1977

**Review of Allied Health Education: 2**

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*University of Kentucky*

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Review of Allied Health Education: 2
Review of Allied

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In this second Review of Allied Health Education, the editors further pursue the objectives sought in Review I, published in November 1974: "to give students, educators, and practitioners a new understanding of the work of other members of the health care team; to exchange ideas and information on innovative programs and practices in the field of allied health education; and to stimulate thought on what new directions we might take that will improve training programs and ultimately benefit the object of our common concern—the patient."

As far back as 1967 the three editors—all active in academic programs in allied health—saw the need to improve communications between students in medicine and dentistry and those in the allied health professions. Passage of the Allied Health Professions Act of 1966, officially recognizing the need for better utilization of established professional health personnel, had given impetus to the creation of new programs and the strengthening of existing ones. Yet there was no cohesion among these diverse courses of study. They were increasing in variety and sophistication, but they were often developing their own identities and going their separate ways.

The editors were among a group of thirteen administrators who worked to bring about the development of departments, divisions, schools, and colleges of allied health on college and university campuses across the land. They were also among the founders in 1967 of the Association of Schools of Allied Health Professions, later renamed the American Society of Allied Health Professions (ASAHP), and served as its first three presidents.

In the fall of 1968 an estimated fifty to sixty colleges, universities, and community colleges were working to bring three or more academic programs in allied health into one administrative structure. A May 1975 publication of ASAHP, Allied Health Trends, noted that from 1970 to 1973 "the total num-
ber of programs reported has increased from 3,272 to 4,611 (40 percent) and their respective number of graduates from approximately 26,322 to 58,152 (120 percent).”

Vocational-technical schools, community colleges, universities, and colleges now offer varied settings for teaching the allied health professions. Increasingly, their courses are being brought under a single administrative umbrella, perhaps in the hope that people who are trained together will learn to work together.

But there is still great difficulty with inter- and intra-disciplinary communication among those in the health professions. Each profession guards its own established boundaries jealously. It is difficult for some to see that within a profession or between professions there are situations in which boundaries should overlap. It is difficult, too, for a professional to delegate certain duties and responsibilities to someone with less preparation, even though that person is adequately supervised. Many health professionals are hesitant to see themselves as managers of doers when they have been prepared to be doers.

Because of the newness and rapid growth of allied health, there has been and is a limited amount of literature for use by educators, administrators, and students. Most must make do with material appearing in their own specialty journals and textbooks. Until recently, there was no one source where new developments, curriculum innovation, inter-disciplinary teaching models, and new concepts in teaching could be shared.

Review 1 grew out of an awareness that this common literature did not exist, that there was no forum where students—and, indeed, practitioners—in a particular specialty could come to understand the work and the purpose of other members of that team of which he was destined to be a part.

In Review 2 the editors made a further effort to bridge this gap. They sought out leaders of the various allied health fields and asked them to write original articles that would help illuminate the often obscure world peopled by “aides,” “assistants,” and other “supportive personnel” in the health field. Their responses are to be read in the chapters that make up this book.

In essence, they describe a rapidly changing pattern no longer dominated by specialists in the field of medicine and dentistry but characterized instead by a team approach.
The strength of the team approach lies in the delegation of highly specialized duties to persons trained to accept direction and to act on their own initiative as well. Allied health personnel are essential components of the team. Their effectiveness lies in their understanding of their own role and that of other team members. It is dependent, too, on a respect for the professionals with whom they work, a willingness to take as well as to give direction, and a readiness to work with others as a single, coordinated force.

Busy scholars, almost without exception, have been willing contributors to Review 1 and Review 2. With their continued support and that of the National Library of Medicine and the University Press of Kentucky, this series will continue.

Readers are invited to comment on the value of the publication and to suggest topics and disciplines to be covered in future Reviews.

Joseph Hamburg
Darrel J. Mase
Warren J. Perry
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Several groups have attempted to determine present and future manpower needs in anesthesia. They have found that serious shortages exist now and predict more in the years ahead. Though their opinions differ about the best ways to solve present and threatened manpower problems, few deny they exist. Furthermore, the future probably does not hold the expectation that current requirements will diminish. Continued advances in technology and the likelihood of naturally occurring increases in demands for new anesthesia services seem assured.

Three observations can be cited to support the claim that in the foreseeable future nonphysician personnel will be needed to work with anesthesiologists in the specialty.

1) After World War II the specialty made impressive gains, and some expressed the hope that eventually all anesthesia care in the United States could be delivered by physicians. However, the growth curve flattened in the sixties: the specialty failed to attract enough medical school graduates to satisfy the needs of anesthesiology now or in the future. Indeed, serious concerns have been voiced because of heavy dependence on foreign graduates to fill residency training vacancies. Fifty percent are now filled in this way.

2) As more students than ever before graduate from medical schools in the United States in the late seventies and eighties,
one might predict a new influx into anesthesia. However, it should be noted that enrollment expansion was expressly intended to remedy a crushing deficit of general practitioners, family physicians, and primary care physicians—not tertiary care personnel such as anesthesiologists.

