Professional Education in Public Health

— *A Survey of Schools of Public Health, 1950* —

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Report on Schools of Public Health in the United States; based on a survey of schools of public health in 1950. By Leonard S. Rosenfeld, Marjorie Gooch, and Oscar H. Levine. Public Health Service Publication No. 276. U. S. Government Printing Office, Washington, D. C., 1953. 110 pages. Price 35 cents.

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SCHOOLS of public health in the United States have been organized in response to demands for personnel trained to perform the various health services which have been developed during the past century. The rapid expansion in both volume and scope of these services at each level of community life has increased the need for persons equipped to apply the accumulated knowledge in the biological and social sciences to the furtherance of community health. There is need for persons who can plan, organize, and administer health services; who can analyze and interpret trends in health conditions; who can identify questions that must be resolved for the improvement of public health activities; and who can conduct the research that provides a sound basis for future developments. Accordingly, several universities have organized schools or departments of public health with varied organization and content of academic and field training. During their relatively short history, these universities have played a dynamic and essential role in public health progress.

Aware of the many complex problems that schools of public health face in their attempts to meet present demands for health personnel and to foresee the qualitative and quantitative demands of the future, the Association of Schools of Public Health asked the Public Health Service to make a study of the schools. The recently published Report on Schools of Public Health in the United States gives in detail the results of that study, describing the organization, staffing, educational programs, students, financial status, and needs of the schools of public health in 1950. This article represents a summarization of the major findings of the report.

Dr. Diehl has been dean of medical sciences at the University of Minnesota since 1935. He received his medical degree there in 1918 and was appointed assistant professor of preventive medicine and public health in 1921, associate professor in 1924, and professor in 1929. Dr. Diehl has been a member since 1950 of the Health Resources Advisory Committee, Office of Defense Mobilization.

Three Major Functions

The report presents data for the nine accredited schools of public health in operation in 1950 at the Universities of California, Michigan, Minnesota, North Carolina, and at Columbia University, Harvard University, the Johns Hopkins University, Tulane University, and Yale University. An accredited school of the University of Toronto and one established at the University of Pittsburgh in 1950 were not included in the study.

An accredited school is one that meets the standards adopted by the American Public

Health Association which set criteria for the institutions, facilities, staffing, and courses, and for the matriculation qualifications of candidates for graduate degrees in public health. These standards, as is appropriate for educational institutions in a rapidly developing field of knowledge, allow the schools wide latitude for experimentation and diversity in their approach to the three major functions which they have in common with other institutions of higher education—instruction, research, and community service.

Instruction

All schools of public health have common goals in their programs of instruction. The first of these goals is to give all students a broad understanding of the principles on which public health practice is based. The second is to train specialists in the various fields of community health services.

As a result of differences in emphasis, departmental organization and course requirements in schools of public health are less highly standardized than in institutions of some other health professions such as medicine and dentistry. All schools of public health require candidates for the degree of master of public health to take at least 2 subjects (biostatistics and epidemiology) in what may be termed the basic public health sciences and at least 2 subjects (public health administration and environmental sanitation) in applied fields of public health. Schools differ, however, in the extent to which they require or offer special training in such subjects as microbiology, nutrition, physiological hygiene, and tropical public health among the basic sciences and in such applied fields as medical economics, maternal and child health, mental health, and industrial hygiene. Thus, some schools train specialists in 1 or more of these applied fields: public health nursing, public health education, public health engineering, or hospital administration. Some schools maintain a full range of separate departments representing the various applied fields of special training; others have fewer departments which may or may not include organized subdivisions for special fields of instruction.

Research

In terms of both faculty time and expenditures, research is a prominent activity of schools of public health. The main fields of research reported by the faculty of the schools were infectious diseases, physiology, biochemistry, and environmental sanitation. The concentration of faculty time and funds on research is higher for schools of public health than for schools of medicine or dentistry.

Community Service

The community services furnished by the faculty of the schools of public health include such activities as continuation and extension courses for people outside the university, participation in consultative services, membership on committees advisory to governmental and voluntary health organizations, and services and

Table 1. Distribution of full-time and part-time faculty by department in 9 schools of public health, 1949-50

Department	Faculty			
	Total	Full-time, in school	Part-time [1]	
			Full-time in university [2]	Other
All departments	484	232	106	146
Basic public health sciences	195	114	36	45
Epidemiology	52	21	9	22
Tropical public health	38	26	5	7
Biostatistics	32	25	3	4
Nutrition, biochemistry	29	18	6	5
Microbiology	22	14	5	3
Physiological hygiene	22	10	8	4
Applied fields	289	118	70	101
Public health administration	86	18	21	47
Environmental sanitation	34	19	9	6
Industrial hygiene	31	15	5	11
Hospital administration	22	5	6	11
Maternal and child health	21	15	2	4
Public health nursing	17	9	4	4
Public health education	16	10	5	1
Medical economics	7	6	----	1
All others	55	21	18	16

[1] Devoting part-time instruction, research, and other activities to the schools of public health.
[2] Full-time faculty of the university.

