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ABSTRACT

The purposes of this report are: (1) to foster greater understanding and communication among physicians and allied professions as to the responsibilities, needs, and contributions to patient care made by each, and (2) to outline the dimensions of the challenge and describe steps that must be taken to facilitate the needed professional growth in all allied health fields. Recommendations made regarding the effort include: (1) The American Medical Association (AMA) should continue to support efforts to increase the number of allied health personnel and aid in the improved utilization of them, (2) The AMA should support innovations in teacher preparation for the allied health fields, (3) More efforts should be made to make the field attractive financially, (4) More effort should be made to expand health career opportunities for disadvantaged groups, (5) Studies of unresolved issues should be made, and (6) The role of the nurse should be expanded. (Author/SN)

A REPORT ON

EDUCATION AND UTILIZATION OF ALLIED HEALTH MANPOWER

AMERICAN MEDICAL ASSOCIATION

JUNE 1972

EDUCATION AND UTILIZATION OF ALLIED HEALTH MANPOWER*

Recommendations

* This report has been prepared jointly by the Council on Health Manpower and the Council on Medical Education, with assistance from the Council on Medical Service; approved by the Board of Trustees; and adopted by the AMA House of Delegates in June 1972.

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EDUCATION AND UTILIZATION OF ALLIED HEALTH MANPOWER

A Report to the American Medical Association
House of Delegates

June, 1972

I. Introduction

The medical profession has a major responsibility in relating to and working with the allied health fields. All the health professions find their focus, indeed their reason for existence, in care of the patient. As the major professional organization for physicians, the American Medical Association feels this responsibility keenly and believes that physicians and organized medicine must increasingly be involved in dialogue and collaboration with the allied health professions to coordinate the multiple, increasingly specialized components of the health team providing patient care. The need for medical ecumenism has never been greater.

The field of the allied health professions is today the most energetic, innovative and rapidly growing on the health care scene. This is as it should and must be if the mounting demands for increasingly sophisticated health services are to be met. The allied professions are being called on to play greatly expanded and increasingly complex service roles. There is a critical need to ensure that their educational programs and career pathways are designed to enable them to realize this expanded professional potential to the fullest.

The purposes of this report on "Education and Utilization of Allied Health Manpower," therefore, are:

(a) To foster, by bringing together information on the various aspects of allied health manpower, greater understanding and communications among physicians and allied professions as to the responsibilities, needs and contributions to patient care made by each.

(b) To outline the dimensions of the challenge and to describe the steps that must be taken to facilitate the needed professional growth in all allied health fields.

Like an earlier report on "Physician Manpower and Medical Education," submitted to the House of Delegates in June 1971, this report also examines numerical growth trends in the allied health professions and the prospects for achieving equilibrium between supply and demand for workers in these fields.

Finally, this report examines the potentials and problems involved in increasing the supply of health services through development of new health occupations such as the physician's assistant.

The term "allied health manpower" has been defined as including all those professional, technical and supportive workers in fields of patient care, public health and health research who engage in activities that support, complement or supplement the professional functions of physicians, dentists and registered nurses, as well as personnel engaged in organized environmental health activities. Because the primary focus of this report is on those occupations involved to a greater degree in delivery of patient or personal health services, a more restrictive definition of this term will be used.

Section 21 of the Health Manpower Source Book,[1] published by the U. S. Department of Health, Education, and Welfare, groups certain health occupations on the basis of their involvement in personal medical care under the category of "medicine and allied services." Within this category, four subgroups are identified: (1) physicians, (2) selected practitioners who function independently or semi-independently of the physician,* (3) "medical allied" occupations for which basic occupational preparation at the baccalaureate level is appropriate, and (4) "medical allied" occupations for which basic occupational preparation at less than the baccalaureate level is sufficient. This report will be concerned with sub-groups (3) and (4) above, which will hereafter be designated by the term "allied health manpower." Nursing at the registered, practical and aide levels will also be discussed to the extent that expanding service roles for the nurse interface with the currently emerging physician support occupations generically termed "physicians' assistants." Table 1 gives the estimated number of personnel in these three categories employed in 1970, and estimated 1967 employment figures for most of the specific occupations included in these categories are given in the Health Manpower Source Book[1] (pp. 48-50). Appendix A lists some of the occupational titles commonly used or grouped under these categories as determined from a review of the literature. The list, of course, is not meant to be all-inclusive, nor to imply sanction of any particular title.

For the most part, these manpower categories and occupations will be discussed together. Individual enumeration of trends, issues and problems for each occupation would be beyond the scope of this report. It would also be unrealistic in many cases because of the obvious interdependence between the education, use, and needs for different manpower categories.

II. Approaches to Meeting the Demand for Health Services

A distinction between "demand" and "need" for personal health services should be made. "Need" has been generally defined as the amount and kind of care judged necessary by medical authorities. It represents an "informed opinion" as to the health services needed by a patient or a population segment. Demand, by contrast, is the seeking out and use of health services and can be expressed in such concrete terms as hospital admissions per

*Optometrists, pharmacists, podiatrists, clinical psychologists, social workers, chiropractors and naturopaths, and lay midwives.

1,000 population or constant dollar health care expenditures. The two are not necessarily co-existent. An individual with need for health services may, because of indigence, misinformation or other reasons, be urable to translate this need into effective demand. Conversely, services demanded and utilized may be inappropriate or completely unrelated to actual health needs. Recognition of an allowance for this divergence is important in any planning for expansion of health services.

Increased demand for health services in recent years has generally outpaced an also growing capacity to provide care. The proposals for closing the supply-demand gap through reducing demand hinge on decreasing the inappropriate use of services or on accelerating health maintenance and disease prevention efforts. While more efficient utilization of health resources and improved health levels in the population are highly desirable goals in themselves, their potential for reducing or decelerating growth of overall demand is questionable. A mere shift of demand from one type of service to another might be the result.

Attempts to increase the supply of health services provided through manpower focus on increasing the supply of personnel, improving the utilization of existing manpower, and developing new health occupations.

Practical considerations have necessitated simultaneous efforts in all three directions -- increased supply, improved utilization, and exploration of new occupations. The continuing interaction of these three approaches, however, makes it difficult to predict future numerical manpower needs with any reasonable accuracy. This limitation in numerical projections, as well as others to be identified later, should be kept in mind in any examination of supply-demand imbalance.

III. Manpower Supply and Requirements: Present and Future

(A) Current Supply

Table 1 shows an estimated 1970 total of 2,581,000 individuals employed in the health occupations discussed in this report. About three-fourths -- 1,988,000 -- were employed in nursing at professional, practical or aide-assistant levels.

These totals are approximate because of a lack of data for some occupations and because of a lack of consistent terminology for others. The Division of Allied Health Manpower, Bureau of Health Manpower Education, has developed a list of titles for approximately 125 different health occupations[1] (pp. 39-40) and has also identified some 250 alternate designations or synonyms for these occupational titles which are often used interchangeably. Such lack of consistent terminology places yet another limitation on accurate "head-counting." It also stratifies occupational levels and impedes development of needed data on health manpower from the standpoint of specific services available, data which identify the field of practice, patient care and/or administrative functions performed, and educational and experience level of a given health worker.

In a report on "Terminology for Health Occupations" adopted by the House of Delegates in December 1970, the Council on Health Manpower urged further study directed toward establishment of such terminology. The Council on Medical Education is also working with appropriate health organizations, federal agencies and other AMA councils and committees to identify those terms which seem to be used inconsistently by members of different health occupations, and to propose and achieve consensus on suitable alternatives to current usage. The Council on Medical Education will include information on "The Language of Allied Medical Education--A Glossary of Terms" in future issues of its "Directory of Approved Allied Medical Educational Programs."[2]

(B) Past Growth

In 1950, the total number of workers in health occupations covered in this report was 877,000. The 2,581,000 identified in 1970 thus represents a growth of nearly 300 per cent. Within this total, and from the years 1950-1967, allied health manpower at baccalaureate or higher levels showed the greatest growth -- from 46,500 to 176,500 or 380 per cent -- followed by "allied health" at less than baccalaureate -- from 93,500 to 276,000 or 297 per cent -- and nursing personnel -- from 737,000 to 1,754,000 or 237 per cent. The relatively rapid growth in baccalaureate and higher occupations reflects the explosion in scientific knowledge and technology as well as the greater utilization of trained assistants in administrative and diagnostic work that has occurred over this period.