3) Historically, many medical specialties have delegated certain tasks to assistants without medical school educations. Surgery, for example, has its scrub nurses; radiology, its nuclear medicine technicians. In anesthesia, task analyses show that many phases of clinical practice can be delegated. This delegation is overdue. In countless cases each year patients are denied the services of an anesthesiologist because he is occupied with tasks that could and should be delegated. Meanwhile, nurse anesthetists are pressed into duty to perform the work of physicians. The formation of teams of physicians and nonphysicians is a sensible approach to providing better anesthesia care. In some hospitals such teams do exist, but they are not yet as prevalent as they deserve to be. Indeed, so long as there are physician shortages, delegation of appropriate tasks to nonphysicians and the utilization of team medicine are vital.

Almost from the inception of anesthesia, nonphysician personnel have been engaged in the delivery of anesthesia care. This fact has contributed to the evolution of a practice in which nurses specifically trained in the specialty may work under the direct supervision of a doctor—for example, a surgeon or dentist—with little or no training in anesthesia.

It thus becomes clear that the manpower problem in anesthesia is a major one, calling for imaginative innovative solutions. In general, it presents itself as a need for increasing the anesthesia manpower pool, both physician and nonphysician, and for prescribing an appropriate and integrated educational structure through which to accomplish the necessary training for nonphysicians. While nurse anesthesia training schools have been in existence for a long time, the nature of this education for nonphysicians in anesthesia has caused some problems.

As a first step toward coping with the problem of generating a larger manpower pool some educators in anesthesia began to consider the possibility of an educational route other than that of traditional nurse anesthesia preparation. At Case Western
Reserve University a handful of these educators decided that before a meaningful curriculum could be constructed, the practice of anesthesia itself should be analyzed. They engaged systems engineers to study the nature and structure of anesthesia practice and to analyze and prognosticate manpower needs.\textsuperscript{5} The results of the study were to form the basis for generating an appropriate and desirable new educational plan. In general, the major objectives of the study were to 1) identify anesthesia tasks; 2) describe anesthesia activities, constructing job descriptions for anesthesia personnel and making preliminary judgements concerning the level of training required in the various anesthesia activities.

The findings provided useful information. For the first time it was possible to inspect existing curricula and test their congruence with the tasks to be performed.

One effect of the study was the identification of certain problems in the sequence of training nurse anesthetists. The typical nursing curriculum prescribed specialty credits in the basic sciences, rather than requiring or allowing students to register for comparable courses offered by basic science departments. The level of the nurse's academic preparation in the sciences was therefore not comparable to that of other science majors. Nursing students found themselves generally unable to apply their specialty credits toward graduate study in areas outside nursing. Furthermore, the nursing curriculum did not supply the type and level of training most necessary for anesthesia tasks. The practice of building anesthesia training on top of nursing certification was convenient, but it was not logical.

Spurred by these considerations and data, leading anesthesiologists in Cleveland formed a group to develop, implement, and evaluate an instructional program for the training of nonphysician anesthesia personnel. These students would function in the clinical setting much as nurse anesthetists always had, but with an important difference: their training program would be educationally goal-specific from start to finish, eliminating one of the educational problems of nurse anesthesia education.

The basic units of the new curriculum were, of course, designed to provide specialty education in anesthesia. It was
anticipated that graduates would function in many of the same capacities already well established among nonphysicians in anesthesia. Tasks would include such things as studying physical findings and preoperative evaluations in order to consult with anesthesiologists concerning the selection of appropriate anesthetic medications and techniques, working with anesthesiologists in the administration of intravenous or inhalational anesthetics, assisting in moving patients from the operating room to the recovery room, informing recovery room personnel of the patients' condition, periodically checking the condition of patients, and assisting in remedial measures to alleviate unfavorable postanesthetic changes.

The foregoing is a brief summary of the duties of the graduates and the settings in which they would be employed. A detailed outline of anesthesia tasks for intermediate personnel has already been published elsewhere.6

It was important that the four-year spectrum of educational components meet needs for general education and overall social and psychological development in addition to specialty education. The program was expected to correct known weaknesses in existing programs and to tap new and neglected manpower pools, directing people into worthwhile and remunerative health careers. It was important that the educational sequence be logically arranged in terms of the entire spectrum of personnel needed in the specialty. Also of major concern was the amount of student mobility—vertical and lateral—that could be incorporated in the course of study.

There was, therefore, a primary commitment to design a program that would provide a variety of options for future study or employment. If it could also offer a pattern for training new personnel in other specialties, this, too, would be a welcome result. As later events revealed, the anesthesiology program as it was designed and implemented at Case Western Reserve University was a pilot project for similar health science curricula.

The basic content of the program is shown in Table 1 and samples of content are provided in Table 2.7

Speculation that the design of the anesthesia curriculum would serve as a kind of prototype for the formulation of other
### Table 1

**Program Content**

<table>
<thead>
<tr>
<th>General</th>
<th>Semester hours</th>
<th>Related field</th>
<th>Semester hours</th>
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<tr>
<td>English</td>
<td>3</td>
<td>Calculus</td>
<td>8</td>
</tr>
<tr>
<td>Social science</td>
<td>6</td>
<td>Biology</td>
<td>8</td>
</tr>
<tr>
<td>Humanities</td>
<td>6</td>
<td>Chemistry</td>
<td>16</td>
</tr>
<tr>
<td>Electives</td>
<td>21</td>
<td>(including organic)</td>
<td></td>
</tr>
<tr>
<td>Total hours</td>
<td>36</td>
<td>Physics</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total hours</td>
<td>40</td>
</tr>
</tbody>
</table>