Table 2. Number of students in 9 schools of public health, 1949–50

Parent university	Name of school	Students [1]			
		Total	Graduate	Undergraduate	Special
Total		1,239	678	395	166
State university:					
California	School of Public Health	240	73	145	22
Michigan	do	180	82	76	22
Minnesota	do	268	101	163	4
North Carolina	do	115	77	11	27
Private university:					
Columbia	do	147	110	----	37
Harvard	do	90	61	----	29
Johns Hopkins	School of Hygiene and Public Health	133	113	----	20
Tulane	Department of Tropical Medicine and Public Health.	14	13	----	1
Yale	Department of Public Health	52	48	----	4

[1] Based on data collected from the deans and students.

demonstration projects in community health programs. The schools of public health constitute a national as well as international resource on which public and private agencies draw for advice and assistance in studying health needs and resources and in planning for the development or direction of services to meet changing health requirements.

Faculty

The 9 schools of public health had 484 faculty members in 1949–50, 338 of whom had full-time appointments in the school or in its affiliated university. The distribution of the total and full-time faculty by department (table 1) shows a high concentration in departments of epidemiology and of public health administration.

Faculty members with full-time appointments in the schools were responsible for the major share of the schools' activities, accounting for 70 percent of the total faculty time given to instruction, 82 percent of that devoted to research, and 72 percent of the time spent on community service. The use of full-time faculty from other schools of the university for part-time instruction, research, and other activities of the school of public health is an important means of maintaining a close relationship between the school and the related disciplines of other units of the university. The part-time faculty of the schools of public health represents mainly personnel of State and local health departments or voluntary health agencies whose work in the schools promotes the interrelationship of academic instruction with actual public health practice.

The Student Body

In the academic year 1949–50 some 1,240 students were enrolled in the 9 schools of public health, representing candidates admitted from 51 States and Territories of the United States and from 39 foreign countries. Of the total, more than half were graduate students—those admitted as candidates for master's and doctor's degrees. The others were taking undergraduate work or were enrolled as special students. The distribution of these groups of students among the 9 schools, the concentration of undergraduate students in 4 of the institutions, and the wide range among schools in number of graduate students, from a low of 13 to high of 113, are shown in table 2.

Foreign students represented 17 percent of the graduate students for all schools combined and 25 percent of the special students. These students bring to the schools firsthand knowledge of public health problems in the Latin American countries, in Europe, Asia, and

Africa and assist the faculty in explaining these problems to other students. The training of foreign students, in turn, is a significant contribution by the schools in advancing public health practice in the countries to which the students return and in promoting international understanding. Many of the foreign students who are enrolled as special students are transferred to the status of graduate students when they have overcome language handicaps and have proved their ability to meet the requirements for degree candidates.

The graduate students of the schools of public health enter with prior education and experience in a wide variety of health fields—medicine, dentistry, nursing, veterinary science, engineering, the natural sciences, and the like.

The tabulation below indicates, for all 9 schools combined, 7 fields of study in which 30 or more students were taking majors:

Major	*Number of graduate students*
Public health administration	115
Hospital administration	106
Public health education	86
Environmental sanitation	64
Tropical public health, parasitology	46
Microbiology	33
Epidemiology	30

In this connection, attention should be called to the differences among schools in the emphasis given to special fields of instruction. One-third of all graduate students majoring in public health administration were at Johns Hopkins; nearly half of those majoring in hospital administration were at Columbia University; more than one-third of the group specializing in public health education were at the University of North Carolina, which also accounted for more than one-third of those majoring in environmental sanitation. Johns Hopkins accounted for more than one-third of the graduate students specializing in tropical public health and more than one-half of those with microbiology majors, while all but 8 of those majoring in epidemiology were at Harvard or the University of California. The different schools of public health thus tend to complement each other in providing special instruction, for no one school attempts to provide intensive instruction in the entire range of public health subjects. This division of responsibility represents a sound, economical, and thoroughly desirable development from the standpoint of the Nation as a whole.

