The problem of health manpower is reviewed in this survey. Factors responsible for increased need and demand are examined, sources of manpower are considered, and ways and means of dealing with this problem are indicated. Attention is devoted to the roles of health agencies and schools of public health.

UTILIZATION, RECRUITMENT, AND TRAINING OF HEALTH MANPOWER

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THE provision of manpower for health services involves (1) the changing functions of health personnel resulting from advances in science and technology; (2) changing social philosophy and expectations as to quantity and quality of services; (3) increasing specialization; (4) the organization for the delivery of services as needed in the quantity and quality the public is able and willing to finance; and (5) the efficient utilization, improved recruitment, and education and training of manpower to meet community health needs.

In our transition from agrarian independence to urban interdependence with complex relationships between local, state, and federal institutions and governments, it is clear that none of us is totally self-sufficient, independent, safe and secure. Many social forces contribute to a complex and interdependent society and to the need for social order: increasing population density; individual, family, and mass mobility; urbanization; industrialization; mechanization, and automation with impersonalization; an increasing number of laws and administrative regulations; competition for socioeconomic status; multiple, overlapping political units; and conflicting philosophies within professional organizations which allegedly have common interests in the health, welfare, and safety of the community. The struggle for equity and equality through education and political action is changing the kind and quality of achievements desired, the measurement of achievement, and the rewards expected from the changing social order. For many there is a loss of motivation and even of hope.

These socioeconomic trends have evoked varying attitudes. There are (1) those who view current trends without hope and as holding little future for them as individuals or a group; (2) those in many walks of life who feel frustrated and somtimes hostile because of real or imagined lack of reasonable opportunity for achievement consistent with their potential because of regional, ethnic, or racial origin, systems of social conformity, and the like; (3) those who are hostile and reactionary, convinced of the rectitude and superiority of their own morality, life purposes, achievements, and efficiency and who feel threatened by social trends; and (4) those, fortunately the majority, who accept, adjust to, and contribute to the

changing society with satisfying life objectives and achievements. These attitudes influence planning, organization, coordination, and evaluation of community health services and have a bearing on the use, recruitment, and education and training of health manpower.

A unifying philosophy to guide community organization for environmental health and comprehensive health services, including medical care and mental health services for the entire population, would simplify the problem of providing and using health manpower. Instead, there are many organizations and systems, governmental, voluntary, and private, directly or indirectly concerned with health services, that are competing for manpower, community dollars, and visibility. Paul J. Sanazaro, in discussing the medical care aspect, states:

> Rather than the development of a unified system of community health services, we may well see the emergence of two systems of health care, one clearly definable as the traditional form of medical care to which the economically self-sufficient are socially and educationally attuned, and the other a larger and broader system of community health service utilizing physicians as but one member of a spectrum of health service personnel, this system operating primarily for the less socially and economically privileged members of the community.[1]

These two systems could be unified, however, by common economic support permitting all social classes to obtain health services in the free market, if unity is necessary or desirable. In either event the total spectrum of needed manpower would be comparable, but the organization for the delivery of health services and the desirable number of personnel needed by categories would differ.

The many present and future determinants of health manpower needs cannot be analyzed here, but some of the more pressing determinants should be mentioned. They may be classified roughly as (1) population changes and the volume of illness, including the aging of the population, the increase in chronic disease, and community recognition of behavioral problems, mental illness, and mental retardation; (2) a changed social environment created by urbanization, variable population densities, modern transportation, and increasing levels of education; (3) changed economic access to medical care because of rising incomes, the growth of prepayment plans, and the extension of public medical care in various forms; and (4) scientific and sociological changes in medical practice, including the development of new technics, programs, and facilities and the growth of specialization and group practice. These factors explain the public demand for comprehensive care and for clean air, water, food, and a safe environment, as well as the professional desire to provide the needed services supported by an adequate economic base. Future provision of manpower will be influenced by the percentage of gross national product that the public is willing to invest in health. When the limits of financial support are reached, priorities must be made which will influence the numbers and kinds of health manpower.

Use and Retention

Existing health personnel may be divided into several groups: (1) those currently working in the health field on assignments for which they were prepared by education, training, or experience and who are dedicated to the general field; (2) those working in the field who are undertrained or overtrained for the current job, and others who have no intention of remaining in the field; (3) those trained and experienced who are currently either at home, retired, or temporarily in other fields of activities for various reasons, but mainly for socioeconomic reasons; (4) those untrained health employees, loyal to the

field who aspire to and are qualified for education and training for upward movement in the health field; (5) the untrained and inexperienced in the health field incapable of activity beyond routine, repetitious, but necessary assignments and who are "doing just what they are doing."