### Anesthesia

**HEAL 101**  
Introduction to Medicine  
TEXT: No single text  

**HEAL 201**  
Respiratory Physiology  
TEXT: Comroe: *The Physiology of Respiration*

**HEAL 202**  
Cardiovascular Physiology  
TEXT: Guyton: *Textbook of Medical Physiology*

**HEAL 211-3**  
Clinical Laboratories  
(TEXT: Syllabi in progress)

**HEAL 212-3**  
(Correlated with HEAL 201-202)

**HEAL 301**  
CNS Physiology  
TEXT: Guyton: *Textbook of Medical Physiology*

**HEAL 302**  
CNS Pharmacology  
TEXT: Goodman and Gilman: *The Pharmacological Bases of Therapeutics*

**HEAL 311-12**  
Clinical Preceptorship  
(TEXT: Wylie, Churchill–Davidson:  
*A Practice of Anesthesia*; syllabi in progress)

**HEAL 312**  
Includes a no-credit summer rotation following the junior year.

Total semester hours: 120

*HEAL 101, etc., are university course designations and refer to Health Science.*
Table 2
Sample Course Content

1974

Introduction to Medicine (HEAL 101)

February 6, 20

Hour 1. Organization of living systems and their diseases
2. Patient presentation and clinical conference
3. History, yield, and status of autopsy
4. The truth: certainty; the physician's obligation; the patient's expectation

Pulmonary Physiology (HEAL 201)

September 17

Hour 1. Work of breathing; respiratory failure
2. Care of respiratory failure patients
3. Ventilators; ventilation strategies

Clinical Laboratories (HEAL 211)

September 19, 25

Hour 1. Practical use of anesthesia equipment
2. Anesthesia machines; circuits
3. Anesthesia vaporizer theory
4. Endotracheal intubation and airway management
5. Intravenous insertion; management; blood administration

1975

CNS Pharmacology (HEAL 302)

February 10

Hour 1. Drug uptake and distribution
2. Drug interaction
3. Clinical conference (outpatient anesthesia)

Clinical Preceptorship (HEAL 312)

February 3–May 15

Full-time clinical experience. Seven hospitals participate in the program and students are rotated. (Rotations include: large urban hospitals, small suburban hospitals, general surgery, pediatrics, obstetrics, and gynecology.) Clinical topics are simultaneously presented in the classroom sessions. (See HEAL 302, hour 3)
education programs in the health sciences was justified. Surgery at Case Western Reserve now offers a degree following the same pattern and sharing the first year of the anesthesia major. A public health degree program is also in preparation.

Other institutions have evinced interest in the curriculum design, with two major purposes in view: 1) to use the format as an approach in designing curricula for other kinds of health professionals; 2) to implement programs of their own education of nonphysicians in anesthesia.

Because of the nature and structure of the clinical preceptorships (community hospital rotations, private practitioner-teachers, coordination with an ongoing baccalaureate degree program), health science educators from diverse areas have asked for detailed information about the methods we have employed in implementation, coordination, quality control, and evaluation.

Evaluation of the program was a formidable problem from the start, partly because of its originality. Nonetheless, immediate steps were taken to draw up objective examinations to assess student competence in the classroom exercises and to document actual classroom content on audio-tapes. As it turned out, these tapes were used regularly by students as reference and review material. For the program developers, they were a means of reviewing and assessing the validity of class content.

What was most needed were methods to assess the progress of clinical competence of the students and to test the level of this competence against what they needed to function effectively in the job setting. This problem was a serious one for several reasons: for one thing, tools to assess clinical performance were not readily available; in addition, the program utilized seven teaching hospitals for clinical education, making it difficult to guarantee uniform quality and to devise evaluative methods that could be applied in different settings.

Today, some five years after the first class began, data are becoming available. The testing program for the assessment of cognitive performance from the classroom offerings is now quite sophisticated. All examinations are analyzed by computer; this method to assess and identify strengths and weaknesses is an
aid to the instructors in evaluating their teaching. During this interim the department has also devised a rating form that has been used successfully for the last two years to measure clinical acumen.

Three classes of students have now graduated and entered the job market, obtaining employment in a variety of settings. Most students are working with anesthesiologists in the administration of anesthesia. In some settings, they are employed by a group of anesthesiologists; in others they are hospital employees (as are the M.D. anesthesiologists) under the direction of the department of anesthesia. Some students are working full-time with the pulmonary function services of departments of anesthesia.

So far, most graduates have remained in Ohio to work, though a good many are employed in New York and Illinois. Others have received job offers in a number of states, including Arkansas, Wisconsin, West Virginia, Kentucky, and Vermont.

Data are available on the performance of these students in the clinical setting. With the graduation of the first class it became apparent that the clinical training period was not long enough. The directors accordingly extended this part of the program to include the summer between the junior and senior years. With this additional training, student performance improved markedly on the job, which was borne out by feedback from employers.

A continuing effort has been made to change and adapt the training program to on-the-job demands. Input from clinical directors has brought about the lengthening of clinical experience, altered the content of classroom work to include patient presentation conferences as part of the third year didactic program, and provided the impetus for the development of quality control methods and clinical evaluation tools.

The Ohio Society of Anesthesiologists now serves as the certifying body for the anesthesia program. It has developed objective written and oral examinations by which to assess the capabilities of the new “anesthesiology assistants.” All graduating classes have taken these examinations and their performance has been good.