High Cost of Training

Public health training is expensive as compared with most other fields of higher education. The relatively small number of students, the high faculty-student ratio needed for individualized instruction, the wide variety of subjects that must be included in the curriculum, and the volume of research and community service performed by the schools all contribute to the high cost of training members of the public health profession.

In addition to the $1.5 million expended by the 9 schools for special research projects for which funds were contributed by Federal agencies, foundations, and industry, the schools spent nearly $3 million for basic operations in 1949–50. Almost 70 percent of the cost of basic operations was for instruction, including departmental research (table 3). The remaining 30 percent of basic operating expense was for such items as plant operation and maintenance, libraries, and administration.

Although there are distinct limitations to the validity of expressing basic operating expense in terms of cost per student, a unit cost figure has some significance in drawing comparisons among professional fields and in providing an index of the Nation's investment in professional education. This study of 9 schools of public health in the United States reveals that the average basic operating cost per graduate student was nearly $4,200 a year, a sum substantially higher than that for training in medical schools or dental schools. Although the cost per graduate student in schools of public health is high in comparison with other fields of instruction, the aggregate annual expenditure for maintaining these schools is nominal when their significance in the national and international progress of public health programs is considered, and in relation to the total expenditures for organized health services.

For the schools of public health as a group, income from tuition and fees constituted only about 14 percent of basic operating expense.

Table 3. Basic operating expense of 9 schools of public health, 1949–50

Expense item	Total		Public control [1]		Private control [2]	
	Amount	Percent	Amount	Percent	Amount	Percent
Total	$2, 955, 997	100	$1, 374, 406	100	$1, 581, 591	100
Instruction	2, 034, 764	69	968, 093	70	1, 066, 671	67
Administration and general	475, 854	16	216, 453	16	259, 401	16
Plant operation and maintenance	371, 677	13	139, 742	10	231, 935	15
Libraries	73, 702	2	50, 118	4	23, 584	2

[1] 4 State universities. [2] 5 private universities.

Income from endowment represented 20 percent; gifts and grants supplied 25 percent; and the remainder came from State appropriations and transfers of funds from the parent universities.

In line with general patterns of financing higher education, institutions under public control differ greatly from those under private control in source of funds. The group of schools of public health affiliated with universities under private control receive 36 percent of their income for basic operations from endowments while the schools affiliated with State universities received only 1 percent of their operating income from that source (table 4). On the other hand, State appropriations and funds transferred from the parent university provided 71 percent of the income for basic operations for the schools in State universities as compared with 11 percent derived from that source in the schools whose universities were under private control. These findings have significant implications in any analysis of the present financial status and long-range stability and flexibility of resources in the 2 groups of schools.

The basic operating expenses and income as defined in this study exclude the $1.5 million separately budgeted for research projects. Federal research grants and contracts, as would be expected, represented the major source (56 percent) of these special funds in schools of public health in 1949–50. Results of this research as well as of research similarly supported by Federal grants in other schools and universities add greatly to our knowledge and understanding of factors that influence health. They find relatively prompt application in public health practice as one community after another develops or expands its health services in the light of clearer knowledge of health hazards and means of controlling them. The special research projects and the departmental research that is financed as part of the basic operations of the schools of public health not only afford

Table 4. Sources of income for basic operating expense in 9 schools of public health, 1949–50

Source of income	9 schools		Public control [1]		Private control [2]	
	Amount	Percent	Amount	Percent	Amount	Percent
All sources	$2, 955, 997	100	$1, 374, 406	100	$1, 581, 591	100
Tuition and fees	425, 052	14	229, 410	17	195, 642	12
Endowment income	577, 390	20	12, 028	1	565, 362	36
Gifts and grants	742, 701	25	149, 067	11	593, 634	38
State appropriations and university transfers	1, 161, 736	39	980, 273	71	181, 463	11
Miscellaneous	49, 118	2	3, 628	[3]	45, 490	3

[1] 4 State universities. [2] 5 private universities. [3] Less than 0.5 percent.

students contact with the methods and objectives of scientific observation and analysis but also enhance their skills in applying the research findings in the work they do when they leave the school.

Needs of the Schools

The serious postwar financial difficulties of institutions of higher learning have been widely recognized. Increasing costs, expanding responsibilities, improving standards, and decline in the share of income available from endowment and private philanthropy are among the factors contributing to these difficulties. The study of schools of public health collected information that provides a quantitative estimate of the unmet needs of these schools.

