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"METHODS OF IMPROVING THE EDUCATION OF PUBLIC HEALTH PERSONNEL"

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METHODS OF IMPROVING THE EDUCATION OF PUBLIC HEALTH PERSONNEL

(In-Service Training)

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METHODS OF IMPROVING THE EDUCATION OF PUBLIC HEALTH PERSONNEL

GENERAL STATEMENT

A physician of wide experience stated an obvious truth when he said: "No system of medical science and thought in the world today can claim the capacity to solve all health problems." It is no less true that measures applicable in one country for the solution of public health problems may not be applicable in another, since, as is the general rule, any procedure effective in one environment must be adapted to others according to economic possibilities, to the characteristics of the social group, and even to certain prevailing customs and features of community organization.

Just as medical science in general, despite the undeniable progress it has achieved, is today and always will be in the process of investigating new facts, so preventive medicine is pursuing the never-ending task of study and investigation, changing its methods and procedures as it acquires a fuller and deeper knowledge of health and of the origin and evolution of diseases. It is therefore natural to believe that public health personnel should constantly be studying to learn the new standards set by science, applying them for the control of preventable diseases, and should undergo permanent training in order to improve their professional education.

The world is becoming more and more aware of the ever-increasing importance of preventive medicine, for people logically prefer to be protected from diseases that can be prevented through the means at the disposal of modern biology, rather than suffer them. "Prevention is better than cure" is the goal toward which all nations have been advancing for many decades to protect the health and life of their peoples.

To provide this desired security, nations have established public health services that are engaged in developing this one aspect, perhaps the most important in medical science: that of preventive medicine. The success achieved by the epidemiology services in conquering certain communicable diseases is the result of long and difficult study, far removed from the empirical measures employed by our forefathers. And if preventive medicine is founded on scientific principles applied according to special rules that cannot be broken without the risk of causing damage greater than that which it is sought to avoid, then those who apply these rules must be qualified workers, having the training, experience, and knowledge required for the task. It is in this light that those in charge of the public health services must be concerned with the training of the personnel who staff the health agencies.

It is not easy to establish, or to recommend in specific terms, methods for improving the training of public health personnel and, before going into the matter, we would like to set forth certain considerations.

Insofar as the selection of personnel is concerned, we believe that, whenever possible, preference should be given to those persons who show an aptitude and genuine liking for the work, for such qualities prepare them to accept the sacrifices that they are often called to make as regards long hours of duty, absence of comfort, and difficult conditions encountered in their task.

It must be recognized that in some countries the public health physician and the public health nurse receive such low salaries that it is a real sacrifice for them to devote themselves to this branch of medicine. If effective work is desired, it is therefore essential that they be assured of adequate remuneration.

We have referred to the physician and the nurse first because theirs is the leading function in the public health work, although no less essential are the functions performed by the sanitary engineers, veterinarians, (perhaps also anthropologists, architects, and agronomists) health educators, inspectors, and other workers in this field.

It is important to note that many of the Latin American countries have in common very similar public health problems that demand the highest priority, such as provision of services to rural inhabitants, the most important sector of the population. To cite an example: Mexico's rural population represents 57.6% of the total inhabitants, as can be seen from the following figures:

Of the 25,000,000 inhabitants recorded in the 1950 census:

a) Approximately 2 million live in localities of less than 100 inhabitants;
b) Approximately 6 million live in localities of from 101 to 500 inhabitants; and
c) Approximately 7 million live in localities of from 501 to 2,500 inhabitants.

Thus, it is the predominant rural population that most requires our attention. Moreover, the rural environment generally speaking, is synonimous with:

a) High infant mortality
b) High general mortality
c) High incidence of preventable diseases
d) Inadequacy of potable water supply and of waste-disposal systems
e) Malnutrition in children
f) Low levels of culture
g) Poverty and low living standards, etc.

It is of interest to cite here some of the views expressed recently by Dr. Manuel Martínez Báez, in the address he delivered upon entering the National College:

"No one now doubts," he said, "the relationship between the economic level of a community and the incidence of the diseases that afflict it." And in this regard he stated: "In a recent study on health throughout the world, the latter was divided into three parts: the first consisting of well-developed peoples, whose average, annual per capita income is 461 dollars; the second representing an intermediate group, in which this income figure amounts to 154 dollars; and the third consisting of underdeveloped peoples, whose income reaches only 41 dollars. Life expectancy, at birth, for the inhabitants in the three divisions is 63 years for those in the first, 52 years for those in the second, and only 30 years for those in the third. Moreover, only one fifth of humanity lives in the first division; less than one sixth lives in the second, while in the third -- the underdeveloped sector -- there live and suffer over two thirds of the entire population of the world." Hence, it is not surprising to find that "poverty helps to create more disease and, disease, in turn, tends to perpetuate poverty."

These statements confirm another fact on which all students of public health agree, namely, that certain factors of a social and economic order have been at work in some countries to raise the general health and living standards, with the resultant disappearance of some diseases. These factors act almost independently of the physician and of medical treatment.

For these reasons, public health activities in the majority of our countries should be directed, preferably, toward changing the environment in rural localities and, to achieve this, attention should be focused on the training of public health personnel, especially the health educator, as this is the most basic of activities.

In this paper we shall limit ourselves to considering the methods of improving the in-service training of public health personnel.

Generally speaking, we have not advocated giving training in public health to empirical personnel, preferring the use of technical staff. However, the comments made on this subject at international meetings have made it clear that, in the case of the nurse in particular, most countries are not in a financial or social position to recruit a sufficient number of graduate nurses, and, to meet the need for this type of public health worker, nursing auxiliaries must be trained to take over duties of lesser responsibility, working under the supervision of graduate nurses, who should receive the best training possible. Accordingly, the nursing auxiliary has been defined as a person properly trained to perform less responsible tasks as assigned by the professional nurse, following an established plan, according to the needs of the service, and under the supervision of a graduate nurse.

In the training programs, due importance should be given to health education, since the programs are designed:

(1) To assist in preserving and improving individual and collective health;

(2) To produce changes in habits and attitudes through a process of education; and

(3) To arouse an awareness of public health in the community.

In accordance with modern public health standards, the public health worker should be thoroughly familiar with the social environment in which he is to work. He will therefore have to make the surveys and preliminary studies required for developing a program, and to seek out community leaders to promote the public health work in the locality. Such "promoters" will serve as auxiliaries to the public health physician in his work, actively collaborating with him to attain the desired goal, so as to convert the static public health of the past into a dynamic program capable of promoting the overall development of the individual and the environment, culturally, economically, and socially.