The content of the program represented viable premedical
education, in the view of the program developers. From the outset it was hoped that a few students would choose to use the anesthesia major as a bona fide first step toward medicine. So far, the graduates have fulfilled this expectation: from the first class of eight to graduate, two are now in medical school. From the second class of fifteen, two have been admitted. The third class has already placed two students on early admission plans. As these students progress through medical school, it will be possible to assess further the value of an undergraduate education in a clinical specialty.

Students have responded positively to the program. In recent years our introductory course, which is used as a method of screening prospective students, has enrolled eighty-five to one hundred. From this group fifty-five to sixty-five apply annually for fifteen places. Because of this ratio and the nature of Case Western Reserve as an academic institution, the program has been able to recruit and accept exceptional students. The ability to tap this sort of student pool has undoubtedly contributed to the high caliber of the graduates.

Not only have students been able to go on to medical school, but the early data now available indicate that students will as readily gain admission into graduate schools. Pharmacology and physiology appear to be the choice of most students interested in graduate study.

Because the anesthesia program was designed as a university undergraduate course of study, specialty considerations were not the only issues to be reconciled. Questions of philosophy, principle, and approach were raised by the introduction of a program such as anesthesia into a liberal arts university setting.

Today, most institutions of higher learning are discussing and planning educational reform. These efforts are specifically directed toward redefining curricula, improving instruction, and providing sufficient flexibility to allow some students to complete degree programs early. The growth of knowledge and technology, however, has expanded the requirements for these degrees. To date, the increasing sophistication of students and educational methods has allowed old content to be shifted downward and new content accommodated without lengthening
programs. More recent pressure to shorten degree programs has reduced general education requirements.

Students, however, have not always accepted these trends, and more will be said about this later. Expanded knowledge has brought about a proliferation of course offerings and increased institutional expense in the face of decreasing enrollments. The resulting educational disarray now fires attempts to blend general and pragmatic education within a clearly defined structure of liberal education.

Anesthesia is a clinical specialty that relies heavily upon physical and biological sciences. The design of an undergraduate anesthesia curriculum was thus influenced by requirements from these scientific areas as well as by information from a task analysis in anesthesia delineating the work that could be delegated to intermediate, nonphysician personnel. The substantive material in all areas was considered comparable in depth and sophistication to that currently offered baccalaureate candidates, although some components had traditionally been offered by medical schools.

Before initiating the program, however, it seemed reasonable to consider the possibility that the required education could be provided outside the university setting. Indeed, the nurse anesthetist as well as many others has traditionally been educated on the job. At Case Western Reserve University the choice was made for college education because of the need for students to understand and manipulate concepts rather than simply to perform technical tasks in routine settings. To provide the student with such mastery of concepts outside the educational setting is possible, but costly. These conceptual cognitive skills should enable the student to cope with unexpected problems in emergency settings. Though the need for this skill cannot be foreseen, its presence can mean the difference between life and death to the patient; its value can scarcely be overstated.

While it is difficult to characterize or measure the effects of an academic culture on students, education within the college structure has significant advantages. Few investigators would deny that the effects are real, whether demonstrable or not.
In fact, sociocultural influences have come to be described as the "hidden curricula" of educational institutions, homes, or student subcultures.  

Although historically many students have been educated "while they work," differences have always been perceived between those educated on the job and those trained in academic settings. If, however, specialty training in the nonacademic and academic setting are equal, these differences might derive from the breadth and variety of intellectual and social demands placed upon college students. These factors probably cause the formation of different intellectual attitudes and influence the organization and application of knowledge.

One reason society has formed educational institutions is to provide a setting in which scholarship is systematized and time for its pursuit is assured. Whatever the eventual effect, academic education and on-the-job training differ greatly because of differences in setting and in the altered motivations, and goals of those involved.

Data from the anesthesia program at Case Western Reserve reinforce these speculations. In the first class of eight anesthesia students, six completed a second major or its equivalent, and only two sought this study in science-related fields. Seven of the eight students used most of their elective hours (21) outside the specialty and other science fields. This trend continued in the second class. Here, nine of fifteen students had double majors and elective selections included music, psychology, sociology, and language. It would appear that exposure to the university setting combined with specified time for elective study does tend to widen intellectual horizons.

Opportunities for such experiences are readily available in the academic setting but might be absent or difficult to provide in the practical world. Furthermore, the composition of student peer groups differs in the two settings. The aspirations of the young are particularly responsive to peer pressure, and the derision and isolation associated with aiming higher than one's friends has been well documented. Peer pressure might thus encourage involvement in a more liberal or diverse course of study in the university setting but act to inhibit these tendencies in the other system.
Although education suffers the ills of many of our old and large cultural institutions, positive aspects still remain. The institution has retained its basic function through changing times, and this durability and stability have served as a buffer against expedient or ill-conceived attempts to restructure it.

Education for nonphysicians in anesthesia also has been responsive to current forces for change. The individual preceptor-student method of training nurse anesthetists has been replaced by specified courses of study monitored by a national certifying body. In anesthesia, as in other areas, the shift has been based on the belief that a planned educational environment has significant advantages over a loosely structured preceptorship. Among these are the improvement of the quality and efficiency of learning. Furthermore, nurse anesthesia educators are currently considering the incorporation of their training programs into college education. The advantages to students in planning their education are most significant. Inability to demonstrate the correlation between education or marks received and job performance has failed to reduce the "credential orientation" of our society. Moreover, in rapidly changing cultures such as ours, easy access to continued education commands a rising priority.