Trained and dedicated personnel currently in the health field must be used efficiently and encouraged to develop their full potential. Comparison of training, experience, ability, and ambition with actual work requirements (not civil service announcements or even job descriptions) frequently provides clues to job satisfaction and efficient use of personnel. The alert administrator and supervisor can identify the duties which can be better performed by someone with less training and skills, freeing the professional for activities requiring judgment, education, and experience. The provision of health services today requires a broad spectrum of professionals in both public and private organizations. Comprehensive care can be achieved through organized use of volunteers, clerical personnel, technicians, and other auxiliary personnel, and various grades of professional personnel in social work, nursing, dentistry, and medicine.

Effective use of health manpower is influenced by tradition, relative status among professional groups, licensure and other laws, civil service regulations, differential pay scales or schedules, and frozen retirement benefits. Traditionally, the physician has been considered—legally, socially, and economically—the responsible member of the team for individual health care, and this concept has been transferred to the field of community health. Generally, the member of the team with the most education, the physician, has the advantage of contact, communication, and exchange with the leaders of the community. He is thus able to capitalize on their insights, interpretation, knowledge, and influence, which in turn enhance his social and economic status. With rising levels of education and social understanding among other professionals and reluctance of clinically oriented physicians to assume administrative responsibility in health programs, administrative leadership is no longer exclusively the province of the medical profession. Administration of hospital and medical care programs, of welfare and insurance health plans, and of various categorical and voluntary agency programs is shifting to nonmedical leadership and direction. The trend toward the use of nonmedical administrators for community health programs frees the time of the medical director, in any setting, for more effective use of his potential, and at the same time provides expert administration by personnel trained for this exacting task.

Secretarial support for all professional and technical staff is essential, for medical, dental, nursing, engineering, key laboratory and environmental health personnel. The use of clinic and vocational nurses under the supervision of more highly trained public health nurses; the use of junior microbiologists, technicians, and laboratory assistants to support the professional medical and public health microbiologist or biotechnologist; the assignment of junior sanitarians and inspectors to routine work in environmental health are examples of how professional time is being better utilized.

The grouping of physicians and dentists, including various specialists, in professional buildings or in offices adjacent to medical-hospital centers, minimizes duplication of laboratories, x-ray, and other supportive services, and enhances the development and use of central preventive and rehabilitative resources. As regionalization of hospitals is extended, more effective use of scarce specialized personnel could be promoted

for dispersed populations. The natural association and grouping of professionals with their supportive personnel under able leadership to provide high quality service in good physical and socioeconomic environments, whether under public, voluntary, or private sponsorship, hold great promise for effective retention, use, and recruitment of health personnel.

The most difficult problems in use of personnel concern those persons working in the field who are undertrained, those who are overtrained for their current job, and those who have no intention of remaining in the field. First they must be identified and, once identified, some responsible person must develop a policy and plan. For the undertrained employee who is imaginative and intellectually capable, the course of action may be a formal education program, continuing education, or inservice training. For those with a minimum potential for further education and training and with little interest in the field, reassignment to lesser duties or even discharge after aptitude testing and vocational counseling may be the most practical long-term solution. The intellectually able employee, however, who seems to lack interest in the health field needs special attention, and in such a case examination of career objectives, training possibilities, and stimulating assignments may prove to be not only effective use, but indeed recruitment.

The overtrained person is the greatest risk of all. If he sees no possibility of reasonably fast upward movement in responsibility, status, salary, or challenge, he will probably leave the organization or the health field. The antidote is a dynamic organization under enthusiastic leadership which enables the well-trained employee to find scope for his talents and interests.

A large potential reservoir of manpower consists of those people who are trained and experienced in the health field, but who are currently not engaged in active work. Trained nurses are the largest group; there are an estimated half-million women trained as professional nurses who are not now practicing.[2] Every community should have a plan for identifying these people; for updating their training; for evaluating and channeling them to positions compatible with their qualifications, interest, and geographic location. They may be used in a wide range of capacities, from volunteer in a clinic or active health agency board member to full-time health employee.

Licensure tends to freeze the functions of professional categories, as do other laws, rules, and regulations. The nurse, biotechnologist, physiotherapist, optometrist, psychologist, chiropodist, dental hygienist, and others are functionally limited by these legal restrictions and may face economic disadvantages and lack of public acceptance. These restrictions on specialized health related personnel may be acceptable if the physician is content to function at a level below that warranted by his capabilities and his long, expensive training; if sufficient physicians are trained to meet the demand; and if the public is willing to pay for this luxury. But the public should know the facts and make the choice.

