on the specialty they have taken. The future feldsher will take his final examinations in internal diseases, surgery, children's diseases, and midwifery and gynaecology, whereas the feldsher sanitarian will take epidemiology and disinfection, food hygiene, and occupational community health and school health.

The examining body is the State Examining Board, which is set up in each training establishment. Successful candidates receive a diploma and are assigned work, according to their specialty, in preventive and curative establishments or in sanitation and epidemiological establishments.

Traditional teaching methods, namely, lessons, lectures, and seminars are used, together with technical teaching aids. The instructors in general medical and clinical subjects are usually physicians. Some of the practical classes on medical care of the sick are taken by highly qualified middle-grade medical personnel.

Teachers at middle-grade medical schools receive additional training, either at the school itself, through participation in the work of the teaching council and the various methods commissions and through their work in seminars and scientific societies, or at institutes for advanced medical studies, by attending special courses. Teachers in practical

subjects follow a special training course comprising 220 hours of instruction.

Direct responsibility for running the school is borne by the director, who is a physician; he directs all the activities and is responsible for the quality of the training given. The director is assisted by the deputy director, who is responsible for the teaching side, and by the heads of department. The deputy director usually has a university degree in education, and the heads of department are experienced specialist physicians. In addition to their administrative and educational duties, the director, deputy director, and heads of department have teaching duties taking up to 480 hours a year.

The teaching council, set up under the director, is a permanent joint consultative body comprising the teaching staff, the senior physicians of the medical establishments where students receive their practical training, and representatives of the various associations and societies attached to the school. At its meetings, the council considers all aspects of the work of the school.

To improve its educational standards and methods, each school has a methods commission on which sit the most highly qualified members of its teaching staff. The commission is concerned with working out teaching methods for the different subjects, discussing the time-tables and lesson plans of the teaching staff, drawing up textbook programmes, and so on.

Moral education also plays a large part in the training of medical personnel. Such education takes many forms but has a single aim: to develop a socialist attitude to work, a feeling of responsibility for the task assigned, a sense of collective purpose and discipline, and an understanding of the humanity and dignity of a calling dedicated to the care of human health. Moral education is a continuous process and takes place both during the student's studies (lessons and practical work) and outside them. An essential part is played by the class directors, who are appointed from among the best teachers. They provide continual support for the students in their studies, inculcate a love of their profession, and help them with personal problems.

Extra-curricular activities include discussions and debates on books read, group visits to the cinema and theatre, clubs for amateur artistic activities, and various sports clubs.

After a three-year period of practical work, middle-grade medical personnel may enter a medical institute to follow a course of higher training. The nature of the work carried out by these personnel makes it imperative for them to continue, throughout their professional careers, to add to the knowledge acquired at the middle-grade medical school. Progress in specialized medical care demands not only the

professional knowledge and skills acquired during training but also knowledge which may be needed when medical applications are made of major advances in physics, chemistry, biology, radiology, cytology, and electronics, and when mechanized and automated procedures are introduced. This knowledge is achieved through post-diploma training.

POST-DIPLOMA TRAINING FOR FELDSHERS

Post-diploma training for middle-grade medical personnel has two aspects: further training and specialized training. The purpose of further training is to increase the theoretical knowledge and practical skills of feldshers, midwives, and nurses occupying posts in curative and preventive or sanitation and epidemiological establishments. Specialized training implies the acquisition, by a medical worker who has completed a course of middle-grade medical training, of a narrower, specialized skill. The nature and duration of specialized and further training cycles are regulated by the Ministry of Health of the USSR.

The following types of additional training have been established:

(1) courses not necessitating the discontinuance of normal work. These are mainly for the staff of city and *oblast* curative and preventive establishments;

(2) courses necessitating the discontinuance of normal work. These are mainly for middle-grade medical workers working on their own in feldsher-midwife posts and at rural curative and preventive establishments, and also provide further training and specialization in narrow specialties;

(3) intermittent courses, 10-day courses, seminars, and lectures;

(4) in-service training.

Post-diploma training courses are organized in all the Union Republics. They may be held at Republic level, accepting trainees from curative establishments throughout the Republic, or at the *oblast* level. The costs of the course are met by the budget of the Union Republic or *oblast* concerned, and training is provided free of charge. When on courses

involving the discontinuance of work, trainees retain their salaries and receive a stipend and travel expenses from their domicile to where the course is held; they are also provided with hostel accommodation.

The studies are directed by highly qualified physicians with teaching experience. All matters concerning the recruitment of trainees, control of methods and supervision of the work of the course, and the quality of training given are handled by the appropriate organs of the health service.

Cycles of further and specialized training last from 1 to 6 months, depending on the specialty. As an illustration, the basic curricula for some individual courses are now considered.

Further training of *feldshers working on their own at feldsher-midwife (feldsher) posts* is given at a 3-months' course. The principal aim is to increase the feldshers' theoretical knowledge and to familiarize them with the latest methods for the diagnosis and treatment of disease, and with new drugs and recent advances in medicine, and to teach them to provide surgical, therapeutic, obstetric, and other types of medical care. Practical classes help the feldsher to perfect his practical skills in the performance of complex medical procedures and manipulations and simple surgical procedures. The teaching base for the practical work may be an *oblast*, city, or large *rayon* hospital.

Further training for *feldshers assigned to health posts in industrial establishments* is given at a 2-months' course. The course is intended to raise the level of theoretical and practical skills and to familiarize trainees with the medical services provided for industrial workers and with the latest preventive and curative methods. Emphasis is laid on the prevention of industrial accidents, the early detection of incipient disease, and modern methods of prevention. The teaching base for the practical work is an *oblast*, city, or *rayon* hospital with a department in the basic specialty, and also the best factory medical and sanitation departments.