PUBLIC HEALTH TRAINING

Before going further into the matter, we wish to state that our knowledge of public health training in Latin America is limited and that these comments are confined to our personal experience, obtained chiefly in the State of Veracruz, Mexico. Being unable to cover the subject completely, which would require exhaustive research and more time than we have at our disposal, we have endeavored to broaden the scope of our paper by referring to other noteworthy studies on this topic made in various countries. Our report is therefore subject to discussion and criticism by persons who are better prepared than we to take up this problem and to state more exact conclusions than those that may be derived from this modest paper which, if found lacking in any way, was nonetheless prepared with the greatest of interest in the subject.

Various methods can be adopted, according to circumstances, to provide in-service training for personnel of the public health services, but we shall refer especially to those with which we have had practical experience in the Republic of Mexico, methods which, because of the similarity of problems in the Latin American area, could be discussed in relation to that area. These methods are the following:

1. Theoretical and practical instruction in public health centers where the personnel are serving.
2. Establishment and operation of public health training stations.
3. Practical field courses supervised by the public health centers.

(Finally, we shall make brief mention of the following, which bear a general relation to the topic:)

4. Teaching in schools of public health.
5. Correspondence courses.

I. THEORETICAL AND PRACTICAL INSTRUCTION IN PUBLIC HEALTH CENTERS WHERE THE PERSONNEL ARE SERVING

In order to provide indoctrination, however elementary, to the public health staff of newly created centers, in the work they are to do and the method of performing it, talks will be given, on certain days, on epidemiology, vital statistics, immunology, sanitary engineering, food sanitation, maternal and child care, administrative work, and health education, an endeavor being made to discuss with the personnel the topics related to their particular post or function. These talks or lectures should be given by physicians or nurses when they cover epidemiological services, vital statistical, immunology, etc. The sanitary engineer will lecture and give field demonstrations on environmental sanitation and related subjects. The veterinarian, who frequently is responsible for food sanitation, will cover the topics related to quality of foods, alteration, adulteration, contamination and, in general, provisions regulating the preparation and sale of food; examination of livestock on the hoof and inspection of dressed meat; canine antirabies vaccinations and other related subjects. Other officers will deal with topics related to their specialized fields of work. All explanations should be completed by practical instruction, advantage being taken of the regular activities of the health center for this purpose.

If the public health centers having a minimum staff are headed, as is expected and advisable, by a professional trained in public health work, this officer can do much to advise and direct the members of his staff in carrying out the specific functions assigned to them, whether they be assistant medical officers, nurses, or sanitary inspectors.

The theoretical instruction should be accompanied by practice whenever deemed necessary. For example, clinics will be established in various sectors of the locality for immunizations against diseases prevalent in the region (diphtheria, whooping cough, typhoid and paratyphoid fevers, smallpox, etc.); family history cards or records will be kept and the health educator will be asked to conduct a health census of the population, so as to ascertain the

existing conditions. According to the census results, the work program of the public health center will be planned with a view to correcting deficiencies encountered.

This personnel training procedure is of the minimal type and is recommended only when there are not sufficient means for sending such personnel to take a special training course, in which they would devote their entire time to training without having direct responsibility for the health of the inhabitants.

II. ESTABLISHMENT AND OPERATION OF PUBLIC HEALTH TRAINING STATIONS

The public health training stations, if they are to fulfill satisfactorily their function of providing technical training to the personnel sent to them, must be given the regular budget appropriations necessary to cover the cost of travel, per diem, and any other expenses incurred by the personnel when traveling and attending the courses, this being especially necessary since the personnel of these stations will work on a full-time basis. Without such regular appropriations, the training stations would fail for lack of students or because the trained personnel would not have all of their time at their disposal for this work.

We shall speak of the training stations operated in the Republic of Mexico directly under the National Department of Coordinated Services, Ministry of Public Health and Welfare, since it is with them that we have had the most contact, although we are aware that others of this type are operated in the Continent. These stations have given and continue to give field practice, as a preliminary phase of their activities, to persons who have received no training of any kind since entering the public health service. For some years, about five courses of eight weeks duration have been conducted annually at each of these stations. The training stations are situated in Coatepec, Veracruz (transferred a few years ago to Boca del Río); Celaya, Guanajuato; Cuernavaca, Morelos; Guadalajara, Jalisco; and Monterrey, Nuevo León. In the course of their activities, they have provided the Ministry of Public Health and Welfare with basic field survey reports; they have taught the students to take public health censuses, making detailed use of the family history card, and to apply and interpret immunizations. They also have made contributions to environmental sanitation in specific public health campaigns. All this work has been adapted to programs prepared before initiation of the courses.

Each of the training stations covers a zone comprising three or four surrounding public health jurisdictions (that is, three or four states of the Republic), which send students for training, preference always being given to groups from the same place: a medical officer, a nurse, or a health educator from the same public health center so that this personnel may

benefit jointly from the practical instruction given at the stations.

The Department of Experimental Public Health Studies collaborates with the National Department of Coordinated Services in the regional training work, providing financial cooperation that consists usually of fellowships and the services of technical personnel to perform teaching functions during the annual training program.

With the aid of the Department of Experimental Studies, courses also have been organized in malariology at Cuernavaca, Morelos, and in intestinal-parasite control at Boca del Río, Veracruz. In addition, physicians and nurses have been sent abroad for training in specialized fields, the Republic of Venezuela being chosen for the malariology course, and the United States for special courses in poliomyelitis, parasitology, rabies, and venereal diseases. On returning to the country, these workers have joined the ranks so as to fill gradually the need for trained technical personnel.

As an example of the work done in training personnel, and with respect to the State of Veracruz, we shall mention the activities of the Training Station in the city and port of Veracruz, established in 1954 by Mexico's Ministry of Public Health and Welfare, through the Department of Experimental Studies. For its activities, the Veracruz station can count on the public health offices at Boca del Río, Tierra Blanca, and Villa Cardel, situated near the aforesaid port and city. Last year, three 45-day intensive courses were organized for physicians, nurses, and health educators. The objectives of these courses were to enable the personnel to:

a) better understand the public health problems arising in their respective health jurisdictions and to solve them satisfactorily; and
b) learn the basic principles of the public health sciences and the methods and procedures required for their application.

The training program for medical personnel was designed to enable them, on returning to their public health offices or centers, to apply to the community the fundamental measures of public health administration. They were instructed in public health techniques and their application in field work; in standard procedures for receiving healthy or sick persons at the center and for directing them to the various services; and in the organization and operation of epidemiology, communicable-disease control and sanitary engineering services, maternal and child and dental services, antituberculosis and antivenereal dispensaries, malaria and helminth campaigns, and health education services. Finally, they were given instruction in the basic principles of environmental sanitation, biostatistics, and clinical and public health laboratory work.