(C) Methods for Estimating Requirements

A number of methods are used to estimate manpower needs and to predict future supply. All have one or more limitations, perhaps the most important being the lack of an agreed upon standard of care as a base-line reference. Techniques for identifying current unmet manpower needs include:

(1) the totaling of budgeted vacancies in health care employment settings

(2) the computing of area deviations from a national or the highest area manpower/population ratio

(3) the compilation of expert opinions on additional manpower needed to provide adequate care

(4) the national extrapolation of ideal manpower/patient ratios derived from specific care settings and type of patients, and

(5) the comparing of needed quantities of health service with per/man service output values.

Two methods for estimating future manpower needs are (a) projecting current population/health service utilization ratios against future population growth and other predicted changes, and (b) making value judgments as to desirable manpower/population or manpower/patient ratios. Prediction

of future manpower supply involves examining growth trends in output of educational programs, health employment dollars currently and potentially available, attrition rates, professional life expectancy, and substitutability between health occupational roles.

Estimates of future manpower needs will, understandably, vary with the method used to derive them. For example, the needed increase by 1975 in certain specified allied health occupations has been estimated at 165 per cent using professional value judgments, at 35 per cent on the basis of bringing all four U. S. census regions up to the highest region, and at 76 per cent using projections by the U. S. Bureau of Labor Statistics.[1] (p. 75)

(D) Present and Future Requirements

The U. S. Public Health Service and the Interagency Conference on Nursing Statistics have utilized data from a number of sources to estimate present and future health manpower needs compared to supply. In these estimates, "requirements" is defined as the number of workers who could find employment without major changes in the health system, and not as the number of health workers needed to have a fully adequate or "ideal" health system, however defined. Thus, their estimates are closer to those derived from census regions and the Bureau of Labor Statistics; less weight has been given to professional judgments. These estimates of supply-demand imbalance in allied medical and nursing manpower for the years 1967, 1975 and 1980 are combined in Table 2. They show a manpower deficit (estimated requirements less current employment) of 391,000 for 1967 and 429,000 for 1975. These deficits represent roughly 18 per cent and 14 per cent of total employment respectively in those years.

On first examination, these data seem to indicate a need for even further acceleration in the production of health manpower. Further analysis, however, indicates that manpower supply may be overtaking demand at a rate faster than anticipated.

From 1950-1960, the total pool of workers in occupations covered by this report grew by 67 per cent, or an average per year increase of 6.7 per cent. From 1960 to 1970, the average per year increase was 7.7 per cent. Public Health Service estimates of available manpower supply in 1975 are based on an average per year growth rate from 1970-75 of only 3.5 per cent in these occupations, and this seems a quite conservative expectation in view of the trend toward acceleration rather than decrease in growth rate over the 20 previous years. In fact, if the average yearly growth rate was merely continued at its present level of 7.7 per cent, the number of workers in these occupations would total roughly 3,575,000 by 1975, almost 114,000 more than the number estimated to be needed in that year.

This is of course a gross projection which does not take into account the different growth rates and growth needs of individual occupations within this manpower pool. In addition, like all projections, it is

biased by history in that it extrapolates past trends into the future -- a dangerous practice in the current era of dynamic social change. A number of factors whose influence is just beginning to be felt may act together or antagonistically to completely confound current supply-demand predictions. These include the continued growth in third-party payment mechanisms and proposals for national health insurance, improvements in manpower productivity, and -- on a broader scale -- the potential slowdown in economic and population growth resulting from increased access to birth control techniques, recognition of a possible collision between people and resources available, and the shift from an expansionist or exploitive national philosophy to a conservationist one.

Speaking only within the limited confines of the next few years, however, concrete evidence is accumulating that the supply of nursing and allied health manpower is approaching equilibrium with demand at a rate faster than anticipated.

For example, Miller and Ferber,[3] in their review of manpower utilization patterns over the past decade, compared unfilled manpower requirements reported by hospitals in 1966 for 29 occupations with similar figures compiled in seven states for 1969. They found that "in every category of personnel and in all seven states the proportion of unfilled positions to filled positions declined between 1966 and 1969" -- that the growth of hospital employment had exceeded the expansion of hospital manpower needs over this period. They theorized that the level of activity in health manpower training is increasingly responsive to the needs of the industry and is beginning to reduce the volume of unfilled needs.

This concept of "increased responsiveness" is discussed further by C. M. Stevens and G. D. Brown in their report on "Supply and Demand for Health Manpower Training in Oregon" (unpublished data). They differentiate between the traditional "performance target" approach in manpower planning, where numerical manpower goals are set, and a "structural planning" approach, in which no attempt is made to estimate future required numbers of personnel, but rather the supply side of the health care market -- including the training facilities -- is examined and modified as necessary to insure that it is structurally capable of responding efficiently to changing health manpower demands whenever they may occur. The concept of structural responsiveness merits serious consideration as an alternative or a complementary goal in manpower planning, whether at national or local levels. It may become particularly important if an oversupply of health manpower is to be avoided at some point in the future. The health system should be capable not only of acceleration but deceleration as well.

Again, speaking only within the context of 1971, evidences of manpower shortage, while not precisely quantified, seem to be sufficiently compelling to merit continued efforts to increase numbers and improve utilization of health workers in nursing and allied health fields for the next four years. By 1975, the results of such effort as well as the

effects of national health insurance and other factors influencing demand should be more apparent and susceptible to evaluation. At that time it should be possible to determine whether further adjustments are necessary.

RECOMMENDATION

It is recommended that the AMA continue to support vigorously efforts to increase the number and improve the utilization of medical, nursing and allied health personnel for the remainder of the first half of this decade, with reevaluation in 1975 as to the magnitude of further efforts.

It is further recommended that growth trends in all health occupations be carefully monitored over this period, with consideration given to the time lag in production of highly trained personnel whose occupational life may extend far beyond the "crisis" which generated their recruitment. Educational programs should be flexible enough to decelerate as well as to accelerate production of health manpower as changes in demand may indicate.

IV. Increasing the Numbers in Allied Health Occupations

(A) Educational Programs

The National Commission on Accrediting recognizes the American Medical Association and collaborating organizations as the accrediting body for educational programs for medical record librarians, medical technologists, occupational therapists and physical therapists. The U. S. Commissioner of Education recognizes the Council on Medical Education as the accrediting body for educational programs for these same occupations as well as for medical record technicians and radiologic technologists. In all, national professional associations collaborate with the AMA Council on Medical Education for the approval of educational programs for eighteen selected allied health occupations. The type of educational programs accredited, as well as the collaborating professional associations, are listed in Appendix B.

The adequacy of data on the output of educational programs for allied health occupations at baccalaureate or higher levels varies from one occupation to the next. The number of graduates from programs for training 17 of the 21 baccalaureate or above occupations listed in Appendix A increased from 10,168 in 1964-65 to 12,304 in 1966-67 (the years for which complete data are available) or about 20 per cent; the 1967 graduates were the product of 1,617 programs operating in that year.[1] (pp. 51-59) Data on educational programs for sub-baccalaureate allied health personnel are even more spotty. These individuals, who may progress up the career ladder through other than conventional means, represent a significant proportion of the health workers in hospitals and other care settings.

Information on educational programs for the 18 allied health occupations which are accredited by the AMA Council on Medical Education is more complete. The 1972 edition of the "Allied Medical Educational Directory" will show that on July 1, 1971, a total of 2,517 approved educational programs for these occupations reported an overall student capacity of 38,537, an enrollment of 29,663 and 16,494 graduates during the 1970 calendar year. Yearly educational data have been compiled on eight of these occupations for a sufficient period to permit evaluation of growth trends over a six-year period. These data are summarized in Table 3. From 1964 to 1971, the number of approved programs increased from 1,774 to 2,258 or 27 per cent. Graduates increased from 7,480 to 14,347 or 48 per cent; thus the "per-school" output also increased over this period.

(B) Program Capacity

While data are subject to some reporting limitations, available information strongly suggests that the capacity of currently operating educational programs is a present or potential limiting factor in needed growth of allied health occupations. The educational capacity of programs for many of the allied health occupations represents a bottleneck in increasing the output of these health occupations to the degree needed. If individuals were stimulated to seek allied health careers in sufficient number to meet projected future needs, the present capacity of schools for the majority of these careers would be insufficient.

It can be expected that educational programs for allied health occupations will continue to respond to growing demands for education and training. These demands will be met through such approaches as the increased "grouping" of curricula in senior colleges, schools of allied health or health sciences, and university medical centers; more education programs in junior/community colleges; a shift of programs from clinical settings to educational institutions; development of "core" curricula; and the institution of year-round educational schedules.