Further training for *feldshers assigned to seagoing ships* is given at courses lasting 3 months. These courses are intended to inform feldshers of the latest developments in shipboard health and medical care, the provision of ships' medical services, shipboard hygiene, the sanitary regulations for entry to the USSR, and the regulations and instructions governing anti-epidemic measures for shipping.

During clinical training, particular emphasis is placed on the clinical features and differential diagnosis of disease, emergency care and the special care of the sick, and the emergency transfer of sick persons from ships for further treatment. Communicable diseases and epidemiology are studied in terms of the special features of shipboard practice.

Further training for *feldshers assigned to rivergoing vessels* is given at

courses lasting 2 months. These courses are intended to widen and deepen knowledge of the organization of water transport medical services and the provision of medical and health care on vessels navigating inland waters. They include a short recapitulation of the shipboard hygiene course, particular attention being paid to those situations most likely to be encountered during a voyage (certain communicable diseases, emergency surgery, midwifery, and first aid in cases of sudden illness).

Specialized training of *feldshers assigned to emergency care services* is given at courses lasting 2 months. These courses are designed to train feldshers to work at centres where they will be required to provide first aid or emergency care for urban or rural populations. Lectures deal with the organization of emergency care, clinical symptoms, and the types of first aid or emergency care needed for various diseases and injuries. The theoretical side of the course covers various acute surgical, gynaecological, children's, urological and eye diseases, and injuries.

Practical training is carried out in hospitals, laboratories, and emergency care centres. Tracheotomy, intubation, and similar techniques are taught on cadavers in the mortuary. Particular attention is paid to perfecting the practical skills of the feldsher in artificial respiration, indirect cardiac massage, splinting, the use of breathing apparatus, anaesthesia with nitrous oxide, blood grouping, and the arrest of external haemorrhage by means of finger pressure on an artery. Emphasis is laid on the need to use a systematic approach to cases of acute poisoning and the need to take emergency measures.

Further training for *feldsher-sanitarians* is given at courses lasting 2 months. The aim is to broaden and deepen their knowledge of sanitary and epidemiological matters in the light of the latest scientific developments. The recruitment of feldsher-sanitarians for further training is conditioned by their place and type of work. Feldshers with general duties in the sanitary field and working at rayon sanitation and epidemiological centres serving rural communities will follow a different course of study from feldshers with specialized duties working in city or *oblast* centres.

The further training of feldsher-sanitarians with general duties in the sanitary field lays stress on the theory and practice of sanitary and epidemiological work among rural communities, whereas for feldsher-sanitarians with special duties more attention is paid to the teaching of the basic disciplines.

Great attention in practical training is paid to laboratory methods of investigation, sanitary inspection procedures, anti-epidemic and disinfection measures, and the independent analysis of documentary data and surveys.

Further training for *feldshers assigned to the health care of children and adolescents* is given at courses lasting 2 months. The purpose of these courses is to prepare qualified specialists for practical work in various childrens' establishments and in *rayon*, city, and *oblast* sanitation and epidemiological centres. They stress the great importance that the preventive outlook of Soviet medicine has for childrens' health.

The course on the health care of children and adolescents is closely linked to the study of the related subjects of physiology, biology, epidemiology, and public health administration.

A widespread form of additional training for middle-grade medical personnel is provided by training activities undertaken at curative and preventive establishments which last up to 1 month. These include 10-day courses, seminars and lectures; intermittent courses; feldsher, midwife, and nurse study days; and in-service training.

These activities are usually carried out at curative and preventive establishments (Republic, *oblast*, or city hospitals) for the benefit of both the staff of the establishment concerned and the middle-grade medical workers at curative establishments in the same *oblast* or *rayon* and under the jurisdiction of the *oblast* or *rayon* hospital in regard to methodology.

The additional training follows a plan prepared yearly. The plan for the middle-grade staff of the establishment concerned is drawn up by the director of that establishment, whereas the plan for middle-grade medical workers attached to *oblast* establishments is prepared by the *oblast* health department in consultation with the organization and methods section of the *oblast* hospital.

Ten-day courses and permanent seminars are regularly organized and are widely attended by the middle-grade medical staff of *oblast* establishments. Such courses are concerned with organization and methods and with clinical and diagnostic topics. During the seminars feldshers study the various aspects of the preventive, curative, and health-education work that is carried out among the community. The seminars also provide information and documentation on such topics as, in particular:

- the principal duties of the feldsher at a feldsher-midwife post;
- organization of a children's medical service at a feldsher-midwife post;
- the content of conversations during domiciliary visits to examine children;
- organization of a women's medical service at a feldsher-midwife post;
- organization of groups of patients for follow-up and treatment at feldsher-midwife posts.

Special study days are held separately for the benefit of feldshers, midwives, and nurses. This type of additional training is very effective. On the day concerned, the *oblast* middle-grade medical personnel in the

relevant specialty attend the *oblast* hospital. Such courses take place once a month and last 6–8 hours.

The course programmes, on topics of current interest, are prepared well in advance and the course is generally given by highly qualified specialists in various fields, working in the district or *oblast*. Typical topics covered in a 'feldsher study day' would include:

- haemorrhages in obstetrical and gynaecological cases, and their emergency treatment;
- toxaemia of pregnancy;
- group and mass medical examinations;
- organization of tuberculosis control in rural districts, and the role of the feldsher in this work;
- accident prevention
- methods of oncological examination;
- treatment of precancerous conditions at a feldsher-midwife post;
- purulent skin diseases and their prevention;
- routine and final disinfection procedures.

In addition, review articles on these topics are published in the journal *Fel'dšer i akušerka* [Feldsher and Midwife].

Great attention is also paid to additional training for feldsher-sanitarians and epidemiologists' assistants. A course of training lasting 6–8 hours is given once a month on such topics as:

- prevention of acute gastrointestinal disorders;
- laboratory investigation of contacts;
- prevention of helminthic infections;
- tetanus and its prevention;
- prevention of particularly dangerous infections;
- methods for carrying out household, community, and industrial surveys;
- surveillance of pesticide application.