The training received by the physicians, added to their clinical

knowledge, enables them to adopt a philosophical approach to the social aspect of medicine, the goal of which is to extend to all sectors of the population the principles on which disease prevention, health promotion, and the increase of longevity are based.

The last course included instruction in the operation of rural welfare centers, which represent Mexico's experiment in the over-all transformation of the rural environment.

The following table outlines the training program for newly admitted physicians, given by the Coordinated Public Health and Welfare Services of the State of Veracruz.

MINISTRY OF PUBLIC HEALTH AND WELFARE
COORDINATED PUBLIC HEALTH AND WELFARE SERVICES OF THE STATE OF VERACRUZ
TRAINING PROGRAM FOR NEWLY ADMITTED PHYSICIANS

STAFF	SUBJECT	METHOD	TIME
INSTRUCTOR-PHYSICIAN	Operation of public health and welfare unit	Oral-Practical	5 hours
INSTRUCTOR-PHYSICIAN	Admission of patients	Oral	3 hours
CHIEF OF ARCHIVES	Operation of archives		7 hours
SECTION "C" CHIEF	General administrative activities		
INSTRUCTOR-PHYSICIAN	Biostatistics: collection, tabulation, interpretation, and presentation of data: Endemic index	Oral - 3 Practical - 13	16 hours
SANITARY ENGINEER	Health census and survey. Potable water supply. Excreta disposal. Health census and housing sanitation	Oral - 4 Practical - 12	16 hours
	Antihelminth clinic	Oral - 4 Practical - 10	14 hours
Carried forward			61 hours

TRAINING PROGRAM FOR NEWLY ADMITTED PHYSICIANS (Continuation)

STAFF	SUBJECT	METHOD	TIME
Carried forward			61 hours
EPIDEMIOLOGIST INSTRUCTOR-PHYSICIAN SANITARY ENGINEER LABORATORY TECHNICIAN	Epidemiology	Oral - 5 Practical - 15	20 hours
PRENATAL SERVICE PHYSICIAN NURSE OF THE SERVICE	Maternal and child health service	Oral - 4 Practical - 12	16 hours
VENEREOLOGIST	Venereal disease service	Oral - 2 Practical - 8	10 hours
INSTRUCTOR-PHYSICIAN CHIEF NURSE	Immunizations: techniques organization, observation, demonstrations, practice. Laboratory tests	Oral-Practical	20 hours
INSTRUCTOR-PHYSICIAN EPIDEMIOLOGIST LABORATORY CHIEF	Communicable diseases	Oral - 4 Practical - 12	16 hours
PHTHISIOLOGIST (CHIEF OF THE SERVICE) NURSE OF THE SERVICE	Operation of the anti-tuberculosis service, case papers, dispensary	Oral-Practical	11 hours
DENTIST	Dental health service	Oral-Practical	6 hours
PEDIATRICIAN	Maternal and child health service	Oral - 4 Practical - 16	20 hours
MALARIOLOGIST INSTRUCTOR-PHYSICIAN SANITARY ENGINEER	Antimalaria campaign: observations, field work, laboratory work	Oral - 6 Practical - 28	34 hours
	Carry forward		214 hours

TRAINING PROGRAM FOR NEWLY ADMITTED PHYSICIANS (Continuation)

STAFF	SUBJECT	METHOD	TIME
Carried forward			214 hours
STUDENT	Observation, discussion, and direction of work in a health center	Practical	36 hours
STUDENT	Observation in a rural welfare center	Practical	12 hours
	SEMINARS (5 of 2 hours 1 of 6 hours)		16 hours
			278 hours

Public Health Auxiliary Workers

A. Medical "Interns".- In the Republic of Mexico, medical "interns" are assigned to complete a period of social service as public health auxiliaries.

Upon completing their studies, the medical "interns" are commissioned by the National Autonomous University of Mexico, in agreement with the Ministry of Public Health, to spend a period of five months in rural localities to complete their social service. The program includes the following activities, designed to guide and instruct the "intern" in his work.

a. Preventive medical services
b. Curative medical services
c. Publicity and medical and health education
d. Studies on regional public health problems:
   1. Intestinal infections
   2. Malaria
   3. Tuberculosis
   4. Typhus fever
   5. Onchocerciasis
   6. Smallpox
   7. Poliomyelitis
   8. Cancer
   9. Venereal diseases
   10. Leprosy
   11. Goiter

e. Rural Sanitation
f. Suggestions
g. Reports

It is to be noted that these "interns" work as auxiliaries in the nation's public health centers, which give them guidance, instruction, and supervision. Estimating that from 500 to 600 medical "interns" from all schools are distributed annually throughout the country, it is easy to understand the importance of their contribution to the work of the health centers where they receive training, especially since a large number of these "interns", having already mastered certain principles of preventive medicine, will later be called upon to head these same public health centers. The young physicians receive their first orientation in public health through the training and preparation they acquire in their period of social service, during which, from the time of their arrival, they are obliged to undertake the practical study of health conditions in the localities to which they are assigned and for whose improvement they are working. Frequently, the professional theses prepared by the new physicians deal with health conditions in these same localities and set forth suggested conclusions for improving such conditions. The thesis may also relate to a leading medical or public health problem of the region.

B. Nurses.- Because of the strategic role of the nurse in the public health team, it is essential that she be properly trained. The in-service training program for student-nurses is designed to impart a knowledge of public health nursing and its application at the center and in the field. Intensive instruction courses familiarize the nurse with the operating techniques of the public health centers, planned according to the community's needs; with the nursing work in prenatal, postnatal, infant, and preschool-age clinics and those for dental, antihelminth, and antituberculosis work; with immunization techniques and biological tests; with the nurse's role in communicable disease control; with elements of biostatistics and laboratory nursing techniques; and, finally, with the important field of health education of the public.

Just as medicine is being broken down into specialized fields, providing us with the cardiologist, the phthisiologist, the venereologist, the pediatrician, etc., the broad functions of public health nursing are being subdivided into public health nursing as such, school nursing, maternal and child nursing for the prenatal and postnatal health services, etc., all of which are supplemented by the activities of the social worker.

It is difficult to define precisely the mission of the public health nurse. However, even though definitions may vary in detail according to the specific function and task performed by the nurse, there will be one basic function common to all nurses. Whatever their specialized field, they have a continuing task to perform in health education, both within and outside the

home, explaining to the family, in simple and comprehensive terms, the causes and mode of transmission of certain diseases and the means of preventing their spread, and directing individuals to the proper immunization clinics. The work of the nurse is indeed very broad in scope. Specifically, she is adviser to the home; she visits the sick, teaching by example proper methods of disinfection and immediate measures to prevent the spread of disease; she counsels the mother on home sanitation and on care of her children. The nurse ensures the timely immunization of children, so as to prevent certain childhood diseases; she visits the schools and participates in the medical examination of students; she assists the physician in the services for prenatal, postnatal, school, and dental care; she suggests proper methods of utilizing and cooking foods. The nurse guides expectant mothers to the maternal and child health services for the preparation and care they require; she instructs lay midwives in the timely application of Crede's method to prevent purulent ophthalmia and blindness in the newborn; she assists the physician in teaching midwives: finally, she is the understanding and efficient aide in all immunization clinics.