Merit systems are ostensibly dedicated to matching qualifications with job requirements and to affording opportunity for advancement consistent with qualifications and experience. In the course of time, however, many merit systems have grown rigid. Too much credit is given to longevity and seniority, and too little to intellectual qualifications and accomplishments. Retirement systems often freeze the most able health workers into an organization or a dead-end position, because they have too much invested and cannot afford to take more responsible and challenging positions elsewhere. Although the merit

system and retirement security may encourage initial recruitment, in the long run their influence upon individual initiative and upon effective use of personnel should be evaluated. A state-wide or national retirement system encompassing local agencies should be studied as a method of enhancing effective use.

Separate and uncoordinated community services are not conducive to efficient use of manpower by a community or family. Community resources are dissipated, for example, by separate inspections of the same premises by departments of health and hospitals, fire, police, urban renewal, public works, mosquito abatement districts, social welfare, and mental hygiene. Consolidation of functions, using generalists for routine inspections, and calling upon the centrally located specialists for the more difficult technical situations, could partially correct this inefficiency. This approach will encounter difficult, but not insoluble, problems of home rule, autonomy, empire building, administrative control, and status. However, if these problems are overcome, the result will be a better use of personnel.

Recruitment: Sources and Methods

Our manpower resources for recruitment into the health professions are ample. The increased birth rate of World War II is providing a relatively large increase in the educable age groups (15 to 29) of both sexes.[3] Increasing percentages of students are graduating from high school, completing baccalaureate programs, and achieving doctoral education.[4] The health professions recruiting from groups with the bachelor's degree are in an especially favorable position. Since 1955, increasing numbers of students have earned their baccalaureate degrees in the biological sciences and enrollment continues to be high.[5] Graduate enrollment and Ph.D. output in selected science fields have shown a sharp rise.[6] There seems to be no dearth of qualified applicants for existing places in medical and dental schools in the decade ahead. Nevertheless, demand for more and better health services and expanding programs to meet these needs require increasing numbers of health personnel of all kinds.

The various health professions and occupations differ markedly in their ability to recruit personnel, and these differences are apparent at each level of the educational system from which recruitment occurs, e.g., high school, junior college, college, and later. These variations are probably the result of multiple circumstances peculiar to each field. In order to ascertain what these circumstances might be, it would be necessary to undertake detailed studies of the various factors which influence the recruitment performances of individual health professions and occupations.

Certain general principles are important to stepped-up recruitment: (1) Increased educational attainment and minimized losses at various stages of education will increase the total pool from which health personnel can be drawn. (2) Recruitment to the health field should occur early, beginning in high school, but especially at the junior college and undergraduate college levels. (3) Economic, racial, religious, and geographic barriers to educational achievement must be removed. (4) Remuneration and conditions of work in the health services must be sufficiently attractive to compete favorably with other scientific, professional, and social fields.

The opportunities in the health field have limited visibility and are generally not known to high school students and their teachers, with the exception of the medical, dental, and nursing professions. One way of increasing knowledge of the career opportunities in community health services would be to include in

health courses more substantive information on community health services and on professional and supportive functions in the provision of these services, with less emphasis on personal hygiene. Special student projects, cooperatively planned by local health agencies and school districts, including summer and part-time employment, would stimulate interest of both instructor and student.

The main responsibility for recruitment into the health professions lies with the able people already dedicated to these professions who appreciate the opportunities for important work with job satisfaction. Professional and occupational groups have made significant contributions to recruitment. To enlist the aid of their individual members requires that each agency and organization accept responsibility for recruitment.

Every individual does not aspire to be a "chief" or professional and everyone, also, does not have the basic capacity for such a career. Our society has the obligation of identifying intellectual potential in all age groups, scientifically channeling the various kinds of personnel into the appropriate technical, vocational, and professional assignments. While leadership positions in community health services recruit from the baccalaureate programs, other essential health workers come from the junior colleges and other technical and vocational training programs. With approximately 700 junior colleges operating currently[7] and new ones developing at the rate of more than 20 per year, their potential contribution to the health manpower pool is enormous. Yet a very low percentage of junior colleges offer substantive curricula in the health sciences, either as terminal programs or as planned lower-division programs preparatory to professional and advanced studies.