The characteristic feature of intermittent courses is the combination of short periods spent at the base curative establishments, attending lectures, and receiving practical instruction, with a programme of independent work. Such courses obviate the need for middle-grade medical workers to leave their posts for long periods, and enable large numbers of workers to receive additional training.

The duration of training varies with the subject. For example, corrective diet is covered by a 3-months' course, resuscitation by a 6-months' course, and blood transfusion by a 2-months' course. During this period medical workers are required to attend the base establishment several times, 2–3 days at a time, for lectures and seminars and to sit the final examinations.

The periods of in-service training provide individual training at selected medical establishments under the direction of experienced

specialists and according to a specially prepared programme. Such training lasts from 10 days to 1 month and is mainly used for teaching specific procedures, such as those used in physiotherapy, laboratory, practice, and blood transfusion, and electrocardiography.

Middle-grade medical workers also receive assistance from the monthly publications *Medicinskaja Sestra* [Nurse] and *Fel'dšer i akušerka* [Feldsher and Midwife]. Special issues of these journals are published on particular medical problems; these issues also serve as textbooks on these topics. Articles are contributed not only by physicians and middle-grade medical workers, but also by medical research workers, including eminent professors, thus ensuring articles of a high standard, which are presented in an easily intelligible form.

Libraries play a considerable part in the special training given to medical workers. At conferences and meetings organized by the health service, librarians draw the attention of medical workers to the literature available on the subject being dealt with. They also organize book displays where the conference or meeting is being held.

CHAPTER 5

UTILIZATION OF MIDDLE-GRADE MEDICAL PERSONNEL (FELDSHERS) IN CURATIVE AND PREVENTIVE ESTABLISHMENTS

In the USSR, middle-grade medical personnel provide much of the medical care extended to the urban and rural population. Such personnel, of all categories and types, are considered primarily as assistants to physicians of various specialties, although the feldsher, who is the most highly qualified of them, may work independently under the general or direct supervision of a physician.

The type of curative and preventive establishments for which the feldsher works determines the specific nature of his duties.

UTILIZATION OF FELDSHERS IN URBAN CURATIVE AND PREVENTIVE ESTABLISHMENTS AND URBAN SANITATION AND EPIDEMIOLOGICAL CENTRES

Feldshers providing medical care for workers in industrial establishments

The provision of health care for industrial workers is of the utmost importance. The primary and essential medical services are provided through an extensive network of curative and preventive establishments, such as factory medical and sanitation departments, out-patient establishments of the health service, and health posts headed by physicians or feldshers.

The 'workshop district' system is the fundamental principle governing the services provided for industrial workers by curative and preventive establishments. It makes it possible to provide workers with high quality medical care, to take preventive measures to make working conditions healthier, and to prevent or reduce morbidity from occupa-

tional diseases and from illnesses which cause a temporary incapacity for work.

Many of these functions are carried out by feldshers working in factory medical and sanitation departments, or under the supervision of the physician in charge of a physician's health post, or working independently in a feldsher health post. The feldsher health post is the primary unit of industrial health care and is run by a feldsher. It is supervised by a workshop physician from the factory medical and sanitation department or by a physician from the *rayon* polyclinic. It is mainly intended to provide initial medical care before the arrival of the physician in cases of sudden illness or injury, and to carry out preventive hygienic measures on industrial premises.

The health post is located on the premises of the industrial undertaking. The layout, staffing, and equipment are determined by the medical tasks it is called upon to perform. Feldsher health posts are provided for undertakings employing from 400 to 1000 workers. Where there are 100 or more workers on night shift, a 24-hour service is provided if production conditions warrant this. In such posts, one of the feldshers will be in a senior position and will take responsibility for the work. He will be on the day shift, the other feldshers working according to a special duty roster. The senior feldsher is responsible for ensuring that sterile materials, instruments, and stocks of medicaments are available. He also keeps the books, directs the work of the post, and is responsible for supervising the maintenance of asepsis.

Health posts, acting under instructions from a physician, may perform periodic medical check-ups and curative procedures, such as giving injections, applying dressings, and carrying out some physiotherapy procedures. The posts maintain stocks of medicaments, dressings, instruments, splints, stretchers, and various types of physiotherapy apparatus.

The feldsher equips the various workshops in the undertaking with first-aid kits so that workers may treat themselves or their colleagues. Where necessary, the feldsher must call an ambulance providing first-aid and emergency care and a physician from the nearest polyclinic. He must also, if so instructed by the physician, arrange for the patient to be taken to hospital. The feldsher's first-aid activities are kept under regular surveillance by a physician from the polyclinic responsible for the post.

The preventive functions of the feldsher in industry are six-fold, as follows:

- (1) Under the supervision of the workshop physician, the feldsher arranges for follow-up surveillance of persons suffering from rheumatism, heart disorders, hypertension, ulcers, gastritis, and some other diseases.

During follow-up surveillance, the feldsher follows the physician's

instructions with regard to treatment, hospitalization, work placement, diet, and treatment for nose, mouth, and throat disorders (with the help of an ENT specialist and stomatologist).

(2) The feldsher organizes a variety of periodic medical examinations for workers. These include assisting a gynaecologist in the examination of women workers and assisting the workshop physician in the examination of adolescents. The feldsher, working on his own, measures ocular tonus for the early detection of glaucoma and arranges for its further treatment by an ophthalmologist, and measures arterial pressure for the early detection of hypertension. After such preventive examinations, the feldsher takes steps for the treatment of any diseases revealed by them and refers patients to a medical specialist. All such work is carried out under the supervision of a physician.

(3) The feldsher is responsible for preparing proposals to improve working conditions from the health standpoint. Such proposals are incorporated in the annual unified plans for measures to improve health conditions at the undertaking. The feldsher regularly sits on the commission supervising the implementation of these plans.