It is evident that through proper training and preparation the nurse's services can be made broader and more effective. But it is essential that she have those qualities of aptitude and devotion that we mentioned earlier, that she possess a certain spirit of sacrifice and much kindness in dealing with people, whatever their social or economic position. If the nurse possesses these qualities she cannot fail, for if there is something she does not know she will endeavor to investigate it, and her good will, her desire to serve, and her sense of responsibility will compensate for any gaps in her training. If she lacks such qualities, her academic training will be of little use to her, for she will have little opportunity to apply it.

The nurse's training should include the studies related to the activities described above, and the scope of the programs will vary according to the cultural level of and the degree of public health knowledge possessed by the students, who may be graduate nurses preparing to serve in public health programs, or nursing auxiliaries.

The training program for nurses is shown in the following table:

NURSES TRAINING PROGRAM

STAFF	SUBJECT	METHOD	TIME
Instructor-Physician	Operation of the institution	Oral	2 hours
Chief of Archives Social Worker	Operation of archives, admission of patients	Oral	3 hours
Chief Nurse	Handling of papers for archives	Oral	1 hour
Chief Nurse Nurse Instructor	Archive service and admission of patients	Practical	4 hours
Chief Nurse	Discussion of problems in handling forms	Oral	1 hour
Statistician	Statistics used in the Service	Oral	1 hour
Chief Nurse	Prenatal statistics	Oral	2 hours
		Total time	12 hours
Sanitary Engineer or Public Health Officer	Public health conditions	Oral	3 hours
Nurse-Instructor	Health education	Oral	2 hours
Chief Nurse	Principles of public health nursing	Oral	5 hours
		Total time	10 hours
Epidemiologist	Epidemiology and its functions	Oral	2 hours
Chief Nurse	The nurse in the epidemiology service	Oral	2 hours
Epidemiologist	Activities of the Unit against communicable diseases	Oral	2 hours
Nurse-Instructor	Communicable diseases of the respiratory tract	Oral	1 hour
" "	Communicable diseases of the digestive tract	Oral	2 hours
Chief Nurse	Most common communicable diseases	Oral - Practical	2 hours
Nurse-Instructor	Technique in the use of kit (communicable diseases)	Oral - Practical	3 hours
Nurse of the Service	Observation of nursing techniques and coordination with epidemiology service	Practical	5 hours
Nurse-Consultant	Visit to communicable-disease patients and application of immunizations	Practical	5 hours
		Total time	24 hours
Phthisiologist	Operation of the antituberculosis service	Oral	2 hours
Chief Nurse	Activities of the antituberculosis service	Oral	1 hour
Nurse-Instructor	Observation in the antituberculosis service	Practical	2 hours
		Total time	5 hours

NURSES TRAINING PROGRAM (Continuation)

STAFF	SUBJECT	METHOD	TIME
Chief Nurse, Venereal Diseases	Operation of the venereal disease service	Oral	2 hours
Nurse-Instructor	Observation in the venereal disease service	Practical	2 hours
		Total time	4 hours
Chief Nurse	Immunizations	Oral	3 hours
Nurse-Instructor	Organization of immunization clinics	Oral	1 hour
	Immunization of susceptible persons	Oral - Practical	3 hours
	Demonstration of immunization techniques	Practical	2 hours
	Observation of the immunization service	Practical	4 hours
		Total time	13 hours
Laboratory Chief	Operation of laboratory service	Oral	3 hours
Nurse-Instructor	Sample-collection technique	Oral - Practical	3 hours
		Total time	6 hours
Pediatrician	Operation of maternal and child service	Oral	2 hours
Nurse-Instructor	Care of the newborn	Oral	2 hours
Nurse-Instructor	Kit technique (infant patient)	Oral - Practical	2 hours
Nurse-Consultant	Visit to the newborn or nursing baby	Practical	4 hours
Obstetrician	Operation of prenatal service	Oral	2 hours
Chief Nurse	Prenatal clinic and selection of cases	Oral - Practical	3 hours
Nurse-Instructor	Nursing techniques in prenatal care	Practical	3 hours
" "	Visits to the sector: nursing baby patient, prenatal case; kit technique	Practical	5 hours
" "	"Genesic Function" (Lecture)	Oral	2 hours
" "	"Growth and Development of the Fetus up to 8 Months"	Oral	2 hours
" "	"Family of the Expectant Mother"	Practical	2 hours
" "	Visits to the sector: nursing baby, prenatal and post-natal cases	Practical	6 hours
Nurse-Consultant	Observation of prenatal case	Practical	3 hours
" "	Visit to prenatal case and nursing babies; immunizations	Practical	5 hours
" "	Work with prenatal cases and preschool-age children	Practical	6 hours
" "	Observation and performance in prenatal clinic	Practical	3 hours
" "	Visit to post partum and prenatal cases	Practical	4 hours
" "	Post partum case	Oral - Practical	5 hours
		Total time	61 hours
Nurse-Instructor	Study Sessions	Oral	14 hours
		Total time	14 hours

NURSES TRAINING PROGRAM (Continuation)

STAFF	SUBJECT	METHOD	TIME
Chief Nurse			
Nurse-Instructor	Discussion of observations	Oral	3 hours
Nurse-Consultant	Discussion of observations	Oral	8 hours
		Total time	11 hours
Nurse-Instructor	Kit technique	Oral - Practical	3 hours
" "	Utilization of techniques learned	Practical	3 hours
" "	Use of difficult intra-rural techniques	Practical	2 hours
		Total time	8 hours
Instructor and Nurse of the Service	Work in clinics and visits to homes	Practical	6 hours
Instructor and Consultant Nurse	Visit to the sector	Practical	6 hours
Nurse-Consultant	Observation in the sector	Practical	5 hours
		Total time	17 hours
Nurse-Instructor	Discussion of problems	Oral	2 hours
Nurse-Instructor or Consultant	Discussion of problems observed during the study course	Oral	2 hours
		Total time	4 hours
Nurse-Instructor	Examination in theoretical studies	Oral	1 hour
Nurse-Instructor	Delivery of kit and equipment		3 hours

Sanitary Inspectors.- Because of the characteristics typical of rural areas in Latin America, as described in the beginning statement, and the general agreement among public health workers that former, classical methods of sanitary inspection, periodic visits, reports and meetings, and education of the public cannot give satisfactory results unless they form part of over-all programs for the cultural, economic, and social improvement of the environment, the training of personnel who are to carry out this plan of environmental improvement in the field must fulfill certain standard requirements, applicable to sanitary inspectors as well as to all other personnel and adjusted to the planned programs that provide these workers with the necessary training.