Although the university system has been criticized for its isolationism and lack of response to societal needs and realities, its existence as a separate entity serves important functions. The institution stands as a constant reminder of the dangers of losing either academic freedom or a separate climate for academic pursuits. Moreover, educational institutions have come to serve as corporate spokesmen for student rights and needs. This function is real.

History provides convincing examples of the exploitation of the young and unfranchised. In anesthesia, for example, in programs where students receive stipends, assignments to clinical experiences are undoubtedly sometimes based on service needs rather than educational soundness. On the other hand, where students pay tuition for education provided under the auspices of the university, this type of exploitation can be held to a minimum.
Education for good socioprofessional relationships and understanding is a student need that is often overlooked or inadequately met. This facet of education is most significant where nonprofessional workers are trained to work in close harmony with a professional staff. University education is particularly useful here. The breadth and diversification of the academic culture must contribute to the nonprofessional's ability to formulate an adequate self-image and be assimilated into some areas of the professional's sphere. Undoubtedly, job satisfaction and its concomitant, job performance, are significantly influenced by such factors. In addition, it is a moral consideration to educate for "human success" as well as career success.

The anesthesia program at Case Western Reserve attends to this aspect of education by insuring substantial elective time (21 semester hours), and the students use these options. The fact that the program provides bona fide premedical education is likewise beneficial. Teachers tend to view students as potential colleagues, or at least as productive members of the anesthesia team. These factors may be more important than commonly realized in assuring the highest standards of medical care.

Organized education has long recognized that the practicing professional and his environment have a good effect on the student exposed to them. When professionals interested in teaching are available, a valuable alliance is possible, one that has been used extensively in medicine. After all, the original meaning of the word "doctor" is teacher. With escalating requirements for educational resources and increased pressures from students for relevance, the need for these partnerships has increased. The educational potential is immense. Such associations allow students to learn from and work with teachers who practice the "art and science" of medicine in real settings. Many believe that this climate provides relevance as well as opportunities for the young to work with adults and test themselves on the job. Such an environment is rich in opportunities for teaching and acquiring values and loyalties.

The intraprofessional relationships inherent in these associations also contribute to "reality testing" of educational content. Direct association with students encourages teachers to update
and improve their own knowledge base and expertise. Even more important, it is likely that joint educational ventures help dissolve the dichotomy of practice-academia, improve instruction, upgrade the specialty, and, ultimately, improve patient care.

The anesthesia program is based on this approach. Community-based teachers and hospitals are coordinated with the resources of the university medical complex. There are advantages to all concerned: 1) large scale teaching efforts do not have to be mounted in the private sector; 2) students benefit from a variety of mentors and educational settings; 3) the nature and content of the curriculum is enriched by contact with the real world.

The educational and philosophical questions raised by incorporating an undergraduate program such as anesthesia into liberal arts colleges are of interest to many institutions today. Primarily, these questions arise out of the concern that the quality or nature of university education or the university itself will be diluted. At Case Western Reserve these questions were examined at length. These basic tenets underlie the program:

1) There is nothing basic or inherent in classical education or preprofessional education which guarantees that a given course or course of study will be liberal or vocational.
2) There is more than one viable route to liberal education and preprofessional education.
3) Liberal education and preprofessional education are not, of necessity, mutually exclusive or intrinsically destructive or augmentative to educational quality.

Liberalism versus vocationalism has long been debated and the question is still unresolved. Although some divergence of opinion is grounded in real philosophical differences, much polarization of positions stems from the absence of clean definitions and the misunderstandings that tend to result. Furthermore, many aspects of the arguments can be reduced to value judgements.

If "real" liberalism is equated with "pure learning" or "contemplation of the mind," a contradiction is present. Selection of content recognizes a body of knowledge of most worth and
implies a purpose beyond learning for learning’s sake. While the advancement of knowledge is a valid purpose for universities, when it becomes their sole reason for existence, it may be accomplished at the expense of man. History does not support this concept. At no time has the university been devoted to pure learning, nor has the contemplative life of the monastery system proved to be a valid model for the advancement of knowledge. This vision of classical education has provided one definition of liberal education, however: liberalism equals esoterism.

Conversely, others believe that one measure of an educated man is his ability to make his education effective in the world. Utilization of what has been learned is a form of vocationalism because it requires relevance. It should be remembered that vocationalism was responsible for the reign of the classics: when the classics held sway, they did so not because they were thought to build character or discipline the intellect but because they were vocationally useful.

John Dewey observed long ago that there was little inherently selfish or narrow in professional education. Whitehead also argued that the view that liberal and technical education are antithetic is fallacious. He found the marriage of theory and practice necessary in any educational endeavor. Even staunch antivocationalists admit that—in the hands of great teachers—professional education can be liberalizing. Inversely, where narrow purposes prevail, even liberal courses may be liberalizing. Indeed, in our culture, the attributes long used to characterize the educated man grow closer to those required for employability and productivity.