(4) The feldsher writes a monthly report detailing the prevalence among workers of diseases causing a temporary incapacity for work. A further report on the subject goes to the trade union organizations.

A register of workers is kept at the health post. This gives information on the state of health of each worker and often reveals instances of long-term illness. When data on morbidity among workers are under discussion, the trade union meeting will also consider any comments addressed by feldshers to the workshop administration.

Additional training for health post feldshers is provided by regular monthly conferences. In addition, it is a regular part of the workshop physician's duties to give additional training to health post feldshers on subjects such as occupational pathology, the prevention of disease, and health post administration.

All preventive measures are carried out at the workplace or at the health care unit and take account of the actual conditions of work. The timely prevention of occupational diseases is considered extremely important.

(5) Feldshers apply anti-epidemic measures, such as preventive inoculation and disinfection of the workshop and other premises.

(6) A large proportion of the feldsher's work consists of routine sanitary inspection and health education.

The use of feldshers for special medical tasks requires a continual additional training process. All hospitals organize studies, on an annual basis, to train health post feldshers in the health care skills needed in working with patients under follow-up surveillance.

The senior medical officer of the medical section or the polyclinic periodically requires a report from feldshers on the work of the health post.

Feldshers working in schools

The feldsher working in the school medical service fulfils an important function in urban areas. The principal task of school medical workers is to prevent diseases and eliminate their causes. The school physician medically examines the children and arranges health care for individuals; in addition, he supervises the maintenance of school premises in a sanitary state and is responsible for the health of the whole school. He also makes sure that the educational and other work of the school is carried out under healthy conditions.

A great deal of medical surveillance and preventive work is performed by specially trained middle-grade medical workers, who may be either feldshers or nurses. The feldsher assists the physician in carrying out preventive examinations, making anthropometric measurements, giving tuberculin tests, testing sight, and measuring arterial pressure. Any disorders detected during the medical examination of schoolchildren must be referred to a specialist at the polyclinic for examination and treatment.

A large proportion of the feldsher's work is spent in anti-epidemic procedures at the school, where he gives preventive inoculations and records morbidity among schoolchildren. The feldsher has the day-to-day responsibility for maintaining the school premises in a sanitary state and for performing systematic hygienic measures. He gives first aid in cases of illness or accident among the schoolchildren and carries out any treatment ordered by the physician.

The organization and provision of health education for schoolchildren and their parents is the joint responsibility of the physician and the feldsher.

School feldshers are responsible to the children's polyclinic, to whose staff they are attached and whose specialists they call on in case of need. In their work they keep in touch with the district medical officers, who are responsible for the treatment of children at home in cases of acute illness.

Feldshers working in the emergency care service

The need to provide emergency care in case of accident or dangerous illness has led to the establishment of a network of special establishments, not attached to hospitals, called emergency care centres. These are independent establishments with their own medical staff, premises, and a fleet of specially equipped ambulances. Cities with populations of

over 500 000 have emergency care departments at polyclinics in addition to these independent emergency care centres.

The composition of the medical teams sent out on call varies with the tasks they are called upon to do. Emergency care is provided by a team of three (physician, feldsher, and orderly). Transport of the sick to a curative establishment is carried out by a feldsher and an orderly. For women in labour and acute gynaecological cases, a midwife and an orderly accompany the feldsher.

Special teams are made up as follows:

emergency psychiatric care: psychiatrist, feldsher, and two orderlies;

transport of psychiatric cases: feldsher and two orderlies;

specialized emergency care for cardiovascular cases, shock and terminal conditions, acute poisoning, acute disorders of the cerebral circulation, etc.: one and sometimes two specialists in the appropriate field and at least two feldshers (possibly also laboratory and electrocardiography technicians).

As the life of the patient depends on the speed with which emergency care arrives and the amount of care provided, the centres strive to organize the work of their staff so as to:

(1) ensure that medical staff reach the scene of the accident or illness as soon as possible;

(2) make a rapid examination of the patient, establish a diagnosis, give the patient sufficient care to enable him to be taken to hospital or, if the prognosis is favourable, to enable him to be left where he is;

(3) transport the patient with the greatest possible attention to his comfort and warmth while giving him whatever care is needed.

The emergency-care feldsher plays an important role in fulfilling these requirements, and functions by actively assisting the physician when in an emergency care team and as an independent agent when in a team transporting the sick and injured.

When the feldsher is in a physician's team, he works under the direct supervision of the physician. Immediately on coming on duty, he checks that the necessary supplies are in place, correct, and complete, and also checks the sanitary state of the ambulance. He takes calls from the despatcher (either by telephone or on an internal radio link), notes them, instructs the rest of the team to leave the centre or subcentre for the ambulance, and sits beside the driver, helping him to find the way. When patients are being transported and on their return to the subcentre, the feldsher sits in the back of the ambulance. When one journey is over, he reports to the feldsher-despatcher and, if necessary, takes another call. When his period of duty is over, the feldsher hands the medical kit to the dispensary or the senior feldsher for replenishment, and the rest of the equipment in the ambulance to the feldsher relieving him.

The feldsher takes an active part in treatment and diagnosis, and is responsible for the transport of the patient by stretcher.

Feldshers take electrocardiograms and make blood and urine analyses (blood clotting time, blood group, prothrombin index and transaminase determination, ESR, blood counts, determination of urinary albumin, measurement of blood pressure, etc.).

The feldsher directly assists the physician in carrying out emergency procedures (applying splints, stopping bleeding, artificial respiration using breathing apparatus or the 'mouth to mouth' technique, administration of neuroplegic mixtures, anticoagulants, pressor amines and fibrinolysin, carrying out of novocaine block in the cylindrical bones, administration of drugs, transfusion of blood and plasma substitutes, etc.).

The amount of equipment carried for diagnosis and treatment is greater for special teams than for others, and feldshers on such teams have increased responsibilities. Moreover, the special teams attend the most serious cases and feldshers on them undertake a variety of duties, both on the spot and in the ambulance, for the care of the sick and injured and the maintenance of their vital functions.