As there is a very well-prepared study on the training of sanitary inspectors, written by a sanitary engineer from the Republic of El Salvador, we belive it of interest merely to quote certain pertinent paragraphs from that work.

"The training of personnel in rural areas should fulfill the following basic conditions or requirements:

1. Physical aptitute for work in rural areas.
2. Knowledge of problems in the work area.
3. Knowledge of the science of sanitation, acquired through well-organized courses.
4. Satisfactory social conduct.
5. Experience in rural work.
6. Social awareness.
7. Enthusiasm for the work.
8. Ability to organize work and to deal convincingly with people.
9. Spirit of cooperation.
10. Ability to give instruction.

"When it is necessary to draw from personnel who have no training, it is advisable to hold competitive examinations for the selection of candidates. The latter should be of the proper age, have primary and secondary education, good conduct, and satisfactory health. They should be duly informed of the duration of the course, the required entrance examinations, the fellowships opportunities, if any, and finally, the salary they may expect to receive on initiating their regular work after completing the training. The training program will cover the following subjects:

1. Introduction
2. Public health organization
   Public health organization of the country
   Activities of a public health department
   Activities of a sanitary engineering department

3. Basic principles of public health
   Biostatistics
   Parasitology, bacteriology, and entomology
   Principles of entomology
   Communicable diseases and epidemiology
   Nutrition
4. Principles of engineering
   Principles of construction
   Industrial draftsmanship
   Principles of topography
   Applied mathematics
   Sanitary engineering workshop
5. Education and social sciences
6. Public health legislation
7. Laboratories for analysis of water, milk, and other foods
8. Environmental sanitation
   Principles governing excreta treatment
   Sanitary privies
   Septic tanks and rural systems of residual-water disposal
   Principles of drainage and sewerage
   Sanitary installations
   Water sanitation and rural water supply systems
   Principles of water purification
   Water supply in urban centers
   Waste
   Insect and rodent control
   Food sanitation
   Sanitation of public establishments:
   a. Hotels and rooming houses
   b. Schools
   c. Colleges
   d. Markets
   e. Restaurants and food sellers
   Milk hygiene
   Fly control
   Housing sanitation
   Industrial hygiene
   Public baths and pools
   Sanitation of coffee-cultivation areas
   Sanitation of sugar-cane-cultivation areas
   Principles of ventilation, lighting, refrigeration, and air-conditioning
   Health investigations
   Collaboration of the public in environmental sanitation programs

"Summary

	Hours
Introduction	3
Public health organization	8
Basic principles of public health	82
Principles of engineering	108
Education and social sciences	11
Public health legislation	15
Laboratories for analysis of water, milk, and other foods	13
Environmental sanitation	327
Total	567

"This program, designed to serve as a basis, may be modified according to the needs in each locality."

In order not to go too far into details, we shall not take up the methods and programs of training for more highly specialized auxiliary workers, such as inspectors or agents of the antimalaria, anti-aegypti, and other services.

III. PRACTICAL FIELD COURSES SUPERVISED BY THE PUBLIC HEALTH CENTERS

It is of unquestionable advantage to establish, within each principal public health area, at least one field-training section, which would conduct training activities simultaneously with supervision of the work of the centers. It would give principal attention to the latter activity, since the field training would be devoted to reviewing the knowledge previously acquired by the majority of the health workers. The training section would therefore direct its attention primarily to training in the organization and operation of the centers as well as to supervision of the actual work at the centers, observing the execution of the program and the application of the knowledge acquired by the personnel.

The "routine" work of supervising the centers would be standardized, theoretically, by programs prepared by the principal center in the public health area concerned. This work would be assigned to one or more physicians, who, acting as supervisors, would be assisted by the Chief or Director of the Center and the epidemiologist, both of whom would serve part of the time as instructors.

However, owing to the need to attend to epidemiologic surveillance in certain regions, administrative activities, and outbreaks of disease, the Chief and the epidemiologist frequently are unable to devote their time to the training work. It is therefore necessary to maintain a minimum technical staff, properly trained to carry out

the training activities and free to devote all their time and effort to improving the training of the workers and to correcting technical and administrative deficiencies noted in the centers.

The ideal arrangement would be to have at the head of each public health center, especially those of greater importance, a professional who is a graduate in public health or has taken training courses in public health or courses in one of the specialized branches of preventive medicine.

However, when this is not possible, it is recommended that all principal public health areas establish at least one field-training service, conducted simultaneously with the work of surveillance or supervision of the public health centers. This type of training is useful when it is not possible to select the candidates, to impose entrance requirements, or to establish prerequisite conditions, and when it is merely a case of improving the knowledge of personnel already in service who will continue on the job, but whose performance should be improved. The training section would be staffed by the following technical training-supervisory group:

1 Physician-Director
1 Physician-Assistant
1 Nurse-Instructor, as chief nurse
1 Public health officer (health educator)

If, as has been suggested, the staff of this section make visits to the public health centers, operating for the most part in the smaller towns and in rural areas, they will be able to recognize the factors that prevent a center form producing the desired yield, and to plan the training of each and every worker at the center so as to obtain the best possible results. By establishing cordial relations, they will be able to enlist the collaboration of local authorities, workers' and farmers' associations, non-official groups in general, and the individual. Private enterprise can be encouraged to take an interest in the center and in the solution of problems affecting the locality. Finally, the public health personnel can be encouraged to collaborate in the execution of a program with better understanding on the part of their superiors. The latter, in turn, will acquire a thorough knowledge of the environment in which the workers perform their task, and of the favorable and the adverse factors they encounter daily. And there will be no danger that a center that may be understaffed will have to send away for training in other localities workers who are needed to carry on the regular activities. Moreover, training can be given at less cost and to a larger number of persons, especially to physicians; when such personnel are trained at the center itself, the work is not disrupted because of the absence of staff. The result to be achieved through this system would be that

the better able the personnel are to apply in their work the knowledge acquired in training, the greater will be the yield of the center. It is in this way, we believe, that any technical or administrative deficiencies encountered in the service can effectively be corrected.

In-service training is required not only in rural or semi-rural areas but also for personnel working in urban areas of certain importance. The latter, however, should be covered rather by formal public health education, such as is provided in schools of public health. Without going into details, but not wishing to omit this point, we shall refer to the instruction in these schools.