(C) Financing Support

Expansion in training capacity will be further stimulated by financial assistance available to allied health education programs under Public Law 91-519, the Health Training Improvement Act of 1970, and through various local public and private sources. A significant increase in Federal support for construction and improvement of training facilities as well as a comparable increase in broad-based state and local tax support will continue to be needed for the next few years if allied health education is to meet future needs for expansion and avoid passing along costs of such expansion to health care institutions and their patients. A significant increase in the level of federal support could be achieved simply by appropriating and spending the full amounts now authorized under existing legislation. This practice has not always been followed in the past; for example, the differences between amounts authorized and actually appropriated under the Allied Health Professions Personnel Training Act of 1966, for the Fiscal Years 1967, 1968, 1969 and 1970 were 10.5 million, 11.5 million, 22.7 million and 33.9 million dollars respectively. Full

appropriation of the 1972 funds authorized under this act is urgently needed, as is full appropriation and expenditure of the authorization for Fiscal Year 1973.

Financial aid to students in programs of allied health education, including scholarships, guaranteed loans, traineeships, part-time employment and other educational aids, is particularly needed. There are three general sources of scholarships, loans and other educational aids. First are the colleges, universities and vocational schools themselves. There is scarcely a school in the United States without a scholarship fund, loan fund or other service such as a student employment office.

In addition, a vast number of private clubs and societies, state associations and national organizations and foundations offer scholarships and loans. Excellent examples are the student scholarship and loan programs conducted by many state and local affiliates of the Woman's Auxiliary to the AMA across the country. These programs -- some in operation as long as 20 years -- last year raised over $600,000 to be utilized for deserving students in allied health fields. There are thousands of such scholarships, loan funds, gratuities and other educational aids offered by universities, colleges, foundations and other private organizations, and far too many go unclaimed each year simply for lack of knowledge as to their availability. Comprehensive directories of the types of assistance available, such as the excellent publication "Need a Lift?" issued by the American Legion, would be of great assistance to prospective students and guidance counselors.

Finally, many state governments and the Federal government offer numerous educational aids in the field of allied health education. With specific reference to federal support for students in allied health, high priority should be given to increasing the totals of upper division traineeship grants available for study leading to the baccalaureate or higher degrees. Lower division traineeships for one and two-year programs of study in the allied health fields should also be expanded. However, financial support for students in these programs should be budgeted separately from upper division traineeships so that this rapidly growing segment of allied health education does not exhaust the entire budget.

Shortage of competent faculty is another obstacle to expansion and improvement of allied health education. Dimensions of the shortage are such that increasing consideration is being given to methods of shortening teacher training programs and of making such programs available to those currently employed in allied health fields as well as to full-time students. For example, the Kellogg Foundation is supporting the establishment at six universities of teacher education programs for allied health personnel currently employed in the clinical setting. Similar programs elsewhere are being funded by the Bureau of Health Manpower Education, National Institutes of Health.

RECOMMENDATION

It is recommended that the AMA encourage and support innovations in teacher preparation for the allied health fields as well as the continuation and expansion of traditional teacher training programs.

(D) Enhancing Career Desirability

Over and above considerations of educational capacity, the greatest immediate need in expanding the supply of allied health manpower is to increase the attractiveness of these careers by improving their professional and financial potential. A major factor limiting growth in these occupations has been the low level of earnings in comparison with other occupational categories requiring equivalent education. Although this disparity has lessened somewhat, it still exists to a significant degree in virtually all the occupations discussed in this report. For example, the mean annual earnings of medical record librarians in non-federal hospitals was $6,786 as of March 1969;[4] the mean 1969 income for all working women* 25 and older with 4 years' college was $7,605.[5] The mean annual income for non-federal hospital dietitians was $7,930; the median 1969 income for all working women* with 5 or more years of college** was $9,262. Mean annual earnings for radiologic technicians was $6,266 in that year compared to a mean income for all working individuals*** with 1-3 years of college (the rough educational equivalent of high school plus radiologic technology training) of $8,449. Mean annual earnings for medical technologists was $7,462, compared with $9,960 for all working individuals*** with 4 years of college.

(E) Career Mobility

It is not enough simply to recommend that salary levels in the allied health professions be increased. Another factor which reduces the attractiveness of some allied health careers is the lack of vertical and lateral mobility and the "professional ceilings" encountered in many such occupations. Productivity, responsibility and career mobility must increase along with remuneration if the health service economy is to remain balanced and viable.

Career ladder training projects for health workers must be established on a broader scale, both within health facilities and in arrangements between those facilities and vocational schools, colleges and professional schools. Ultimately, several of the allied health disciplines

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*Nearly all medical record librarians and dietitians are women.

**In addition to the baccalaureate degree, dietitians complete a 1-year dietetic internship to qualify for professional recognition.

***Some 1/3 of the radiologic technicians and medical technologists studied were men; therefore mean incomes for all working individuals were weighted by this ratio.

could be related in an educational continuum to provide multiple points of exit to jobs and reentry for further study preparatory to a higher professional level, up to and including the level of the physician.

The identification of such educational and experience interrelationships could help eliminate the artificial barriers which separate one segment of the health manpower pool from another, and could enhance promotional and financial potential by enabling students who are not content with terminal technical competence to continue their professional growth. Salary structures in hospitals and other employment settings should be shaped to attract employees interested in this type of career advancement and to reflect the existing opportunities for upward mobility. Finally, salary levels of health workers with limited skills should, whenever possible, parallel those paid in comparable employment situations in other fields. Opportunities for on-the-job training will be especially important for these workers.

The importance of developing such educational and career pathways cannot be overemphasized if the need for increased and increasingly comprehensive health services is to be met and the allied health professions are to have the opportunity for continued professional and economic advancement.

RECOMMENDATION

It is recommended that the AMA continue to give all possible support to improving the professional and financial potential of careers in the allied health fields.

Basic to the concept of career mobility is the need to evaluate better each individual's abilities, regardless of the route he traveled to attain them. Validated proficiency and equivalency testing programs can serve as a basis for this evaluation. Proficiency testing assesses an individual's knowledge and skills related to the actual demands of an occupational specialty or a specific job. Equivalency testing equates learning gained outside of formal training programs with the requirements of courses that constitute recognized training programs.

Attempts are now being made for the first time to develop such tests for allied health fields. Course (educational) equivalency examinations are being developed in four subject areas of medical technology (clinical chemistry, microbiology, hematology and immunohematology) by the College Level Examination Program under a contract from the Bureau of Health Manpower Education, National Institutes of Health. Actual test development is under the direction of the Educational Testing Service, and the examinations will be available for administration in the fall of 1972. In addition, the National Committee for Careers in the Medical Laboratory, with contract support from the Manpower Administration of the Department of Labor, is developing proficiency examinations in the same four subject areas of medical technology. Test development has been sub-contracted to the Educational Testing Service, and initial administration will take place in November 1971 at 71 test centers throughout the country.

The AMA Council on Medical Education has established a special Task Force on Equivalency and Proficiency Examinations to study this and other activities in equivalency and proficiency testing, with the basic objective of ensuring that educational programs and experience do, in fact, prepare the student for the allied health occupation selected.

H.R. 1 (Social Security Amendments of 1971) as reported out by both the House Ways and Means and Senate Finance Committees, requires the Secretary of HEW to develop and apply means of determining the proficiency of health personnel disqualified or limited in responsibility under present regulations governing conditions of participation for providers of service under Medicare.

Finally, the Council on Health Manpower is developing a national program for certification of the assistant to the primary care physician which will grant certification on the basis of validated proficiency testing to individuals of both traditional and unorthodox educational background.

RECOMMENDATION

It is recommended that the AMA reaffirm its support for study of educational equivalency and job proficiency measures as alternative routes to advanced education or job placement of allied health personnel.

(F) Military Medical Personnel

Improved access to advanced educational or job placement through equivalency and proficiency testing is especially important if more than a token proportion of the estimated 30,000 military medical personnel discharged yearly is to be retained in the civilian health field. Not all of these individuals are qualified or interested in pursuing health careers; certainly a higher proportion could be retained than are at present, however. The Armed Forces constitute a major source for nontraditional training in health fields, and veterans wishing to continue their formal education in civilian institutions should be able to receive credit for relevant training received in the service. The Commission on Accreditation of Service Experiences makes credit recommendations to colleges and universities on thousands of courses offered in the Armed Forces. In addition, the U. S. Armed Forces Institute provides an extensive testing program to aid servicemen in obtaining credit for their knowledge and experience.