According to the judgment of the deans and others responsible for the administration of these 9 schools of public health, the schools must have additional full-time faculty and expanded or renovated physical plant and equipment to meet standards of adequacy and to expand their efforts in new fields of desirable public health training. A substantial increase in faculty was considered essential in nearly all schools, representing need for an increase of 25 percent over the available number of full-time faculty in departments of basic public health sciences and of 86 percent in those representing applied fields (table 5). In most schools, the physical plants were considered inadequate, with overcrowded classrooms and laboratories. For all 9 schools combined, it was estimated that nearly $2 million of additional annual income for basic operations was needed, while the aggregate need for construction and equipment was $11.5 million.

Table 5. Departmental requirements for additional full-time faculty in 9 schools of public health, 1949–50

Department	Number additional full-time faculty needed	Percent increase over present full-time faculty
All departments	131	56. 5
Basic public health sciences	29	25. 4
Epidemiology	8	38. 1
Microbiology	5	35. 7
Biostatistics	4	16. 0
Nutrition, biochemistry	4	22. 2
Physiological hygiene	4	40. 0
Tropical public health, parasitology	4	15. 4
Applied fields	102	86. 4
Public health administration	16	88. 9
Maternal and child health	15	100. 0
Industrial hygiene	8	53. 3
Public health nursing	8	88. 9
Environmental sanitation	6	31. 6
Medical economics	6	100. 0
Public health education	5	50. 0
Hospital administration	2	40. 0
All other	36	171. 4

Conclusions

The study summarized here and the companion Public Health Service studies of medical schools (*1*) and schools of dentistry (*2*) are significant contributions to knowledge of the financial and related problems of education for the health professions. This report, moreover, goes farther than the other two, in that it relates the development of schools of public health to trends in community health services and describes the adjustments being made by the schools to gear public health training to new health problems or to those that assume increasing proportions with advances in control of acute communicable diseases. Thus, in accord with the changing spectrum of health hazards, the schools of public health are attempting to expand their instruction and research in the field of chronic illness, mental health, and geriatrics. In response to broadening concepts of the interrelationships of physical and mental health with economic conditions and socioenvironmental factors, an effort is being made to strengthen the resources of the schools in such areas as sociology and economics. In keeping with the widening responsibilities of public and private health agencies, the schools are broadening the content of their educational programs in public health administration, medical care administration, and world health problems.

If they are to continue to set the pace for progress in public health knowledge and prac-

tice, the schools must be able to develop and adjust their programs and resources to changing health concepts, needs, practices, and organization. Dr. Lowell J. Reed, now president of the Johns Hopkins University, writes in his preface to the report:

"Professional education in public health, a relative newcomer in the broad field of education in the health professions, has been characterized by independent thought, active experimentation, and a wide diversity of approach. This experimentation provides a rich fund of experience on which to draw in evaluating the effectiveness of education in public health and in projecting future trends of development. It must continue if education in this field is to retain its place as a vital part of the structure of health services."

A broad public understanding of the origin, development, purposes and significance of the schools of public health in the structure of the Nation's health services, such as can be gained from this report, should greatly assist the schools in meeting the ever-increasing demands being placed on them.

REFERENCES

(*1*) U. S. Public Health Service: Medical school grants and finances. Part I. Conclusions and recommendations. Part II. Financial status and needs of medical schools. Part III. Public Health Service grants. Their distribution and impact on medical schools. Public Health Service Publications Nos. 53–55. Washington, D. C., United States Government Printing Office, 1951. 48, 85, and 85 pp., respectively.

(*2*) U. S. Public Health Service: Financial status and needs of dental schools. Public Health Service Publication No. 200. Washington, D. C., United States Government Printing Office, 1952. 83 pp.

Assistant Secretary Appointed

Russell Raymond Larmon, specialist in economics and business administration, has been named Assistant Secretary of Health, Education, and Welfare. His appointment was confirmed by the United States Senate July 21, 1953.

A graduate of Dartmouth College, Mr. Larmon served 4 years as executive assistant to the president of Dartmouth, and since 1934 has been a professor at the college in the field of administration.

He has served as a consultant to several business organizations on top management policy and has held board membership in a number of organizations. Mr. Larmon has also served on New Hampshire State commissions and was consultant to the governor on the organization of a State store system, the Department of Welfare, and other matters of State administration. From 1942–44, he was the director of the New Hampshire State Office of Price Administration.

A veteran, Mr. Larmon served with the United States Navy from 1917–18. He is a resident of Hanover, N. H.