Feldshers in teams responsible for the transport of patients, and those working independently of a physician, arrange for the proper transport of the patient and give him whatever medical care is necessary. If the patient is in a serious condition, the feldsher must report to the senior feldsher on duty at the centre, who will take appropriate action, (i.e., send a physician's team).

Treatment by feldshers working independently includes: use of breathing apparatus, nitrous oxide anaesthesia, application of splints, injection of cardiac and narcotic drugs where indicated, administration of other drugs, and dressing injuries. The work of such feldshers is directed by the head of the subcentre.

Feldshers coordinate their activities while on duty with the senior duty physician at the centre, who directs how they will be employed, coordinates their work, and decides the action to be taken where, for any reason, the feldsher has difficulty in carrying out his duties independently.

Large centres have a senior feldsher, who works under the deputy-senior medical officer of the centre responsible for the therapeutic side. This senior feldsher supervises the work of the senior feldshers of the subcentres (sanitary conditions, duty rosters for middle- and lower-grade staff, work of the middle- and lower-grade staff when out on call, maintenance and storage of supplies). The senior feldshers at the subcentres assist the senior medical officers of the subcentres in their administrative duties, which include responsibility for supplies of drugs and equipment, the repair and upkeep of the subcentre premises, and the duty roster for middle- and lower-grade medical staff.

The above description indicates the wide range and variety of activity undertaken at emergency care centres and the role of the feldsher in the provision of emergency medical care.

Feldsher sanitarians working in sanitation and epidemiological centres

The main functions of a sanitation and epidemiological centre are investigation, surveillance, analysis of health statistics, conduct of laboratory tests, and education in hygiene. The work of the centre is so organized as to assign an important role to feldshers, and for this reason middle-grade medical workers are playing an increasingly important part in the sanitation and epidemiological service, particularly in regard to routine sanitary inspections.

The feldsher sanitarian's duties can be very varied and depend entirely on the field in which he is working. He may assist a sanitary physician, an epidemiologist, or a parasitologist. He may also be a laboratory technician in a bacteriology, chemistry, or parasitology laboratory, be employed to supervise the standard of disinfection or prepare baits in deratting operations, used as a disinfection instructor, a health educator or medical statistician, or given a number of other tasks.

The feldsher sanitarian of a rural medical district organizes, and is the principal executant of, the implementation, among the rural population, of all planned preventive measures, epidemiological measures and investigations, and the measures to be taken in or near foci of infection, etc. He also draws up a programme of preventive inoculation, ensures that it is carried out at the proper time, and is responsible for the reception and dispensing of bacterial preparations. One very important function is the routine sanitary inspection of public catering establishments, shops, and drinking water supplies in population centres and field camps.

The feldsher sanitarian's activities are backed up by the other medical workers of the district and by the local voluntary health workers.

The sanitary physician's assistant follows a specially planned work schedule under the direct supervision and control of the sanitary physician in the branch concerned. His activities cover occupational health, community hygiene, children's and adolescents' health, and radiation health. His principal task is State sanitary inspection to ensure that industrial undertakings, catering establishments, and the general public are complying with the hygienic standards, hygienic and anti-epidemic rules, statutory orders, all orders and instructions on sanitary and anti-epidemic matters, and the sanitary and epidemiological requirements based on such legislation.

Within the limits of his responsibilities, the feldsher sanitarian supervises the application of measures to control and eliminate environmental

pollution (i.e., pollution of surface and ground waters used for consumption and for domestic and community purposes, and pollution of the air and soil by industrial and domestic wastes) and ensures that the regulations established to maintain healthy conditions in industrial undertakings, catering establishments, children's and adolescents' establishments, dairy farms, and field camps are complied with.

The sanitary physician's assistant also carried out objective tests on the premises under inspection, (i.e., instrumental measurements and simple, indicative laboratory tests). The results of the investigations and any suggestions are entered on the sanitary inspection cards and sanitary logbooks kept at the undertakings and establishments inspected, and are also made the subject of a report to their managements or administrations.

The duties of the epidemiologist's assistant include carrying out epidemiological surveys under the direction of a physician in foci of communicable and parasitic diseases, taking measures to eradicate such foci, and ensuring that any proposals made by the epidemiologist have been carried out. The assistant also ensures that preventive inoculations are performed correctly and at the proper time, and that bacterial preparations are properly stored and dispensed at curative and preventive, children's, or other establishments. He is responsible for keeping the necessary records on epidemiological matters and for preparing data for epidemiological analysis. In foci of infection, he instructs the public on the prevention of communicable and parasitic diseases, assists in the training of voluntary sanitary inspectors and sees members of the public on epidemiological matters.

On production of their service authorization, sanitary physicians' and epidemiologists' assistants are entitled at any time to visit premises liable to inspection and to propose measures for remedying any breach of the sanitary regulations. They may require officials or private citizens to provide any information or documentation needed for determining the sanitary and epidemiological conditions prevailing at the premises concerned, and may confiscate foodstuffs or other materials for laboratory analysis and hygiene tests, and also take samples of foodstuffs.

The laboratory technician acting as assistant to a chemist helps in investigations on the hygienic conditions prevailing within and outside workshops and in catering establishments, and assesses the effectiveness of sanitary measures taken at the suggestion of the sanitation and epidemiological service.

Graduate laboratory workers (chemists) direct their assistants (feldsher sanitarians) in preparing reagent solutions, conducting tests, taking air samples in the open and in industrial and other premises, and taking samples for radiation testing.

The bacteriology technician, in addition to registering material sent to the laboratory for testing, checks its suitability, makes a first culture, propagates this further on nutrient media, and stains preparations for examination under the microscope. He also prepares nutrient media, stains, reagents and disinfectant solutions, sterilizes laboratory ware and media, and disinfects wastes. Where the sanitation and epidemiological centre does not have a bacteriologist, the laboratory technician carries out the essential tests.