To further increase complementation between military and civilian training programs, the AMA Council on Medical Education and the U. S. Department of Defense have jointly established a "Task Force on Military Allied Medical Education" which will attempt to:

(1) Ensure that all appropriate military educational programs are approved, and that personnel trained through these programs will be able to meet the appropriate registration, certification, or licensure requirements for a particular occupation.

(2) Review the Council on Medical Education's requirements for allied health programs so that military programs can be encouraged to apply for approval.

(3) Explore the feasibility of "transferring" the military training experience into civilian health education.

These activities should help to blend military and civilian educational programs for allied health occupations, and thereby facilitate transition of military-trained personnel into civilian health occupations.

(G) Expanding Opportunities for the Disadvantaged

The expansion of educational opportunities in medicine and allied health careers for disadvantaged students should receive continuing priority in attempts to increase the supply of health manpower. Lack of financial assistance -- or lack of knowledge as to sources of such assistance -- is a major deterrent to recruitment of the disadvantaged into health careers requiring any length of training. Private and governmental programs that provide adequate scholarships, loans and other financial assistance to disadvantaged persons seeking health careers should be expanded. In addition, many highly motivated people who could effectively serve in the health field have received inferior primary and secondary education. Training programs should be encouraged to provide tutorial services and enriched programs to help develop these people to a level for acceptable admission and increased funding should be made available for such programs. Increased information on health careers is important. The AMA publishes health career information, notably "Horizons Unlimited," and has endeavored to maintain and improve contacts with guidance counselors and health careers committees. Most of these activities, however, have been aimed toward students at the high school level; to be maximally effective they should begin at the elementary level and should be continued through the school years. Materials geared to elementary ages and emphasizing the attainability of health careers for minority and disadvantaged groups should be utilized through increased communications with all agencies which are in contact with these groups. While career decisions are seldom made at this level, the continuing knowledge that the door leading to these careers is open can be the primary motivating factor in attracting such individuals at the appropriate time. Such informational materials should be backed up by vocational counseling services.

The inadequate representation of minority and disadvantaged groups in medical and allied health professions has been of continuing concern to the AMA. A major program focus of the AMA Committee on Health Care of the Poor is to promote active recruitment of the poor into health careers. The AMA, together with the National Medical Association, the Association of American Medical Colleges, and the American Hospital Association, participates in an Inter-Association Committee concerned with expanding educational opportunities in medicine for Blacks and other minority students. Efforts of this Committee to retain minority students

in the educational pathway leading to a medical career will also increase the number of such individuals qualified to pursue training in the allied health professions. Project 75, a program designed to discover, develop and sustain college students who are in quest of a medical or other health career, is being promoted by the National Medical Association.

RECOMMENDATION

It is strongly recommended that continued effort be made to expand allied health career opportunities for minority and disadvantaged groups.

(H) Worker Retention and Retraining

Expanded effort is needed to retain more allied health workers in the labor force. Considerably more women than men are employed in allied health fields. Women who enter these professions and occupations often leave when they marry or during the early period of child rearing, and this is a major contributor to manpower shortages. Initial employment is often of short duration and may be the only work experience enjoyed by many women prior to their desire to re-enter the health labor force some 10 to 20 years later. Consequently, these individuals need refresher courses before they return to work. With rapidly expanding knowledge in the health field, such courses must include new content as well as a review of previously acquired knowledge. Health facilities and employers should provide more opportunities for continuing education or on-the-job training to employees. Vocational guidance counselors could assist employees with education and training plans; with opportunities for job changes or advancement within the health facility; with information on community services, such as sources of health services and day care for children; and with transportation arrangements. They could also serve as coordinators with educational institutions for placement of graduates in local health facilities.

Both the Council on Health Manpower and the Council on Medical Education support and encourage these and similar approaches to increasing the supply of health manpower. As the common unit between educational institutions and allied health and medical specialty organizations concerned with education for health occupations, the Council on Medical Education has established a "clearinghouse" for information on trends in allied health education, with primary focus on the following subjects:

(1) Career Mobility and Core Curriculum
(2) Continuing Education
(3) Equivalency and Proficiency Examinations
(4) Instructor Preparation
(5) Terminology for Health Occupations

The Council attempts to collect information on activities in these areas, develop workable "models" of what a program should include on the basis of successful experiences, coordinate the activities of those

organizations collaborating with the Council in accreditation, and communicate the consensus of these organizations and occupations to agencies of the federal government and other organizations, as well as to other councils and committees within the AMA.

V. Improving Deployment of Existing Manpower

Many efforts to increase the supply of health services through better use of existing manpower resources focus on expanding the productivity of the physician and those working with him. An economic concept, productivity is defined as the output per unit of input in a production process. Increasing the productivity of health manpower involves increasing the health care "output" -- however measured -- produced by a given number of health personnel man-hours.

(A) Job Analysis

One approach to increasing productivity, alluded to previously, has applied the techniques of industrial engineering and job analysis to the health care delivery process. While specific techniques and methodologies vary, the essential elements common to most include:

(1) Selection of a health sub-system, or "health team," to be studied, be it defined by a medical specialty, by a type of patient need, or by a specific care setting such as a hospital, or outpatient department, etc.

(2) Compilation of an inventory of all tasks performed by each member of that health team, with frequency and time duration obtained for each, and the physical facilities utilized.

(3) Assignment of task performance capabilities to all present or potential health team members; i.e., identifying those tasks or services which should best be performed by the physician, and those best performed by other personnel or specified levels of training/competency, utilizing professional judgments.

(4) Development of a model identifying the combination of personnel, facilities and the agreed-upon task allocation needed to achieve the desired health care "output" (usually measured in terms of patient volume, number of patients served, or similar indices). In an increasing number of instances, sophisticated computer simulation techniques are being used to structure this model so that a fairly precise representation of patient flow and volume can be made for a number of different personnel-space-task configurations.

For a number of reasons, the potential of this approach for increasing manpower productivity is not yet clear. One problem is lack of consensus as to an acceptable unit of health care output by which to measure increases in productivity, although such measures as patients served or services provided per unit time, patient satisfaction, or health status results have some utility. Too, because of the wide variation in patterns under which health service is provided in this country, findings from analysis of a given type of health team may have limited applicability to similar teams in other areas. In addition, techniques for the analysis itself vary; more research is needed to determine which techniques are most appropriate for different types of health teams. A compendium of alternative methods for job analysis would be an important contribution to the field, and will be developed by the Council on Health Manpower.

Finally, to the extent that job analysis identifies the need for creating new helping roles in a health team, or for more personnel in existing roles, manpower productivity has not been increased, since the "input" side of health care must also be expanded. Even when direct productivity gains are not possible, however, job analysis has produced a number of potentially valuable by-products, including better identification of additional manpower needs, clearer perception of service roles by health team members, and -- most important -- closer alignment of educational curricula to changing and expanding professional roles.

The Council on Health Manpower will continue to encourage and participate in analyses of specific health teams, both to encourage productivity gains and to establish long-range goals in recruitment, utilization, and training of specific types of health manpower. Similarly, the Council on Medical Education will continue to encourage closer alignment of education with actual job functions in its development of "Essentials" for new occupations and in the revision of Essentials for existing occupations.

(B) Education for Teamwork

Identifying needed reallocation of tasks within a health team is only half the job; these reallocations must be accepted by every member of that team, including the physician and nurse. Evidence indicates that resistance to transfer of a function intensifies when the transfer is seen as surrender rather than delegation. Overcoming such resistance requires a change in the perceptual set of the health worker concerned, and greater understanding between all health professionals about the roles and responsibilities of each. Systems of segmented training for different kinds of health personnel tend to promote their stratification into hardened categories. If medical and allied health personnel will be working together in a health team, they should be trained together to the degree feasible. In addition, both students and practitioners need exposure to concepts of effective health team management and utilization, including administrative techniques, principles of effective supervision and delegation of responsibilities, and more detailed orien-

tation on how the other categories of health manpower are prepared to contribute to patient care. Such subject matter should be incorporated in both undergraduate and continuing medical and allied health education.

RECOMMENDATION

It is recommended that the AMA continue to support and encourage application of job analysis to specific health teams, as well as efforts to refine the technique itself. It is also recommended that greater interrelationships be established between training programs for medical and allied health professions that will be working together in health teams.