Despite these arguments, liberal education has declined in favor with many students, if not with the faculty. Cultural pressures and promotional procedures poorly attuned to teaching excellence have caused faculties to lose interest in general education. Undergraduate teaching not only lacks prestige but is considered by many to interfere with the “real” business of academic man: research, publication, consultation. Student challenges of institutional authority have diminished the confidence of faculties in their own right to determine educational purposes and courses of study. Concurrently, a multitude of course offerings has flowered in many university catalogues.
Although students sample from myriad offerings, there is often no planned liberal education.\textsuperscript{20}

In attempting to establish purposes for, and provide clean definitions of, liberal education, some guidelines are helpful. It is doubtful that liberal education can be defined in terms of the “educated man.” Nor does any curriculum produce a uniformly educated person in the few undergraduate years. The expanding fund of knowledge makes it less feasible that any course of study can cover everything. Thus a more dynamic view is useful. If liberal education of the undergraduate years cannot produce an educated man, it should at the very least prepare and motivate him to continue to educate himself. If exploding knowledge makes it impossible to “cover the waterfront,” there can still be universally useful educational outcomes in a variety of contexts.\textsuperscript{21}

The approach is not without problems or weaknesses. Teaching a student how to communicate cannot be accomplished simply by offering courses in communication skills. Problem-solving ability does not insure the acquisition of values or a commitment to them. Furthermore, study in the nature and function of man and his institutions would have to be included consciously. This task alone seems formidable, but there are examples of success. While James Barr Ames was teaching trusts and fiduciary relations, Harvard did not consider a separate course in ethics necessary.\textsuperscript{22}

The most important single factor that separates liberal education from a liberal education is the manner and quality of teaching. Means determine ends, and the way men do things influences the men themselves more than the other way around. Purposes must be kept consciously in mind, and awareness that alternate strategies do influence educational outcomes is essential. It is not likely that students will view choices as significant or commitment to goals important if their mentors do not make their own values eminently clear in word and deed.

University administration can also be significant in influencing academic climate. Where relations with constituents are allowed to diminish academic freedom or to affect faculty selection, or where promotion or retention is politically influenced, blandness or fear will make liberal education impossible.
This is but one philosophical stance and a limited set of strategies for its implementation. Neither the attendant problems nor their solutions are simple. Many of the reforms of the past have accomplished little more than to perpetuate existing inadequacies under the guise of innovation. Nevertheless, there are hopeful signs. Students themselves grow more interested in curriculum reform and find responsive ears within the system. Institutions now grapple earnestly with the problems. This effort and climate must insure a good measure of real progress.

Notes

5. Gravenstein et al., "Analysis."
8. Gravenstein et al., "Analysis."
16. Silberman, Crisis, p. 381.
17. Drucker, Age.
NEW DIRECTIONS IN
REGULATING HEALTH MANPOWER

Harris S. Cohen

There are many distinct aspects of the nation’s health manpower crises. . . . The plain truth is that the efforts of the voluntary sector to cope with the problems have failed. The time has come to face that fact. It is time for a new policy. It is time for a policy of shared responsibility between the voluntary sector and the government which will not fail. Make no mistake about it, the continuation of federal support is dependent upon the creation of this new policy. . . . The days of laissez-faire . . . are numbered.

Senator Edward M. Kennedy

The American health care system is currently undergoing a silent revolution as characterized by the growing number of social controls either adopted or under consideration. The first decade of Medicare and Medicaid has ushered into our experience a brand new set of policies, programs, and mechanisms that represent both quantitatively and qualitatively a great leap forward in health care regulation. The momentum of this new trend is already stretching the coping capacity of the system and will probably not slow down until the system converts, at some future time, to national health insurance.

We will examine a number of new regulatory approaches that are being considered in the field of health manpower. Our intent is to highlight what we perceive to be a radical shift in the basic language and ground rules of manpower regulation. For the most part, these changes are taking place without much fanfare or attention, but they are taking place nonetheless. They must be given adequate public attention because their potential
impact on the health care system is enormous. Before turning to this new phase of manpower controls, let us first examine two earlier phases, or "generations," of regulatory policy.

**First Generation Controls: Entry Standards**

Health manpower has a long tradition of public regulation. In fact, licensure of health professions is one of the oldest forms of government regulation in health care. Occupational licensure is a process by which the government sets certain standards that must be met before one can practice a certain profession, or use a certain title, depending upon how restrictive the licensure system is. Two basic hypotheses, or models, have been advanced to describe the purpose and function of occupational licensing as a social institution.¹ In the more traditional approach, licensure is considered a mechanism of assuring that professionals possess minimum standards of competence and, with certain training, will not pose a danger to the public health and safety. Regulation of this type is necessary because the public is generally incapable of making such a determination itself and requires, as in other areas of public regulation, some government entity to step in and provide this protection.

In contrast, the second hypothesis asserts that the professions themselves generally seek such regulation as a means of self-protection and not to protect the public interest. Licensure, according to this view, constitutes a mechanism by which the profession seeks to control entry to the field by competitors.² It is essentially another facet of the "capture theory" of public regulation in which the interests of the regulator and the regulated coalesce.³

These two viewpoints represent opposite poles on a continuum and highlight two different philosophical approaches to regulation in general. In actuality, a number of intervening points can be found on the continuum, incorporating varying shades of public-private considerations. As will be pointed out, there are indications of a definite shift on this continuum toward a higher public interest and public accountability commitment than at any other time in the history of state licensure.
of health professionals. This is not to say that the "capture theory" is irrelevant, or should be disregarded, for the professions may in time secure partial or complete control over the implementation and direction of these reforms as well. Thus particular cases of occupational licensure should probably not be described as a function of one or the other hypothesis, but rather as some blending of the two, with varying degrees of both public interest and private interest considerations.