The parasitology technician, like the bacteriology technician, is responsible for registering incoming material and all test results, and for checking the suitability of material for testing and whether it has been properly packed and received in good time. He follows up all persons subject to compulsory examination for helminthic and intestinal protozoan infections (e.g., workers in children's establishments, catering establishments, and water supply installations).

The parasitology technician visits various premises, either with a physician or on his own, taking samples to test for malaria, leishmaniasis, and spirochaetoses, for vectors of these diseases, and for intestinal protozoan and helminthic infections. He prepares material for testing for helminth eggs and larvae, malaria, leishmaniasis, and intestinal protozoa.

Under a special regulation, a feldsher sanitarian appointed as a disinfection instructor must have received special training in disinfection practice. The duties of the disinfection instructor include directing the work of the disinfector (who carries out all types of disinfection) and ensuring that this work is properly performed, and that disinfection equipment, apparatus, and materials are correctly used.

The middle-grade medical worker acting as a health educator cooperates with physicians in the widespread dissemination of information on health matters among the general population. He assists in the organization of health education, which is aimed at drastically reducing morbidity and raising healthy and physically robust future generations. His duties include arranging lectures, film shows, instructional entertainments, study evenings, and question-and-answer sessions, recruiting students for people's universities and health schools using visual teaching aids (including film strips), checking the quality of health education being given in various establishments, and assisting in preparing courses in hygiene for different population groups.

UTILIZATION OF FELDSHERS IN THE RURAL MEDICAL SERVICE

Middle-grade medical personnel perform a major function in the rural medical service. The conditions under which this service operates

are generally determined by such factors as low population density, extensive area of coverage, the local geographical conditions, difficulty of communication with outlying communities, and a paucity of medical establishments and staff in comparison with urban areas. In the Soviet Union, extensive use is made of feldsher-midwife posts in small rural communities.

Rural medical services are now provided by *rayon* and district hospitals. The former consist of large establishments, with an inpatient section of 200–250 beds and a polyclinic, providing specialist medical care. Rural district hospitals have fewer beds (usually 35–50, although some have as many as 75) and are generally staffed by physicians specializing in the basic fields, such as therapeutics, surgery, obstetrics and gynaecology, and paediatrics. They serve an area with a maximum radius of 7–10 km.

Small rural communities located on the outskirts of a rural medical district are provided with feldsher-midwife posts, which serve a population of 700–3000. A smaller population group, if very far from a curative and preventive establishment, may also be provided with a feldsher-midwife post (FMP). Such posts are also found on State farms, mechanized lumbering centres, and tractor repair stations. The FMP is financed by the rural Soviet. On the medical side, it is responsible to the rural district hospital or directly to the *rayon* hospital.

The FMP occupies a detached, generally single-storey, building in the centre of the village with completely separate feldsher and midwife sections. The FMP comprises a waiting room, feldsher's office, midwife's consulting room, other offices, and living quarters for the feldsher and the midwife. Some feldsher-midwife posts include a delivery room and a post-delivery room with two or three beds.

The FMP is furnished with medical and household equipment, as follows: (1) medical equipment consisting of various items of apparatus, special kits (midwife's bag, feldsher's bag), medical instruments, articles for patient care, and medical furniture and utensils; (2) disinfecting equipment; (3) health education equipment; (4) linen and soft furnishings; (5) furniture; (6) household equipment; (7) tableware; and (8) fire-fighting equipment.

In villages that do not have a pharmacy, a pharmacy section is included in the FMP.

In accordance with the tasks assigned them, the staff of a feldsher-midwife post perform three types of work:

- (1) provision of curative and preventive care;
- (2) application of sanitary and anti-epidemic measures;
- (3) health education on public health matters and organization of public participation in the prevention of disease.

The feldsher's duties include running an outpatient surgery, making domiciliary visits, giving first aid in cases of accident or acute illness, and providing any special treatment prescribed by a physician. The feldsher must take action for the early detection of acute infectious diseases and major non-epidemic diseases, participate in follow-up surveillance of the local population, provide a children's medical service, carry out medical duties at children's establishments, take sanitary measures for the prevention of disease, and provide health education.

The midwife runs an outpatient surgery for gynaecological cases, takes care of pregnant women, maternity cases and infants up to the age of 1 year, and assists at normal deliveries. All these activities are carried out according to a plan prepared annually under the instructions of the senior physician of the district hospital and approved by him.

Both feldsher and midwife have a 6½-hour working day. Outpatient attendances at a feldsher-midwife post are not large and usually amount to 7-10 people per day, although some FMPs may have as many as 15-20. As a rule, the feldsher devotes the morning to the surgery and the afternoon to preventive activities and domiciliary visits. During the season when work in the fields is in progress, surgeries are held from 5.00 to 7.00 a.m. and from 7.00 to 9.00 p.m., and one day a week is set aside for preventive work.

At the surgery and during domiciliary visits, the feldsher follows the progress of patients and prescribes treatment. At some FMPS, he makes simple blood and urine analyses.

The feldsher orders all medicaments required and is also responsible for the safe-keeping of poisons and highly active substances.

Some simple physiotherapy is carried out at the FMP with the use of mercury vapour lamps, sun lamps, short-wave diathermy, and similar measures. Wax-bath treatment, ozokerite therapy, and remedial exercises are given.

Cases of serious illness are referred by the feldsher to the district hospital. Transport of the patient is arranged by the hospital or by the collective farm.

In his district, the feldsher carries out medical examinations to assess fitness for work. Where there has been a lengthy period of incapacity for work or where engagement for a post is concerned, the patient is referred to the district hospital.

The duties of the FMP include assisting in preventive medical examinations and in the follow-up surveillance service; this is the active and regular medical surveillance of a particular group of people and includes taking appropriate measures to improve health and their working and living conditions.