With rapidly changing patterns of health care delivery, the old question of who should "captain" the health team has become meaningless unless asked in terms of a specific physician, a specific team and a specific patient during a specific phase of his care episode. The physician will always exercise the primary authority in medical care, in that he alone has the breadth of medical knowledge necessary to make the initial decision as to whether services of an allied health professional are needed for his patient. However, there will be times during the spell of illness when the services of other health professionals assume the forefront.

(C) Technological Aids to Productivity

The uniquely medical applications of technology have been few and usually have occurred in such areas as the handling of materials (such as automated analysis in the chemistry laboratory) or in more efficient methods of packaging (such as disposable syringes or unit dose medications). The relation of most of these innovations to manpower productivity is relatively straightforward since there is a considerable relevant industrial experience regarding the mechanization of manually performed tasks. There is, however, one facet of technology where innovations may have a more profound implication for health care -- the use of computers to automate information handling.

There are a number of areas in which information handling technology has the potential for improving health care efficiency or quality. Perhaps the clearest productivity gains have come from the computerization of the formerly manual functions of billing, posting and payroll in health care institutions. Another application has been automation of the data handling aspects of test ordering and reporting, specimen identification, and work assignments in the clinical laboratory. Cost-benefit data in this area are less clear-cut. Labor savings alone do not override the cost of the computer system; but other factors, including improved work flow and capacity, employee satisfaction, decreased in-service training requirements and a more organized print-out for the physician, are said to more than justify automation in the laboratory.

The use of automation technology in patient bio-monitoring, while presumably improving quality of care, will probably not reduce but only

redirect manpower demands from one type of personnel to another, with possible increases in cost. Another as yet under-utilized capability of information handling technology is that of scheduling patient movement in the health care institution or system to enable more efficient use of facilities. The impediments are not technical in nature but seem to stem from reluctance in many institutions to abrogate "departmental" prerogatives in favor of more logical strategies of resource allocation. Such reluctance can also thwart the potential efficiencies which could be realized through sharing of central laboratory facilities and other complex equipment by a number of health care institutions. One other application of information handling technology with significant promise for increasing manpower productivity is use of the computer for dictation, storage and retrieval of physicians' orders and the patient record. If this use of information technology is to achieve its full potential, major modification and standardization are needed in methods of collecting and reporting clinical data, including development of uniform terminology and reporting formats for the medical record.

Computer technology, no matter how sophisticated, is only one part of a much larger system, and if the other parts of the system cannot or will not change, then the impact of the computer technology will be minimal or even negative in terms of manpower productivity. Many computer applications have been abandoned not because of any fatal weakness in the technology but because the other parts of the health care system lacked the flexibility or the desire to take advantage of the opportunities offered by the technology.

A special report from the Board of Trustees to the House of Delegates in June 1971, titled "Computer Systems in Medicine," gives a comprehensive overview of the "state of the art" of both clinical and business applications of the computer in medical practice.

(D) Licensure and Certification

Discussion of methods for increasing manpower productivity would be incomplete without reference to the influence of licensing or certification systems on the effective use of health personnel. As manpower control mechanisms, both licensing and certification may require modification to alter favorably the distribution of responsibilities between physicians, nurses, and allied health workers and thereby achieve an increase in productivity. Of particular concern to many groups at this point is the tendency toward proliferation of licensing laws for specific categories of allied health professionals, both existing and emerging. If unchecked, this situation could further accelerate the fragmentation of health care services and freeze health occupations into legislatively defined roles at a time when innovation and experimentation are needed. In December 1970, the AMA House of Delegates issued a special report on "Licensure of Health Occupations" which reviews some of the acknowledged limitations in current governmental occupational licensing mechanisms, examines some of the suggested changes in or alternative approaches to licensing now under consideration or trial, and recommends steps designed to resolve shortcomings in the systems, including:

(a) a moratorium on state licensure for any additional health occupations, to permit time for study of alternatives to the present system;

(b) creation of a national study commission in cooperation with other national groups, to develop workable long-range solutions;

(c) a number of steps to effect immediate, short-term alleviation of shortcomings in the present system including (1) the amendment where indicated of existing licensure laws to permit expanded function or task delegation to allied health workers and increased access to licensure or certification for those with other than traditional prerequisites, and (2) expansion of programs for periodically up-dating and maintaining competence.

The American Hospital Association, American Nurses' Association, American Public Health Association, and -- most recently -- the U. S. Department of Health, Education, and Welfare,[6] among others, have similarly requested moratoriums on state licensing. In addition to urging a two-year moratorium, the HEW Report called for under Public Law 91-519 is supportive of other recommendations made by AMA, including the expansion of medical practice acts to permit expanded task delegation, and increased development and validation of job proficiency and educational equivalency examinations.

The Council on Health Manpower is now working to expedite establishment of the proposed national study commission. Through the Council on Medical Education, the AMA is also co-sponsor with the Association of Schools of Allied Health Professions and the National Commission on Accrediting of the study of accreditation of selected health education programs, which is funded by the Commonwealth Fund. Because of the obvious interrelationships between accreditation, licensure and certification, coordination between the two study efforts will be sought.

(E) Maldistribution

Significant numbers of people live in areas that can be classified as "medically deprived" in that services of physicians and of other health professions are not available in proportion to health service needs. The problem is particularly acute in the city slums and in many outlying rural areas. Considerable study has been devoted to methods for alleviating this maldistribution of manpower; approaches currently under consideration or trial involve attempts to relocate health workers and to develop alternative methods for insuring availability of health services when needed.

A number of methods of placing more physicians or other health workers in deprived areas have been proposed or tried. They include forgiveness of student loans, payment of tuition, tax exemptions or

other financial inducements in return for service or a period of service in deprived areas; community development of medical facilities, government-sponsored community health centers; special efforts to recruit health students from deprived areas in question; the decentralization of medical and allied medical education through rural preceptorships and greater use of community hospitals, creation of special cadres or "corps" of health professionals under government aegis, and legislation providing exemption from military obligation in return for service in a deprived area.

Detailed examination of the pros and cons of such proposals is beyond the scope of this report. In general, the AMA supports voluntary mechanisms, including financial incentives, such as student loan forgiveness for service in deprived areas, and opposes the use of non-military service as an alternative in satisfaction of obligatory military service. While the expansion of educational opportunities in the health professions for residents of deprived areas merits strong support, evidence that such students tend to a greater extent to return to practice in such areas is inconclusive. Care is needed in any proposal that would utilize community health facilities for allied or other health professions training to insure that the quality of the educational experience is maintained.

P. L. 91-623, the Emergency Health Personnel Act of 1970, creates a National Health Service Corps and authorizes the use of commissioned officers and other personnel of the U. S. Public Health Service in health teams assigned to provide health care and services to persons residing in areas with a "critical health manpower shortage" who are not otherwise eligible for U. S. Public Health Service care. The Act also provides for the use of health personnel who are not members of the PHS commissioned corps and would permit assignment of both commissioned and non-commissioned personnel to non-USPHS facilities. The legislation requires certification by the local and state medical societies that the community applicant is a manpower shortage area.

Guidelines for implementation of P. L. 91-623 have been established and the program has been funded for staffing and start-up activities. However, the program has not received the full amount of funding authorized. Possible abolishment of the PHS Commissioned Corps is a further complicating factor. Because of these uncertainties, the potential contribution of this law to alleviating maldistribution is difficult to assess. A large proportion of the personnel serving under P. L. 91-623 are likely to be young newly graduated physicians highly motivated to participate in a program of social service. For this reason, there may well be need for back-up by more experienced physicians in primary care and other medical specialties. Leadership by the AMA and state and local medical societies in providing such back-up on a volunteer basis should be considered.

Controlled assignment of personnel to defined areas of need can be termed more of a stop-gap measure than a long-term solution to problems of maldistribution. In fact, for some areas, solutions completely different from the traditional "health-worker-in-residence" may be needed. Health professionals, like other persons, tend to gravitate to the states, sections within a state and parts of a city that offer basic cultural, social, educational and professional satisfactions to them and their families. This fact was pointed out in a special report on "Interstate Reciprocity" issued by the House of Delegates in December 1969. The report found little relationship between the extent to which a given state extended medical licensure reciprocity to other states and the adequacy of that state's physician supply, and it identified a number of other factors exerting a more potent influence on a physician's choice of practice locale.