The terminal courses offered by junior colleges for training dental and laboratory technicians, vocational nurses, clerical workers, and other aides to the health professional contribute to effective use of the highly trained professional. Many of the health workers trained in these programs may later take further education and move on to more advanced positions in health programs. Terminal programs in junior and state colleges, however, may do the student a disservice by channeling him into work with limited job satisfaction prematurely, before he is sufficiently mature to make secure decisions on his future life and work. It is therefore essential to design courses of study which will permit able students ultimately to pursue advanced studies leading to more responsible positions. Responsibility for developing health curricula in the junior colleges should rest not only with the administration and faculty of these colleges, but with the professional staff of health organizations that have junior colleges and state colleges within their jurisdictions.

At present and in the future, colleges and universities are our major sources of health manpower in nearly every technical and professional field of health services. The physical sciences provide leaders in environmental health; the social sciences provide our community organization leadership; and the biological sciences our health and medical care support. Trends in future needs for health manpower indicate, however, that reliance on any single discipline or group of disciplines for recruitment may jeopardize our progress. Recruitment from all disciplines and academic majors is essential, and schools of public health and departments of preventive medicine must find ways to stimulate recruitment by other schools and colleges.

Professionals trained in the health sciences, whose skills are basic to im-

portant community health jobs, are not moving into the community service arena in sufficient numbers. These include physicians, dentists, veterinarians, engineers, nurses, social workers, nutritionists, and environmental health specialists, to name a few. The explanation lies in several factors. One is that too few faculty members have knowledge of or experience with the broader problems of community service. Another is the limited visibility of many of the professional health functions and possible contribution of the discipline to these health occupations. In addition, social status, limited economic rewards, social controversy, and minimal social consciousness influence the decision to bypass work in community health. There are no easy answers to these problems although dedicated, imaginative, hard work of all health professionals can contribute most favorably.

Various groups in the population are sources of health manpower that have not been sufficiently tapped. Recruitment of personnel from minority groups is related to the opportunity for basic education, freedom of choice, and opportunity for advancement compatible with qualifications. This is not a problem peculiar only to the field of health services. It is a matter of elementary, long-overdue justice in our society. A positive, forceful effort to motivate Negro students and those from other minorities to enter the field of health services, and the provision of scholarship aid to facilitate their education, will yield great rewards in increased manpower.

Women constitute another resource for skilled health personnel. Although the majority of health workers are women, they tend to be employed in lower level jobs than men. With lengthening life spans and the growing tendency of the mature woman to return to the labor market, women constitute a vast potential for health personnel beyond the 1,800,000 now employed in health services. Barriers to recruitment based on sex and racial and ethnic heritage have no place in our society, and removal of these barriers is essential to effective recruitment of health manpower.

The Peace Corps and the Armed Forces are also sources of health manpower. Many Peace Corps volunteers who have completed their service are expressing interest in additional education and training in the health services and are returning for graduate and postdoctoral studies. This is a selected, highly motivated group, and their recruitment into public health should be encouraged by a national plan to capitalize on this growing interest and potential. The career programs of detached assignment by the Armed Forces to institutions of higher education, including schools of public health, have contributed experienced retired officers to the health field. An increasing number of the younger members of the Armed Forces Medical Corps—physicians, dentists, veterinarians, as well as administrative and supportive personnel—are interested in additional training and appointments in community health after their two or more years' tour of active duty. This significant source of health manpower has not been nurtured in a planned, organized way.

Public health is a field requiring exceptional maturity and sophistication. Some people stumble into public health from paths originally directed toward other goals. Some even stumble into it by reason of frustration in their efforts to reach goals in medicine, business, or other fields. Some, not learning about the field during their college years, discover public health as an exciting challenge later in life. All these persons, however, may grow into solid contributors to the service and advancement of public health. In order to bring to such persons knowledge of the opportunities in public health, wide publicity and

effective recruitment technics are needed.

The most effective recruiter is the established, secure, respected professional in the field. There is no inducement to recruitment like the visibility of a job which has opportunities for creative work and is rewarded by community acceptance and respect, supported by a few environmental and economic compensations. Even those who enter the health field from humanitarian or scientific motivations may be discouraged by rigid, stratified jobs limiting initiative and by inadequate recognition and rewards. Scholarships, fellowships, and traineeships undoubtedly contribute to successful recruitment, but this aid is no substitute for sound working conditions. One could cite many examples of increased recruitment to various fields of activity through educational support for basic education and training, but longevity in the field for which recruitment and training have been undertaken depends on the challenge of the job, the quality of performance of people already in the health field, the opportunities for advancement, and the socioeconomic rewards of the work.