In theory, the state licensing authority is responsible for assuring the competence of the health professional at two distinct points: 1) the initial entry into practice, and 2) any subsequent time that the individual continues to practice under license by the state. In practice, state licensure has tended to concentrate almost exclusively on the former, utilizing in the process various criteria, including examination scores, graduation from accredited schools or programs, professional membership and clinical experience. In the area of continued competence, licensing boards traditionally perceived their role in a very limited and narrow sense, functioning as quasi-judicial bodies in the rare instances in which sanctions such as license revocation or suspension were deemed appropriate. The boards did not discharge their broader responsibility of systematically assuring the competence of all licensed individuals nor did they effectively perform even their limited role of assuring continued competence by invoking formal disciplinary proceedings. Thus the principal regulatory concern in the first generation of manpower controls was virtually limited to assuring minimum standards of competence at the initial point of entry into a health profession.

SECOND GENERATION CONTROLS: PERFORMANCE STANDARDS

Within the past few years, a number of important reforms have been incorporated into the nation's regulatory agenda in health manpower. They focus on two areas of principal concern: quality and costs of health care. Several factors account for this phenomenon, including: 1) the steep increase in health costs, which has riveted public attention on "what" the health dollar will buy and "who" is providing the services, particularly services
provided directly by state and federal governments or financed through public sector reimbursement systems; 2) efforts by the health professions to "set their houses in order" lest someone else do it for them, such as the federal government under a system of national health insurance; and 3) the process of accommodation by the professions, which has also contributed to a heightened public awareness of issues concerning quality assurance and professional competence and is accompanied by demands for greater public accountability on these issues.

Among the reforms characterizing this phase of social controls was federal legislation, enacted in 1972, establishing a nationwide network of peer review organizations. These "professional standards review organizations" (PSROs) are intended to monitor and assure the efficient utilization of health services by physicians under Medicare, Medicaid, and federally assisted maternal and child health programs. In so doing, the PSROs are to accomplish two fundamental, but not always complementary, goals: 1) contain the escalating costs of the Medicare and Medicaid programs by disallowing for federal reimbursement unnecessary services provided in hospitals; and 2) improve the quality of medical care by reviewing individual medical diagnoses against professionally recognized standards of medical care.

This legislation represents a major watershed in the advancing scheme of federal health regulation. PSROs will be responsible for assuring professional competence, not at the entry level of a profession as in the traditional model of licensure but throughout the practitioner's professional career. Whether the basic structure of the PSROs is sufficiently insulated to withstand the inexorable pressure for professional "capture" or "takeover" is a difficult and perhaps premature question, particularly as it relates to the enormous power and autonomy of the professions in the area of standard setting. Conceptually, at least, the PSRO has important potential as a regulator of professional competence and costs and as a profound influence over the behavior of physicians and health institutions, as well as of consumers of medical services.

Important reforms have also occurred in the domain of professional licensing. In what we have termed the first generation of health manpower controls, the licensing process focused
almost exclusively on the entry point into a health profession. In response to the many reports and studies calling for broader controls, a number of state legislatures are now amending the practice acts in the health professions to require some evidence of continued competence before the professional can have his license renewed. In 1974 alone, state legislatures considered almost seventy bills requiring some form of continuing education as a condition for license renewal in various professions, although none of these measures went so far as requiring a periodic reexamination for license renewal. There is also evidence of congressional interest in relicensure for the health professional, as suggested in two recent bills on medical malpractice introduced in the United States Senate.

Clearly, much remains to be done in this sensitive area of professional regulation, and some disciplines have just begun to experiment with such regulatory measures. For example, only six states have legislation either mandating or authorizing their medical boards to require continuing education as a condition for physician relicensure. Other health disciplines, it should be noted, made an earlier start and many directly initiated such requirements.

In many respects, relicensure is complementary to the underlying PSRO philosophy in its aim to provide a continuing review of the professional. As the measurement of professional performance and outcomes becomes more reliable, state licensure programs may be able to augment their present reliance on continuing education, which itself is based upon a number of questionable assumptions, and require some form of performance review as well.

**Third Generation Controls: Where and What to Practice?**

The recent advent of public controls over hospital rates, costs, and construction has generated intense debate over the wisdom and appropriateness of the "public utility" approach to hospital regulation. Public utility regulation generally refers to a system of controls upon entry into, or exit from, an industry. According to Noll, this form of regulation is typically associated with
the "natural monopoly" case, where a firm is prevented from exploiting its position in a market in which there are few competitors or none at all by forcing it to serve more customers at lower prices than it would otherwise freely choose. The unique economic characteristics of the health industry, particularly as they relate to the low-price elasticity of demand, have been cited to justify the introduction of entry and investment controls. Havighurst, who is not an advocate of such controls, summarizes these properties, noting that they are far more persuasive than the arguments for controlling entry in other regulated industries:

The arguments originate . . . in the system of third-party payment and the control that providers apparently exert over demand for health services. These factors, and others, distort the incentives surrounding decisions on hospital investment. Because hospitals do not face an appreciable risk that creation of excess industry capacity will result in depressed (below-cost) prices, too many hospital beds are likely to be built. The costs of erroneous investment decisions are externalized—that is, borne in large part by the public through third-party payment mechanisms.