It is reasonable to assume that these same factors exert a similar influence on the distribution of allied health manpower. For this reason, it is doubtful that the conventional approach of relocating personnel -- whether through inducement or directive -- can do the whole job.

RECOMMENDATION

It is recommended that increased emphasis be given not only to current approaches for alleviating maldistribution of health manpower which involve voluntary incentives toward relocation of health personnel, but also to such alternatives as expanded transportation and communication capabilities, use of physicians and allied health workers on a part-time basis, innovative use of health teams in isolated areas, and increased development of bio-monitoring technology.

A number of communities, neighborhoods and medical service areas in different parts of the country are utilizing these and other innovative approaches to improve the availability and quality of care to their residents. These programs of health care delivery can well serve as prototypes for modification and adaptation in similar circumstances elsewhere. A recent publication by the AMA Council on Rural Health describes selected innovative models for health care delivery in rural areas.[7] Similar information is needed on successful delivery prototypes in other settings. There is, of course, no one, simplistic solution applicable to all medically deprived rural locales; rather, each area will need to develop its own plan, incorporating those approaches most appropriate to its particular needs. Of prime importance is coordinating of planning. Multiple rural communities in a logical health service area should plan together to develop health care systems on a regional basis to attract and be able to support the needed health manpower and resources while eliminating underutilization and duplication of facilities.

(F) Utilization Clearinghouse

In all efforts to improve manpower utilization, whether through increasing productivity, redistributing personnel or improving delivery systems, there is a real need for better flow of information between sectors of the health system on approaches which have proven successful. Because of the proliferation of individual program activity and the fragmentation of information-gathering efforts in the field of manpower utilization, the Council on Health Manpower has recommended and will develop a manpower utilization information clearinghouse. Such a clearinghouse would, for the first time, centralize responsibility for:

(a) Describing innovative projects in the use of health manpower

(b) Evaluating such projects in terms of their utility to medical care settings other than those in which they were originally implemented

(c) Communicating to other sectors of the health industry information on such innovations.

In addition to collecting and disseminating the results of individual manpower utilization studies, the clearinghouse will attempt to synthesize such study data to provide a valid national picture of manpower needs, and would recommend or would conduct additional study as needed.

VI. Development of New Health Occupations

As noted previously, one important approach to increasing the supply of health services involves reallocation of duties between the physician and other health personnel to achieve the best use of skills at each level. This reallocation can take place in two ways: by expanding the medical service role of existing health occupations, or by creating and recruiting for new career roles to assist the physician. The latter approach has received increased attention recently. The past few years have seen extensive activity by educational institutions in various parts of the country in developing programs to train various new physician support occupations generically termed "physician's assistants".

(A) Past Activity

Neither the basic concept of an assistant to the physician nor the precedent for task delegation is in itself new. Within the office setting, many physicians have been successful in training their own assistants and in delegating tasks previously done by the physician. In the past, as a particular physician or group of physicians saw the need for a new helping role a person was trained to fill that role. When this effort proved successful, others followed the example until the proliferation in numbers of these new health workers and the demand for services of similarly trained personnel became so great that "formalization" of the training procedure was necessary. This formalization

usually took the form of development of minimal educational standards and, later, approval of educational programs that met or exceeded these standards, so as to guarantee both the employing physician and the public that the health worker was capable of performing the tasks assigned to him.

Such formalized educational standards traditionally originated with the professional organizations representing the various occupations. In a number of instances the process led to formal cooperation between the occupation, the appropriate medical specialty group, and the AMA Council on Medical Education in accrediting educational programs.

(B) Current Efforts

In recent years, however, both the pace and character of this developmental sequence have changed. Stimulated by the shortage in health services, the process of developing new types of assistants to physicians has been accelerated and has become formalized at earlier stages. In many instances the determination of need for a new helping role is now an organized effort rather than an evolutionary process, and it originates within educational institutions or, more recently, with medical specialties. In some cases, a curriculum and training method have been developed even before the need for and the role of the new occupation have been documented, and without consideration of the degree to which existing occupations could fill that role.

The June 1971 "Informational Bulletin" of the Department of Health Manpower reports at least 47 programs currently in operation or planned for training new physician support occupations. Twenty-one of these programs, as listed in the August 1971 report of "Educational Programs for Physician's Assistants" by the Department of Allied Medical Professions and Services, are designed to prepare new types of workers to assist primary care physicians. The keynote of these programs is variety. Length of training varies from eight weeks to five years, and educational settings include medical schools and medical centers, public and private hospitals, clinics, junior and community colleges, and universities. Prerequisites for admission vary from high school graduation or experience as a military medical corpsman to possession of a baccalaureate degree, and credentials awarded vary from none to certificates or associate, baccalaureate, or higher degrees. Proposed employment settings include physicians' offices, hospitals, clinics, and emergency rooms; job descriptions vary from general to highly specific; and the level of functioning ranges from purely technical to highly judgmental.

(C) AMA Position and Activities

The AMA has endorsed the concept of innovation and experimentation in developing new categories of health manpower. This "accelerated evolution" in new types of personnel will possibly enable the health manpower pool to expand at a faster rate -- by attracting individuals who would not otherwise enter health careers -- and thereby assist in increasing the supply

of health services. Without proper guidance, however, this acceleration also poses such dangers as irrelevance of the educational program to actual practice needs, lack of adequate physician supervision, or overlap with the duties of existing personnel. Once established, however, new health occupations quickly and naturally tend to seek recognition through licensure, or similar legal sanction, and in other ways to become cemented into the health system.

For this reason, it was deemed important that organized medicine -- particularly the American Medical Association -- take an active role in influencing and guiding the development of these occupations.

Accordingly, the Council on Health Manpower has undertaken responsibility for evaluating the need for and proper role of specific new types of health personnel. To provide a consistent frame of reference for such evaluation, the Council prepared "Guidelines for Development of New Health Occupations," adopted by the House of Delegates in December 1969, which specify the desirable steps to be taken and questions to be resolved by any group or institution attempting to develop a new health career. These guidelines in no way represent minimum standards to be met in the development of a new health occupation, but rather suggest optimums to be striven for by the group concerned.

(D) Educational Standards

Because of the diversity in types and concepts of the "physician's assistant," it was also felt important that the AMA Council on Medical Education develop overall educational essentials which could be applied to all of the programs training new types of physician support personnel, so as to ensure orderly, well-planned development. However, the current situation is unique in a number of respects. Previous AMA involvement in the accreditation of educational programs for allied health occupations usually came at a point where the need for the occupation had already been self-validated and the training programs in operation exhibited some consistency in curriculum. In addition, either an organization of assistants or the parent medical specialty had often formulated essentials for training which could be considered by the AMA Council on Medical Education, modified as deemed appropriate, and submitted for approval to the House of Delegates.

With currently developing physician's assistant programs, the situation differs generally. The time taken to validate the need for these occupations has been compressed, taking the form of task analysis and/or survey of potential employers of such assistants; in some instances such validation is incomplete or lacking. Content, duration and setting of current training programs vary widely, and there is a relative lack of unanimity as to the criteria for an acceptable physician's assistant or as to levels of such assistants, as well as to the curriculum format for training such personnel.

(E) Collaboration with Specialty Organizations

For these reasons, it was difficult to develop a rational approach to evaluating the need for these occupations and the role and functions each would play in medical and health care, as a necessary prerequisite to considering accreditation of their programs by AMA's Council on Medical Education. It soon became apparent that the American Medical Association could not presume to decide unilaterally on the merits of a particular type of physician's assistant, but must look to the potential physician employers of such assistants and the organizations representing these physicians — in most cases their medical specialty society -- for two things: (a) documentation of a specific need for and readiness to employ a new type of assistant, and (b) a detailed job description or list of functions for such personnel. Only with this type of information could the Council on Health Manpower intelligently decide whether the proposed new occupation would be relevant to health service needs and should be invited to contact the Council on Medical Education regarding development of educational Essentials.

Both Councils have agreed that the following procedure should be recommended to any medical specialty society or other group contemplating development of a new physician support occupation:

(1) Documentation and assurance, usually through survey of the specialty society's membership, that a need does exist for a new category of physician support personnel to assist that specialty. This would include reasonable assurance that the physicians in question would hire this type of assistant.

2) Development, through job analysis, of a list of specific tasks to be performed by the proposed occupation. This would include reasonable assurance that these tasks cannot readily be performed by existing available health manpower.