Education and Training

The education and training of manpower for community health services are influenced by changing functions of health service personnel. New kinds of personnel needed are: (1) professional health administrators for program development and implementation whose background includes scientific information related to health and a knowledge of community structure and dynamics; (2) specialized professional and technical personnel for personal health services; (3) specialized professional and technical personnel for environmental health services; (4) vocationally trained personnel whose functional assignment permits more efficient utilization of the professional and technical manpower.

Schools of public health have a major responsibility for the preparation of community health administrators, including medical care and hospital administrators. These schools have the multiple professional and discipline approach necessary for education and training of a wide variety of specialists. The faculties, through joint appointments and cordial working relationships with other schools and colleges, are in contact with students in other schools who may enter the health field. Some of the most important courses offered by schools of public health can be those open to other students on campus and those taught by public health faculties in other departments. The traditional requirement of three years' experience in a public health agency before graduate admission to a school of public health has interfered with recruitment from other colleges directly into graduate work in community health practice.

Faculties of schools of public health, departments of preventive medicine, and especially professional health practitioners could profitably work with college faculties in their geographic areas to develop both special courses on campus and extension courses to stimulate interest in preparation for graduate education. They could also play an important role in the development of training programs for supporting personnel, such as aides in nursing, nutrition, social welfare, sanitation, laboratory work, and the like.

Other professional schools should be encouraged and helped to incorporate the concepts of community health program development and implementation into their graduate programs. Schools of medicine, dentistry, veterinary medicine, engineering, nursing, and social welfare, among others, could more energetically develop curricula which would

provide academic courses, residencies, and field training for community health responsibilities within the context of their professional areas.

Within schools of public health themselves, changes in curriculum are necessary to keep pace with new developments in community health. Education must be provided not only in the basic, traditional subjects of epidemiology, public health administration, environmental health, and biostatistics, but instruction must be offered as well in the newer fields of medical care, chronic disease control, gerontology, and mental health. Clearly, all these subjects—and others not mentioned—cannot be covered adequately in a single school year. The course of study for the master's degree in public health must be extended. The additional time could be spent fully in academic work, or could be divided between additional academic work and experience in a residency or field training.

It is not possible here to go into various problems relating to education and training in the many specialties required for the provision of comprehensive health care, but a few basic points indicating the direction that education in the health services should take in the future are suggested.

1. Education in the health services should be tied to a health setting in a university wherever possible—to medical schools, to schools of public health, and to university hospitals and medical centers. Schools of optometry and podiatry and training of physical therapists, occupational therapists, and other health specialists should be affiliated with a university to enhance the health orientation of their training. Training in hospital administration is fundamentally training in the provision of health services, although courses in accounting and business management are necessary, and instruction should be provided in a health setting within a university. The many kinds of health training now provided independently or under nonhealth auspices cannot be brought within the ambit of university instruction in the health services overnight, but exploration of ways to accomplish this objective should be intensified.

2. Professional and technical education in the health services will require more, rather than less, education. Although it is not possible to demand that all health workers first complete work for a baccalaureate degree, it is important that they receive as rounded and as full a preliminary education as possible. In the long run, it is better from the student's point of view as well as from that of all manpower to train generalists during the period of basic academic education, and to add specialist's training later through internships, on-the-job training, and continuing education.

3. Continuing education for all levels of personnel has become one of the most important parts of our system of education for the health services. It supplements education, updates knowledge, and instills enthusiasm. No effort should be spared in enriching the content of continuing education and in extending its availability. As junior colleges develop, they will be in a position to offer a wide range of continuing education programs in places convenient to personnel in local health agencies and institutions. Responsibility for development, content, and supervision of continuing education programs should be placed jointly in professional organizations and professional schools.

4. The effort to provide the kind and quality of education needed for the delivery of modern health services requires a partnership of the professional schools and the operating health agencies. Health workers in active programs can be helpful to professional schools in developing the kind of training needed, and professional schools are, in turn,

sources for recruitment of personnel. As new kinds of training are offered, appropriate jobs must be defined in the health agencies to use these skills. For an effective partnership of this kind, each agency should appoint a capable person to be responsible for recruitment and training and to maintain liaison with the educational institutions in the area.

The years ahead must surely bring further growth in our educational system—utilization of facilities on a year-round basis, expansion of existing schools, and development of new ones. The task is not only to train sufficient numbers of health personnel of the many kinds that we shall need in the future—although that is task enough—but also to train high quality personnel oriented toward community service, and hopefully for adjustment to our environment.

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