Preventive examinations are carried out at the FMP under the direction of a physician from the district hospital. Follow-up surveillance extends to agricultural specialists, machine operators, stockmen, State and collective farm managers, labour teams, schoolchildren, and young people. Once a year, on the premises of the FMP or the collective farm, specialists from the district and *rayon* hospitals examine people covered by the surveillance scheme for any signs of illness. This medical panel generally consists of a physician, a surgeon, an obstetrician-gynaecologist, and a tuberculosis specialist. The feldsher prepares the list of people under surveillance and sees that they attend. For each case of illness detected a follow-up card is made out showing the treatment required, employment recommendations and the date for the next medical examination. Duplicate cards are kept at the FMP.

Under the follow-up surveillance scheme the feldsher has the following duties in regard to patients: to keep them under surveillance during the course of their illness and ensure that the physician's instructions are carried out, to refer them to the hospital at the proper time for further examination, to check that employment recommendations are complied with, to keep an eye on the conditions of their work and on recreational and other activities, and to provide health education.

Long before work in the fields starts, the FMP, in consultation with collective and State farm managers, begins preparations. The sites for the field camps are selected and their readiness for occupancy is determined. Special attention has to be paid to camp sanitation, to organizing water supplies and canteen facilities, to selecting canteen and creche workers, to organizing health posts and seeing that they are properly equipped, and to working out the time-table for visits by the feldsher and the midwife to the field camps and tractor teams. While work in the fields is in progress, the schedule of the FMPs is so arranged as to let feldshers spend as much time as possible at the field camps carrying out sanitary, preventive, and curative duties.

Accident prevention and the provision of medical care for accident victims are two of the FMP's major functions. The former is achieved by ensuring the maintenance of machines, tools, and implements in good condition, providing workers with properly designed special clothing, ensuring that proper lighting and signals are used, and regularly checking that safety regulations are being observed.

Health posts are set up to provide first aid in each labour team, workshop or machine shop. Such posts are equipped with sterile dressings, simple medicaments, tourniquets, and splints. Those in charge follow a special training course at the feldsher-midwife post.

While waiting for other medical help to arrive, the health post provides first aid for abrasions, bruising, burns, dislocations, fractures, and sunstroke. In cases of injury, the feldsher cleans wounds, applies

dressings, immobilizes injured parts, stops bleeding, injects anti-tetanus serum and, if necessary, applies simple measures to combat shock. (The FMP has a small autoclave for sterilizing dressings. Where there are no such facilities, sterile material is supplied by the district hospital.) Persons with injuries requiring the attention of a physician are taken immediately to the district or *rayon* hospital by a medical worker.

The feldsher makes every effort to detect cases of infectious disease, both during outpatient surgeries held at polyclinics, schools, creches, and kindergartens, and when making domiciliary visits. When a case of an infectious disease requiring isolation and hospitalization is discovered, the feldsher imposes quarantine restrictions, arranges for observation of contacts and for disinfection, and notifies the physicians at the district hospital and sanitation and epidemiological centre immediately. The feldsher organizes a special programme of vaccination for the adult and child population against smallpox, diphtheria, tetanus, whooping cough, poliomyelitis, and typhoid fever. Mass inoculations are carried out at schools and collective farms, individual inoculations at the FMP.

The feldsher checks on the household hygiene when making domiciliary visits and regularly inspects schools, creches, hostels, shops, food processing undertakings, water supplies, and field camps. He reports any unsatisfactory conditions in writing to the sanitation and epidemiological centre. The feldsher looks for cases of worm infestation (the laboratory tests are carried out at the district hospital), treats them, and also takes steps to have the surroundings cleared of helminth eggs.

All preventive and curative care, whether given in a medical establishment, in the home, at a workplace or elsewhere, must be supplemented by health education. The FMP staff are expected to keep the adult and child population informed on health matters relating to occupational health, food hygiene, hygiene in recreational and everyday activities, personal hygiene, and household hygiene.

Organization and methods in health education for the general population rely on constant and properly differentiated action to suit particular sections of the population or the personal needs of individuals. Health education is of particular importance for schoolchildren, who must be taught from their earliest years the practice of personal hygiene and healthy living.

Health education also includes organizing and enlisting the services of the general public to carry out community hygiene work, plant greenery in yards and along the streets, and ensure that yards, premises, and workplaces are kept clean. It also covers all activities of the associations of voluntary health workers. Teachers, agronomists, senior librarians, and club leaders are enlisted as health educators. When

work in the fields is in progress, health education is given on the spot in the field camps, in the fields, and among the livestock teams.

The variety of tasks the feldsher is called upon to perform require him to keep an accurate record of all work done and the results achieved. On the basis of his records, he prepares an annual report on the work of the FMP, which is sent with a covering letter to the district hospital.

The FMP's medical activities come under the authority of the senior physician of the rural district hospital. Where there are several physicians on the staff of this hospital, the senior physician assigns a particular FMP to each of them. The physician assigned to a FMP must visit it periodically to discuss with the FMP staff matters of diagnosis, treatment and the routine work of the post and give instructions on work to be carried out.