(3) Development of educational standards or "Essentials" for educational programs designed to train individuals to perform the defined tasks. Approval of appropriate educational programs, in collaboration with the medical specialty in question, would normally follow.

All recognized medical specialty societies have been informed of AMA's interest in assisting them to prepare functional "models" which reflect the consensus of their membership as to the need for and desirable role and function of new types of support personnel in that specialty. Such models, once assembled by the specialty society with participation from the Council on Health Manpower, hopefully will provide a baseline against which other institutions or groups contemplating development of a new health occupation can evaluate their plans. They will also provide the information needed by the Council on Medical Education in order to participate in developing educational standards.

(F) Progress to Date

Progress under this approach has been encouraging. In 1969, the American Academy of Orthopaedic Surgeons submitted appropriate documentation of the need for and role of the "orthopaedic physician's assistant," including a job description which lists the functions and responsibilities of the new category of personnel. This documentation was accepted by the Council on Health Manpower and collaboration was initiated by the Council on Medical Education with the Academy to develop the minimal educational standards necessary to train these assistants. In December 1969, the "Essentials of an Approved Educational Program for Orthopaedic Assistants" were adopted by the House of Delegates. To date, three educational programs have been accredited. Similarly, the American Urological Association surveyed its membership to determine the need for and willingness to employ a "urologic physician's assistant," and provided a detailed job description. This documentation was accepted by the Council on Health Manpower in November of 1970; subsequent collaboration by the Council on Medical Education and the American Urological Association resulted in a draft of "Essentials of an Approved Educational Program for Urologic Physician's Assistants" for submission to the House of Delegates.

Throughout its involvement with new physician support occupations, the Council on Health Manpower has concentrated on identifying the appropriate job role and functions for these occupations. Special concern has been centered on the perplexing job of identifying the appropriate role and functions for one particular category -- the broadly trained assistant to the primary care physician. In response to this concern, and with the support of the AMA, the American Society of Internal Medicine, the American Academy of Family Physicians, the American Academy of Pediatrics and the American College of Physicians, each working independently, identified a list of functions that should be delegated to a primary care physician's assistant. These groups then met to consolidate their listings and formulate a core of functions and duties that constituted the model for such an assistant. A report based on the Council on Health Manpower "Guidelines" was prepared to constitute the model for the "assistant to the primary care physician," and in April 1971 the Council on Health Manpower accepted this report as sufficient documentation of the need for and role of this type of assistant. A special report on this activity, "Evaluation of the Primary Physician's Assistant," was submitted to the House of Delegates in June 1971.

Of the 47 programs currently identified as training physician's assistants, more than one-third may fall in this area of primary care. Because of the level of responsibility involved, and the fact that primary care relates to five major clinical disciplines (medicine, surgery, pediatrics, psychiatry and obstetrics), the Council on Medical Education has attempted to involve the widest possible base of expertise available in guiding the development of educational standards for these programs. The Council has invited the four medical specialty societies involved in the task force to collaborate jointly on the development of

minimal educational standards. Additional input has been received from representatives of selected existing educational programs in this area and from nursing. The "Essentials of an Approved Educational Program for the Assistant to the Primary Care Physician" were approved by the five medical organizations concerned and by the Council on Medical Education, and were adopted by the House of Delegates in November 1971.

The Council on Health Manpower and the Council on Medical Education believe this to be a reasonable, straightforward and practical approach to evaluating the need for new physician support occupations and to guiding the development of their educational programs. It should be provide valid answers in the sense that an emerging health occupation will be recognized on the basis of a collective expression of need by physicians -- essentially a controlled acceleration of the way in which allied health occupations have always developed.

(G) Unresolved Problems

Both the Council on Health Manpower and the Council on Medical Education recognize that many issues relating to the development and use of physician's assistants have yet to be resolved.

Problems of licensure, touched on previously, may be especially critical for occupations whose service roles are incompletely identified. Because of the developmental nature of these occupations, the AMA has adopted a position opposing licensure and favoring certification of physicians' assistants, and the Council on Health Manpower is now developing the national program for such certification referred to earlier.

Physician supervision of and responsibility for the new assistant must be more completely defined. As a step in this direction, the House of Delegates in December 1970 adopted a "Working Definition of the Physician's Assistant," describing the assistant as "a skilled person qualified by academic and practical training to provide patient services under the supervision and direction of a licensed physician, who is responsible for the performance of that assistant." To clarify further this supervisory relationship, the House of Delegates adopted a report in June 1971 opposing use of the term "physician's associate" to designate this new occupation, since "associate" commonly implies another physician. The degree, if any, to which a physician's assistant trained in one medical field or specialty can safely move to another field must be studied. Other questions related to consumer acceptability, economic viability and costs of care, productivity, desirable educational settings, reimbursement policies and practices and career advancement and mobility all require continuing evaluation.

RECOMMENDATION

It is recommended that the AMA continue to conduct and support study of as yet unresolved issues in the development of new physician support occupations, including problems of licensure, supervision, consumer acceptability, costs of care and reimbursement methods, and career mobility.

A major issue is the degree to which functions of emerging physician support personnel may overlap with the duties of existing occupations, particularly with those of the nurse. AMA has given strong support to an expanded role for the nurse in providing patient care[8] and with the National Commission for the Study of Nursing and Nursing Education and the American Nurses' Association has established a National Joint Practice Commission between medicine and nursing. This Commission will discuss and make recommendations concerning roles of the physician and the nurse in providing health care, with particular attention to the rise of the nurse clinician, the emergence of the physician's assistant, and the increased activity of other professions in areas previously assumed to be the sole concern of the physician or nurse.

RECOMMENDATION

It is recommended that the AMA strongly reaffirm its support of an expanded role for the nurse in providing patient care.

It is further recommended that the interface of the nurse's role with physician's assistant activities be carefully studied to identify commonalities in both function and education, so that the two professions can complement rather than duplicate one another, and so that career bridges can be developed between them.

The same need holds true for other existing health occupations and within and between the various categories of new physician support personnel themselves. As detailed information is accumulated on what each segment of medical practice requires in the way of helpers, it will be much easier to see how functional categories interrelate with one another, easier to structure common educational and employment pathways, and easier to avoid the continued proliferation of isolated superspecialties at the middle medical level.

In the rapidly changing medical and health scene, great pressures, often politically motivated, are exerted that can lead, and indeed in some instances already have led, to unwise decisions and developments. The potential of the physician's assistant in the health and medical care system is great, but the pressures for producing him in increasing numbers and in widely diverse educational settings are already so great

that sound thought and action are needed now to prevent the chaos on which the situation is bordering. It is the responsibility of all concerned, and of particular importance to American medicine, to try to bring about a rational development of these new occupations.

The public, and the agencies that seek to represent the public in the delivery of health care, should be especially concerned that there not be two classes of medical care. The medical profession should assure that physicians' assistants maintain a close relationship and direct accountability to a particular physician. Both the medical and nursing professions should be concerned that all who work as physicians' assistants, regardless of their background, have the requisite skills to perform in that role. Physicians and physicians' assistants alike should be concerned that programs of continuing education be made available to assistants so that they may keep abreast of developments in medicine and technology; additionally, adequate provision should be made for malpractice insurance to cover the services rendered by the assistant.

Finally, all who have an interest in the development of the physician's assistant should be concerned that his duties and functions do not become fixed by law but are developed under broad principles such as are being established by State Boards of Medical Examiners so that accumulated experience can exert its influence.

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TABLE 1

ESTIMATED EMPLOYMENT IN "MEDICAL ALLIED" AND NURSING OCCUPATIONS IN 1970

Health Field	Workers
Total.....	2,581,000
"Medical Allied".....	535,000
Nursing	
Registered Nurses.....	723,000
Licensed Practical Nurses.....	400,000
Aides, Orderlies, Attendants.....	865,000
Physician's Assistant†.....	184††

†*This term is used generically to denote a number of new physician support occupations. Actual occupational titles also include "assistant to the primary care physician," "orthopaedic physician's assistant," "urologic physician's assistant," "physician's associate," "Medex," "clinical associate," "medical specialty assistant," etc.*

††*Number graduated as of January, 1972. Number of "physicians' assistants" employed as of September, 1971 is estimated at 115.*

Sources:

Division of Allied Health, and Division of Nursing, Bureau of Health Manpower Education, U. S. Department of Health, Education and Welfare.

Department of Health Manpower, American Medical Association.