SCHOOLS OF PUBLIC HEALTH

Preventive medicine is being given importance in all countries, and methods are being sought to improve the professional training of physicians and nurses engaged in public health. In Latin America, where the need for graduate personnel is great, candidates are sent to countries having specialized schools, mainly the United States and Canada. During recent years schools have been established in various countries and these are attended by both national and foreing students, almost always under fellowship from the Pan American Sanitary Bureau or the governments. In Mexico City, capital of the Republic, the present School of Public Health was established over twenty years ago; it is now joined with the Institute of Public Health and Tropical Diseases, under the Ministry of Public Health and Welfare, and affiliated with the National Autonomous University of Mexico. The Director of the School has clearly described the school's purposes, as we shall cite them below, and the standards that govern it in its mission of "increasing the scientific and technical resources placed in the service of public health." Its "immediate objectives" are:

"1. To perform the functions of a technical-consultative agency of the Ministry of Public Health and Welfare, carrying out studies as requested by the Minister on public health problems, and on the organization of established or planned programs designed to solve such problems.

"2. To educate public health workers, through instruction in hygiene and public health, inspiring them to master the scientific subjects and the procedures for their application, and to endeavor to create and develop a favorable attitude toward public health in all professionals whose official or private work is of importance to individual or collective health.

"3. To conduct, coordinate, and promote investigations in the public health field, through a scientific Institute.

"4. In fulfilling the above objectives, the School of Public Health and Institute of Public Health and Tropical Diseases will act as the executive body of the Ministry in matters of education, training, and investigation."

The School of Public Health and Institute of Public Health and Tropical Diseases regulate their activities according to the directives laid down by their Directing and Technical Councils.

The Directing Council is composed of the following officers:

A Chairman: the Assistant Minister of Public Health and Welfare.

A Secretary-Member: the Director of the School of Public Health and Institute of Public Health and Tropical Diseases.

First Member: the Director General of Public Health for States and Territories.

Second Member: the Director of Public Health of the Federal District.

Third Member: the Director of the Cooperative Rural Services.

Fourth Member: the Chief of the Office of International and Inter-ministerial Affairs.

The Technical Council is composed of:

A Chairman: the Director of the School of Public Health and Institute of Public Health and Tropical Diseases.

First Member: the Representative of the Chiefs of the Investigation Department of the Institute.

Second Member: the Chief of the Department of Instruction in Public Health Administration.

Third Member: the Chief of the Department of Instruction in Epidemiology.

Fourth Member: the Chief of the Department of Instruction in Microbiology and Parasitology.

Fifth Member: the Chief of the Department of Instruction in Public Health Nursing.

The functions of the Directing Council are:

1. To establish the policy of the institution.

2. To authorize annually the programs of investigation and teaching.

3. To approve the annual budget estimates.

4. To designate and remove the technical and professional personnel not included under the Juridical Statutes for Civil Service Workers.

5. The decisions of the Council shall be submitted to the Minister for study and approval.

The functions of the Technical Council are:

1. To establish the technical standards for the implementation of the plans approved by the Directing Council.

2. To propose to the Directing Council, when it deems necessary, new programs or changes in existing programs.

The School of Public Health and Institute of Public Health and Tropical Diseases operates a Clinic, whose functions are:

1. To provide medical care to those cases that are of interest for purposes of teaching or investigation, and to refer others that request their services to the proper agencies of the Ministry of Public Health and Welfare.

2. To obtain the consent of patients or of members of their family for carrying out the social, clinical, laboratory, consultation, or anatomicopathological studies of special interest for purposes of investigation or teaching.

3. To prepare the documentation on each case, maintaining the proper files for use in scientific work or teaching.

4. To participate in the development of programs of teaching and investigation, in accordance with the decisions of the Technical Council.

The regulations governing the activities of the School authorize it to issue the degree of Master of Public Health and that of Public Health Nurse.

The course of study for the degree of Master of Public Health covers one scholastic year; it includes the basic curriculum, together with the review and applied studies agreed upon by the Technical Council, but it will be sufficiently flexible to encourage specialization in at least the fields of public health administration, epidemiology, maternal and child health, health education, and industrial hygiene. In addition, it offers facilities for training those students who desire to study the principles and methods of scientific investigation, through the various departments of the Institute. The course is conducted with the active participation of the students in the laboratory, the field, the classroom, and the library.

The course of study is outlined below.

COURSE OF STUDY FOR THE DEGREE OF MASTER OF PUBLIC HEALTH

A. First Quarter

Number	SUBJECTS	Number of Hours Per week	Total
1.	General Public Health Administration I . . .	3	30
2.	Sanitary Engineering	3	30
3.	Biostatistics I	3	30
4.	Biostatistics Laboratory	6	60
5.	Communicable Diseases A-I, Epidemiology, Clinic, and Laboratory	12	120
6.	Communicable Diseases B-I, Epidemiology, Clinic, and Laboratory	4	40
7.	Social Anthropology.	3	30
8.	Developmental Psychology	3	30
9.	Nutriology I	3	30
		40	400

B. Second Quarter

1.	Public Health Administration II	3	30
2.	Biostatistics II	3	30
3.	Communicable Diseases A-II, Epidemiology, Clinic, and Laboratory	10	100
4.	Communicable Diseases B-II, Epidemiology, Clinic, and Laboratory	4	40
5.	Epidemiological Methodology	6	60
6.	Health Education I	5	50
7.	Field Practice	5	50
8	Nutriology II	4	40
		40	400

C. Third Quarter

Number	SUBJECTS	Number of Hours Per week	Total
1.	General Public Health Administration III . . .	3	30
2.	Special Public Health Administration I . . . . (Sanitation)	3	30
3.	Special Public Health Administration II . . . (Public Health Campaigns)	2	20
4.	Special Public Health Administration III . . . (Maternal and Child Health)	3	30
5.	Special Public Health Administration IV . . . (Social Security and Medical Care)	2	20
6.	Special Public Health Administration V . . . . (Venereal Diseases) or, Special Public Health Administration VI (Tuberculosis) or, Biostatistics III	2	20
7.	Special Public Health Administration VII . . . (Nutrition program)	1	10
8.	Special Public Health Administration VIII . . (Mental Hygiene)	1	10
9.	Occupational Hygiene	6	60
10.	Epidemiology in the Republic of Mexico	3	30
11.	Microbiology applied to Public Health	4	40
12.	Health Education II	5	50
13.	Field Practice	5	50
		40	400

The objectives of the course for the degree of Master of Public Health are:

1. To train surgeon-physicians, veterinarians, and engineers to undertake the scientific study of the public health problems of a community and to organize adequate means to enable the community to solve those problems.

2. To encourage these professionals in mastering specialized branches of scientific study essential for the improvement of public health.