ANNEX 1

ANNEX I

CURRICULUM FOR FIELDSHER TRAINING (duration 3½ years)

No.	Subject	Term in which oral examination is taken	No. of hours		Distribution by year and term												
			Total	Practical work	1st term 19 weeks	2nd term 20 weeks	3rd term 19 weeks	4th term 17 weeks	5th term 18 weeks	6th term 16 weeks	7th term 12 weeks	8th term 13 weeks					
1	2	3	4	5	6	7	8	9	10	11	12	13					
I Cycle of general studies																	
1	History	4	170	170		2	3	2	2								
2	Social science	6	68	68													
3	Principles of scientific atheism	4	16	16		4	2	2	2								
4	Literature	2,4	188	188		4	4	4	4								
5	Mathematics	2	300	300		4	4	4	4								
6	Physics	2	194	166	28	6	4	4	4								
7	Chemistry		156	110	46	4	4	4	4								
8	Foreign language		170	170		2	3	2	2								
Totals:			1262	1188	74	22	20	10	10	2	2	3					
II Cycle of general medical studies																	
1	Latin		76	76		4											
2	Biology		78	60	18	2	2										
3	Anatomy	2	154	112	42	6											
4	Physiology	2	100	74	26		5										
5	Microbiology		80	58	22		4										
6	Morbid anatomy and physiology		95	70	25			5									
7	Pharmacology and prescription	4	163	121	42			5	4								
8	Hygiene		68	50	18				4								
9	Public health administration		36	20	16												3
Totals:			850	641	209	12	13	10	8								

III <i>Cycle of special studies</i>												
10	Internal diseases and care of the sick	5	402	182	220	6	4	6	4	4	4	4
11	Surgical diseases	5	371	157	214	5	4	4	4	4	4	6
12	Midwifery and gynaecology	6	290	120	170	2	4	4	4	4	4	4
13	Children's diseases	6	218	106	112	2	4	4	4	4	4	4
14	Epidemiology		90	40	50		2				5	
15	Communicable diseases	6	154	84	70			5			4	
16	Skin and venereal diseases		72	32	32	40					4	
17	Nervous and mental diseases		72	32	40						4	6
18	Eye diseases		64	24	38						4	
19	Diseases of the teeth and oral cavity		60	30	30							5
20	Diseases of the ear, nose, and throat		64	26	38						4	
21	Physiotherapy, massage, and remedial exercises		96	36	60						3	4
22	Supplementary studies		55	55		1	1	1			1	
Totals:			2008	926	1082	1	14	14	14	32	32	33
IV <i>Physical education</i>												
Totals:			236	236		2	2	2	4	2	1	
Totals:			4356	2991	1365	36	36	36	36	36	36	36
V <i>Optional subjects</i>												
Russian and native language			116	116	2	2	2					
Physical education			137	137	1	1	1	1	1	1	1	1
Tutorials on special subjects			60	60								

PRACTICAL TRAINING AND FURTHER TRAINING IN PROFESSIONAL SKILLS

Type of practical training and independent work	Total		Distribution by year and term					
	weeks	hours	1st year 2nd term 4 weeks	2nd year 4th term 4 weeks	3rd year 6th term 5 weeks	4th year 7th term 10 weeks		
1 Student's practical training period:								
(a) in hospital as an orderly	1	41	41					
(b) in hospital on medical procedures and the care of the sick	4	164		41				
(c) in hospital or polyclinic as a nurse	5	205				41		
2 Practical experience (external) in the specialty chosen in a <i>rayon</i> or district hospital	10	410					41	
Totals:	20	820	41	164	205	410		

STATE EXAMINATIONS

(from 2 February to 1 March)

Subjects: (1) Internal diseases; (2) Surgical diseases; (3) Midwifery and gynaecology; (4) Children's diseases.

ANNEX 2

III <i>Cycle of clinical studies</i>										
19	Internal diseases	163	70	93			5	4		
20	Surgical diseases	110	50	60			4	2		
21	Skin and venereal diseases	57	30	27					3	
22	Eye diseases	38	22	16					2	
23	Children's diseases	102	50	52				6		
24	Communicable diseases	166	80	86			2	3	5	
Totals:		636	302	334			9	14	8	5
IV <i>Cycle of special studies</i>										
25	Epidemiology and parasitology	312	152	160					6	9
26	Disinfection	196	84	112					4	5
27	Food hygiene	160	76	84					4	2
28	Community hygiene	172	78	94					4	3
29	Occupational health and industrial hygiene	162	78	84					3	5
30	School hygiene	166	81	85					4	5
31	Public health, administration, including organization of anti-epidemic measures and health statistics	84	44	40						7
32	Health education	45	26	19						3
33	Supplementary studies	53	53				1	1	1	1
Totals:		1350	672	678			1	1	25	27
V <i>Physical education</i>										
Totals:		220	220	2	2	2	4	4	1	1
Totals:		4392	2945	1447	36	36	36	36	36	36

ANNEX 2 (continued)

No.	Subject	Term in which oral examination is taken	No. of hours		Distribution by year and term															
			Total	Practical work	1st year		2nd year		3rd year		4th year		5th year		6th year					
					Lectures		1st term	2nd term	3rd term	4th term	5th term	6th term	7th term	8th term	9th term	10th term	11th term	12th term	13th term	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
VI	<i>Optional subjects</i>																			
	Russian and native language		118	118		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Physical education	144	144		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Tutorials on special subjects	60	60																	

PRACTICAL TRAINING AND FURTHER TRAINING IN PROFESSIONAL SKILLS

No.	Type of practical training or independent work	Total	Distribution by year and term																	
			weeks	hours	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year								
					4 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks	6 weeks
1	Student's practical training period																			
	(a) in a bacteriology laboratory as assistant to a laboratory technician (2 weeks) and in a health laboratory as a laboratory technician (2 weeks)	4	164	41																
	(b) in a sanitation and epidemiology centre as an epidemiologist's assistant (3 weeks), and in a disinfection unit as a disinfectant and disinfection instructor (3 weeks)	6	246	41																
2	Practical experience (external) according to specialty and department	11 ¹	451	41																
	Totals:	21	861	164	246	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41

¹ Consisting of (a) epidemiology, including anti-epidemic measures and health statistics (3 weeks); (b) disinfection (1); (c) food hygiene (1.5); (d) household and community hygiene (1.5); (e) industrial hygiene (2); (f) school hygiene (1.5); (g) health education, including the organization of sanitary and anti-epidemic measures (0.5).

STATE EXAMINATIONS

(from 2 February to 1 March)

Subjects: (1) Epidemiology and disinfection; (2) Food hygiene and occupational health; (3) Community and school hygiene.