TABLE 2

"MEDICAL ALLIED" AND NURSING MANPOWER REQUIREMENTS AND SUPPLY: 1967, 1975 and 1980

Requirements and Supply	1967	1975	1980
I. Allied Medical			
Baccalaureate or higher			
Manpower requirements.....	225,000	348,000	413,000
Manpower supply.....	175,000	270,000	320,000
Deficit.....	50,000	78,000	93,000
Less than baccalaureate			
Manpower requirements.....	336,500	488,000	580,000
Manpower supply.....	276,500	400,000	475,000
Deficit.....	60,000	88,000	105,000
II. Nursing			
Registered Nurses			
Manpower requirements.....	800,000	1,000,000	-------
Manpower supply.....	659,000	816,000	895,000
Deficit.....	141,000	184,000	-------
Licensed Practical Nurses			
Manpower requirements.....	375,000	550,000	-------
Manpower supply.....	320,000	546,000	675,000
Deficit.....	55,000	4,000	-------
Aides, orderlies, attendants, home health aides			
Manpower requirements.....	860,000	1,075,000	1,210,000
Manpower supply.....	775,000	1,000,000	1,150,000
Deficit.....	85,000	75,000	60,000
Total Supply.....	2,205,000	3,032,000	3,515,000
Total Deficit.....	391,000	429,000	--------

Sources: Interagency Conference on Nursing Statistics for 1960,1965,1967, and 1968 estimates of R.N.'s;Bureau of the Census for 1950 data (adjusted).

Public Health Service for 1965 and 1967 estimates of L.P.N.'s; Bureau of the Census for 1950 and 1960 data. Public Health Service estimates for all other data.

TABLE 3

GROWTH IN SELECTED "MEDICAL ALLIED" EDUCATIONAL PROGRAMS, 1963-64 to 1970-71

	1963-64				1970-71			
	Programs	Capacity	Enrollment	Graduates	Programs	Capacity	Enrollment	Graduates
					7/1/71	7/1/71	10/31/70	1970
1. Cytotechnology	79	454	330	291	117	708	325	427
2. Inhalation Therapist	7	49	49	---	82	2,197	2,069	439
3. Medical Record Librarian	27	221*	174*	161	25	501*	215*	280
4. Medical Record Technician	14	140*	130*	98	29	808*	715*	249
5. Medical Technology	784	6,694	4,291	2,689	773	8,708	5,501	4,937
6. Occupational Therapy	32	---	985	364	36	1,464	1,252	691
7. Physical Therapy	42	---	930	891	50	1,995	1,855	1,349
8. Radiologic Technology	789	9,191	7,341	2,938	1,146	18,522	14,870	5,975

* *Final year only.*

Source: "Allied Medical Education Directory, 1972", Department of Allied Medical Professions and Services, American Medical Association.

APPENDIX A

OCCUPATIONAL TITLES IN ALLIED HEALTH AND NURSING FIELDS

Health Field	Occupation
1. Dietetic and Nutritional Services...	Nutritionist dietician
	Dietitian
	Dietitian interne
	Dietitian aide
	Food service supervisor
	Food service technician/assistant
2. Education.....	Health education teacher
	Physical education teacher
	Public health educator
	Public health assistant/aide
	Community health assistant
	Health occupations educator
3. Information and Record Services.....	Medical illustrator
	Medical librarian
	Medical records librarian
	Medical records technologist
	Hospital information specialist
4. Medical Technology.....	Blood bank specialist
	Blood bank technician
	Medical laboratory technician
	Certified laboratory assistant
	Chemistry technologist
	Cytological screening technician

Health Field	Occupation
	Cytotechnologist
	Electrocardiograph technician
	Electroencephalograph technician
	Hemotology technician
	Histologic technician
	Laboratory technician (uncertified)
	Medical technologist
	Microbiology technologist
5. Nursing.....	Practical nurse
	Nurse aide, orderly, attendant
	Homemaker - home health aide
6. Orthopedics/Prosthetics.....	Orthotist
	Prosthetist
	Prosthetics and orthotics technician
7. Pharmacy.....	Pharmacy assistant
8. Radiology, Engineering, Electronics.	Biomedical engineer
	Biomedical engineer technician
	Biomedical electronics technician
	Medical radiological technician
	Nuclear medicine technologist
	Nuclear medicine technician
	Radiation engineer
	Radiation therapy technologist
	Radiobiologist
	Radiologic technologist
	Radiological health specialist

Health Field	Occupation
9. Assisting and Secretarial.....	Medical assistant
	Medical receptionist
	Medical secretary
	Medical transcriptionist
	Admitting clerk
10. Speech Pathology/Audiology.....	Audiologist
	Audiology assistant
	Speech and hearing technician
	Speech pathologist
	Speech therapist
	Speech therapy assistant
11. Social Work/Counseling.....	Mental health technician
	Social welfare case aide
	Social work assistant
12. Therapy.....	Art therapist athletic trainer
	Corrective therapist
	Educational therapist
	Inhalation therapist
	Inhalation therapy aide
	Manual arts therapist
	Music therapist
	Occupational therapist
	Occupational therapy assistant
	Physical therapist
	Physical therapy assistant

Health Field	Occupation
	Recreational therapist
	Recreation assistant
	Respiratory therapist
	Respiratory therapy technician
13. Eye Care.....	Ophthalmic technologist
	Ophthalmic technician
	Ophthalmic assistant
	Optical technician
	Optician
14. Other Health Services.....	Physician's aide (surgical)
	Operating room technician
	Psychiatric aide
	Midwife
	Emergency medical service technician
	Ambulance attendant (aide)
	Cardiopulmonary technician
	Community health aide
	Extracorporeal circulation specialist
	Ward clerk
	Central supply technician

Source: Pennell, Maryland Y. and Hoover, David B. *Health Manpower Source Book, Section 21: Allied Health Manpower Supply and Requirements: 1950-1980.* U. S. Department of Health, Education, and Welfare, Public Health Service, Pub. #263, 1970.

APPENDIX B

ALLIED MEDICAL EDUCATION

The Council on Medical Education of the American Medical Association collaborates with:

American Academy of Family Physicians
American Academy of Orthopaedic Surgeons
American Academy of Pediatrics
American Association for Inhalation Therapy
American Association of Blood Bank
American Association of Medical Assistants
American College of Chest Physicians
American College of Physicians
American College of Radiology
American Medical Record Association
American Occupational Therapy Association
American Physical Therapy Association
American Society of Anesthesiologists
American Society of Clinical Pathologists
American Society of Internal Medicine
American Society of Medical Technologists
American Society of Radiologic Technologists
Society of Nuclear Medical Technologists
Society of Nuclear Medicine

Additional organizations currently considering collaborating with the AMA Council on Medical Education include:

American Association of Clinical Chemists
American College of Emergency Physicians
American College of Surgeons
American Medical Technologists
American Society for Microbiology
American Society of Cytology
American Urological Association

The organizations collaborate in providing services for educational programs for the following allied medical occupations:

Assistant to the Primary Care Physician
Blood Bank Specialist
Certified Laboratory Assistant
Cytotechnologist
Histologic Technician
Inhalation Therapist
Medical Assistant
Medical Record Administrator
Medical Record Technician
Medical Laboratory Technician
Medical Technologist
Nuclear Medicine Technician
Nuclear Medicine Technologist
Occupational Therapist
Orthopaedic Physician's Assistant
Physical Therapist
Radiation Therapy Technologist
Radiologic Technologist

In addition, Essentials are being drafted for several other occupations, including Urologic Physician's Assistant

VII. SUMMARY OF RECOMMENDATIONS

Subject	Page
Maldistribution	
It is recommended that increased emphasis be given not only to current approaches for alleviating maldistribution of health manpower which involve voluntary incentives toward relocation of health personnel, but also to such alternatives as expanded transportation and communication capabilities, use of physicians and allied health workers on a part-time basis, innovative use of health teams in isolated areas, and increased development of bio-monitoring technology.	21
Physician Assistant Issues	
It is recommended that the AMA continue to conduct and support study of as yet unresolved issues in the development of new physician support occupations, including problems of licensure, supervision, consumer acceptability, costs of care and reimbursement methods, and career mobility.	28
Expanded Role of the Nurse	
It is recommended that the AMA strongly reaffirm its support of an expanded role for the nurse in providing patient care.	28
It is further recommended that the interface of the nurse's role with physician's assistant activities be carefully studied to identify commonalities in both function and education, so that the two professions can complement rather than duplicate one another, and so that career bridges can be developed between them.	28