3. In the interest of public health, to provide proper orientation to persons, enrolled as students, whose activities are important to health, students and professionals in the field of medicine and related sciences, engineering, architecture, agronomy, instruction in normal schools, etc.

The course of studies in public health nursing covers one academic year; it includes the basic curriculum, together with the review and applied studies agreed upon by the Technical Council, and offers the facilities necessary to promote the spirit of teamwork. The course is conducted with the active participation of the students in the laboratory, the field, and the classroom.

For purposes of illustration, the course of study is outlined below.

COURSE OF STUDY IN PUBLIC HEALTH NURSING

A. First Quarter

Number	SUBJECTS	Number of hours Per week	Total
1.	General Public Health Administration I	3	30
2.	Public Health Nursing I	6	60
3.	Epidemiology and Biostatistics in Public Health Nursing	4	40
4.	Nutriology Applied to Public Health Nursing	3	30
5.	Social Anthropology	3	30
6.	Developmental Psychology	3	30
7.	Dietetics Laboratory	4	40
8.	Supervised Experience I	10	100
9.	Library	3	30
		39	390

B. Second Quarter

1.	General Public Health Administration I	3	30
2.	Public Health Nursing II	5	50
3.	Organization of Public Health Nursing I	6	60
4.	Preventive Medicine Applied to Public Health Nursing	6	60
5.	Health Education Techniques I	5	50
6.	Supervised Experience II	12	120
7.	Library	2	20
		39	390

C. Third Quarter

Number	SUBJECTS	Number of Hours Per week	Total
1.	General Public Health Administration III	3	30
2.	Public Health Nursing III.	6	60
3.	Organization of Public Health Nursing II	6	60
4.	Health Education Techniques II	5	50
5.	Supervised Experience III	16	160
6.	Library.	3	30
		39	390

D. Fourth Quarter

Field Work: Rural and Urban

NOTE: Social Anthropology, Developmental Psychology, Health Education I and II, and General Public Health Administration, I, II and III are given jointly to nurses and physicians. Field practice in the fourth quarter is also carried out simultaneously with the physicians.

The objectives of the course for public health nurses are:

1. To train graduate nurses and midwives to collaborate in the study of public health problems of a community and in the organization and proper utilization of adequate means to enable the community to solve such problems.

2. To prepare them to train professional and auxiliary public health nursing personnel.

3. To encourage them to master one of the specialized branches of public health nursing.

The Director of the School of Public Health, Dr. Pedro Daniel Martínez, in an interesting paper published in the July 1954 issue of the Bulletin of the Pan American Sanitary Bureau, had the following statements to make with reference to the School of Public Health and Institute of Public Health and Tropical Diseases:

"The school, of course, considers the three basic resources on which it relies to accomplish its mission to be: the faculty, the student body, and the teaching programs.

"a. Faculty. The principal concern, and at present the most difficult problem, is to develop a staff of professors who combine the qualifications of experience, teaching ability, potentiality for improvement, and ability to adapt personal ideology to that of the group. On this basis, the following policies have been maintained:

(1) Free selection and removal of faculty members by the School's Council.

(2) Utilization of professors who have degrees in public health and also field experience, younger persons being preferred.

(3) Full-time employment of all persons assigned to teach basic subjects

(4) Full support to encourage their participation in the teaching of scientific public health studies in schools of medicine, nursing, sanitary engineering, or anthropology, normal schools, and others of interest to health work.

(5) Affording them opportunities for annual study to other countries, to enable them both to improve their technical knowledge and to become familiar with the problems and the public health organization in places from where students are received. This program can be carried out by virtue of the agreement concluded by the Government of Mexico with the Pan American Sanitary Bureau, Regional Office of the World Health Organization.

"b. Student Body. Undoubtedly, the students constitute the most essential factor in achieving the objectives of the School. The difficulties in making proper selection are well known, and they are aggravated in Mexico by the low salaries paid to public health physicians in general.

"Spontaneous interest on the part of the candidate is the quality given most importance by the School. When a professional decides to study public health as a vocation and is not motivated by pressure or material interests, success is assured, however limited his ability or the opportunities he may later have. This point is of the utmost importance in Mexico. In wealthy countries, which today are referred to as well-developed, professional public health workers who lack personality hinder the programs little or not at all, as they inevitably are pushed ahead by the strong and

prosperous social structure. In the poorer countries, effective results can be achieved only by energetically working to overcome the passiveness and indifference peculiar to all impoverished societies. In other words, in prosperous countries the public health worker should above all possess the ability to adapt, but in underveloped countries, to the contrary, he must have courage and indomitable spirit in order to overcome discouragement, together with the ability to identify the few leaders in his environment and mobilize them as the driving force that will lead the community toward progress. Consequently, the School tends to place emphasis on the development of proper personality, preferably by building up a balanced viewpoint through correct understanding of the biological and social sciences.

"A second important policy of the School is to preserve permanently its influence on the ex-students, by maintaining with them a close relationship through which to inspire and stimulate them in their work. To that end, the School acts as official agent for the Ministry of Public Health and Welfare with the object of ensuring that each of the graduates occupies the post best suited to his personality. In addition, it makes its faculty available to them for all types of technical or administrative consultation and sends them periodic bulletins so that they may keep abreast of work carried out and problems faced in the different regions of the country, and of scientific advances on the international plane. Finally, it fosters a feeling of professional and social solidarity among all members of the group.

"c. Teaching Programs. The teaching programs, as the result of their adaptation to political, economic, cultural, and health conditions in Mexico, are characterized by certain special features, which are discussed briefly below:

"(1) To ensure that the programs are properly coordinated and balanced they are invariably prepared by the entire faculty of the School, after careful discussion of each subject and consideration of the views of both national experts and experts of international health organizations who reside in Mexico. Special care is taken, however, not to imitate foreign programs, and it is endeavored to make the plans flexible enough so that they may be adapted to the personality of the students and to the aim pursued.

"(2) With the aim of promoting a spirit of teamwork among the physicians and nurses, these professionals receive joint instruction in two basic courses in public health

administration, in social anthropology, in health education, and in psychology. Furthermore, during the final ten weeks of field practice, one student physician and one student nurse make regular visits to the sites of the operative programs considered to be the most satisfactory, as well as to programs having limited funds and personnel, so that, upon their return to the School, they may present their observations, criticism, and suggestions for group discussion.

"(3) The plan of academic instruction is aimed at reducing informative lectures to a minimum and giving preference instead to active participation by the students, so that they themselves may recommend advisable criteria and attitudes.

"(4) The course for the degree of Master of Public Health admits a class of not over 30 physicians. It lasts forty weeks and consists of 1,600 hours of instruction. A total of 1,200 hours are devoted to academic instruction and laboratory work: 380 to biological sciences and clinic (31.6%); 270 to public health administration (22.5%); 210 to social and psychological sciences (17.5%); 210 to biostatistics and epidemiology (17.5%); and, finally 130 (10.9%) exclusively to sanitary engineering and sanitation. The remaining 400 hours (33% of the entire program) are devoted to field work.

"(5) The course in public health nursing admits a class of up to 25 students; it covers 1,510 hours, of which 670 (44%) are devoted to academic instruction and laboratory work, and 840 (56%) to field practice. For the field practice there is one instructor for every two to four students; time is allotted first for observation, then for execution, and, lastly, for instruction exercises. During the first eight weeks the student observes the health institutions; she then devotes twelve weeks to visiting homes, and later ten weeks to group work; the final ten weeks are given over to study and work in health centers, both rural and urban.

"(6) The course for the degree of Master of Public Health is made sufficiently flexible to permit specialization in five subjects: public health administration, epidemiology, health education, maternal and child health, and scientific investigation. The course in

public health nursing is designed to train two types of key personnel: nurse-instructors and nurse-administrators. The goal of both courses is to form leaders who can assume the responsibility of improving public health in Mexico."

Since in the discussion on methods of improving the education of public health personnel, we shall hear the explanations and opinions of the sanitarians of all the Americas, our contribution is necessarily limited to what we know about our own country, and we looking forward to hearing and learning of what is being done in other countries, many of which have to their credit wide experience and important studies on the matter.

In concluding, we shall mention one of the methods followed in various countries to keep the trained personnel abreast of new developments and new problems that arise.

CORRESPONDENCE COURSES

In order that the public health personnel may retain and add to the knowledge they have acquired for carrying out their work and keep informed also of the advances being made in this branch of medicine, we suggest that they be provided with correspondence courses according to a regular, periodic, and properly planned schedule. The physician as well as all the other personnel, appreciating the opportunity afforded them to participate in the advances achieved in the public health field will find stimulus in performing their own functions and a means of expression and action distinct from that of their routine official work. The scientific and technical interchange will acquaint them with the progress, the doubts, and the observations of those who have to apply new or old systems.

It is necessary to publicize among the medical and nursing personnel all of the new methods useful in immunology, urging them, with particular reference to epidemiological work, not to neglect the essential activities among the inhabitants of the jurisdiction for which they are responsible, such as determination of immunity indices and ensuring the visits by mothers to the prenatal and postnatal clinics, and by children of various ages, to the health center.

In like manner, the sanitary officer or educator will be urged to pursue the goal of correcting deficient sanitation conditions

in the localities where he works, especially with respect to protection of water supply, measures to prevent water deposits, from becoming breeding places for mosquitoes, correct utilization of privies or latrines, and the work of environmental sanitation in general, so as to obtain the best health conditions for the population being served.

We are convinced that, unless the personnel engaged in public health work are properly trained and continue to study during their service, no public health program can be effective in achieving the goal of preserving health and preventing disease.

The in-service training personnel, frequently within the institution itself, is necessary in all countries. The methods may vary, but the objective will be the same: to know more so as to serve better.

The trained public health workers will prove their worth and, we trust, will be able to gain social recognition for their career, together with the financial compensation they require to maintain a satisfactory standard of living, and the freedom to devote full time to their functions without the risk of having their jobs suffer because of political changes. To achieve this goal, the public health workers should pursue their studies and support the education and training programs, and the public health authorities, in turn, should strengthen the institutions for education and training and utilize the trained personnel to implement effectively the programs designed to improve the physical and mental health of the people.

REFERENCES

Dearing, W. Palmer: "New Orientation in the Teaching of Preventive Medicine." Pub. Health Reps., Vol. 68, Nº 12, p. 1147, December 1953.

Educación sanitaria en Argentina. Bol. Of. San. Pan., 522, December 1951.

Educación sanitaria en Chile. Bol. Of. San. Pan., 527, December 1951.

Educación sanitaria en Cuba. Bol. Of. San. Pan., 526, December 1951.

Educación sanitaria en el Ecuador. Bol. Of. San. Pan., 529, December 1951.

Hernández Lira, Juan: "Centro de Salubridad y Asistencia y Estación de Adiestramiento de Coatepec - Breve reseña histórica. Que es? Como funciona? Cuales son sus finalidades?" Salub. y Hig., Jalapa, No. 36, January 1941.

López Rico, Arnoldo: "Curso sobre orientación sanitaria 1954-1955. Informe. Centro de Salubridad y Asistencia y Estación de Adiestramiento de Boca del Río."

Martínez, Pedro D.: "El administrador de salud pública y los programas locales." Bol. Of. San. Pan., 53, January 1955.

Martínez, Pedro D.: "Enseñanza profesional en salud pública de médicos y enfermeras en México." Bol. Of. San. Pan., 23, July 1954.

Mexico City. Escuela de Salubridad e Higiene. Anuario 1955. Programa para Curso de Maestro en Salubridad Pública. Programa para el Curso de Enfermería Sanitaria.

Mexico. Secretaría de Salubridad y Asistencia. Escuela de Salubridad e Higiene. Memoria, 1947-50, p. 259.

Morones Prieto, Ignacio: "Bienestar social rural en México." Mexico City, 1954. 31 p.

Pinheiro, M. Rosa S.: "Incorporación de la pedagogía, supervisión y administración en el plan de estudios de las escuelas de enfermería." Bol. Of. San. Pan., 185, August 1953.

Pons, Juan A.: "Las unidades de salud pública de Puerto Rico." Bol. Of. San. Pan., 1, Julio 1952.

"Proyecto para la creación de una sección de adiestramiento en el campo combinado con supervisión de oficinas." Salub. y Hig., Jalapa. 7:195-203, November-December 1951.

Rodríguez, Ena de and Helena de Angulo de León: "Seminario de Trabajos en Enfermería de Enfermedades Transmisibles." Bol. Of. San. Pan., 62, January 1953.

Romero, Hernán: "Saneamiento en la América Latina y entrenamiento de personal en este campo." Bol. Of. San. Pan., 34, July 1952.

Ruiz, Próspero: "Adiestramiento del personal de saneamiento en las zonas rurales de la América Latina." Bol. Of. San. Pan., 125, February 1954.

Udell, Florence N.: "La función de la enfermera de salud pública en el trópico." Bol. Of. San. Pan., 660, November 1954.

Unidades sanitarias de Chile. Bol. Of. San. Pan. 11, July 1952.

Unidades sanitarias de Costa Rica. Bol. Of. San. Pan., 18, July 1952.

Velázquez-Palau, Gabriel: "Planeamiento y organización de la Escuela de Medicina de Cali, Colombia." Bol. Of. San. Pan., 573, May 1954.