Although the current debate regarding the public utility model and health care regulation relates principally to the regulation of hospitals (through certificate-of-need and rate setting, for example), there are important analogies to the field of health manpower.

First, the manpower field is becoming, like the hospital, more and more subject to the influence and pressure of third-party payment. As with hospital investment, there is likely to be little incentive to develop more efficient and innovative manpower utilization practices unless appropriate reimbursement policies and mechanisms are available. Moreover, the influence of reimbursement policy on professional training and utilization can be expected to increase dramatically if Congress enacts a national health insurance program.

Second, a number of the new congressional proposals treat health manpower essentially as a public utility, with requirements for service in certain underserved geographic areas. This is analogous to the government requiring an airline or telephone
firm to serve remote sites that, in the absence of government regulation, would not attract such resources because of the poor return on investment. Health manpower, in certain parts of the country, has become such a scarce resource that government solutions to the maldistribution problem are becoming more acceptable to the public than laissez-faire or private sector alternatives that so far have failed.

With the expiration in June 1974 of the Department of Health, Education and Welfare's (HEW) principal health manpower training legislation, a number of congressional bills were introduced that same year, and again in 1975, containing novel and unorthodox approaches to the complex problems of geographic and specialty maldistribution. Two proposals are of particular interest because of their sharp departure from first and second generation manpower controls: 1) a service requirement for every graduate of a United States medical school, and 2) a nationwide limitation of approved medical residency positions. The first proposal, introduced by Senator Kennedy, was intended to resolve the geographic imbalance of physician manpower by requiring, as a condition for federal support to medical schools, that each student admitted to medical school enter into an agreement with HEW to practice for two years in a medically underserved area or in an institution with a shortage of, or a need for, individuals trained in his profession. Those failing to satisfy this service requirement would be obligated to pay HEW the amount of institutional support contributed in their behalf by the federal government. In addition, they would face potential license suspension under another provision in the bill, which would establish a new federal role in the licensing of physicians and dentists. The service requirement and licensure provisions were not included in the Senate-approved manpower bill in 1974 but subsequently were reintroduced in 1975.

The second congressional proposal would limit the number of graduate medical residency positions to a fixed percentage above the number of United States medical graduates in the previous year. This would have major impact on the maldistribution between primary care and specialty practice, on the number of foreign medical graduates entering the United States medical system each year, and on the staffing patterns of both teaching
and nonteaching hospitals. As such, it represents another significant departure from the first and second generation controls to the control of the numbers and practice patterns of health personnel. This proposal was approved by the House of Representatives in 1974, but it was defeated in 1975. It is important to bear in mind that while these two proposals suffered defeat, as did some others cited in this paper, they are characteristic of a new interest in manpower legislation resulting in significant political compromises that five years ago would have been considered impossible.

Reference was made earlier to the growing popularity of regulating capital expenditures in hospitals and other health care institutions by a procedure known as certificate of need. Essentially this process calls for a comprehensive review of how proposed new capital expenditures by hospitals and other health care facilities satisfy community needs. Without a favorable ruling on this question, and the granting of a certificate of need, the proposed capital expenditure cannot legally be made. The rationale here is that hospitals often seek to expand services and bed capacity with little regard to already existing resources in other facilities within the community. Regulation of this type has been advocated, and adopted as federal policy, in order to provide greater balance and rationality in decision making. 19

It should not take very long to recognize that an identical argument can be made to require that decisions dealing with health manpower distribution, too, be based upon a community’s manpower needs. As pointed out in 1973 by the Committee on Goals and Priorities of the National Board of Medical Examiners:

Perhaps more critical than the number of physicians is the failure within the system to regulate type and number of specialists, their geographic locations, and practice patterns. No single agency yet has accepted responsibility for determining the type and number of specialists needed. The output of graduate medical education seems more related to forces within the establishment than to the health needs of the public. 20

Although this may appear to represent a new wave of thinking in manpower regulation, there are already several isolated
instances of such distributive regulation that predate even the certificate-of-need development in health care facilities. Thus a number of states have scaled down their professional licensure requirements to try to achieve an adequate supply of practitioners for areas of need. The most obvious and long-standing example is the use of foreign medical graduates (FMGs), who have not satisfied all state licensure requirements, on the staffs of state and municipal hospitals and mental institutions. Variations on this theme include: 1) Arizona's law that permits physicians who failed the licensure examination by not more than five points (passing grade 75) to practice in determined "areas of need" for up to five years; 2) repeated attempts in New Jersey to eliminate the requirements of graduate clinical training, or ECFMG certification, for state licensure of FMGs; and 3) the action of West Virginia in lowering its passing grade on the state's medical licensure examination because a majority of applicants were failing.

While these three illustrations represent attempts to deal with manpower shortages by a relaxation of certain state standards, quite different problems also demand attention. A state may find that it has an oversupply of certain categories of health professionals, such as surgeons or registered nurses, and that it would be in the best interests of the state to turn down applications for licensure, or, if this is too extreme, applications for interstate reciprocity received in these disciplines. This exercise of regulatory authority undoubtedly will raise serious constitutional questions as well as the implication of new trade barriers between states, depending on the supply of manpower at any given time. In fact, the current trend in professional licensure is in the opposite direction, with growing relaxation of reciprocity requirements to permit greater freedom of movement in the health professions. Nonetheless, a policy controlling manpower resources, in the manner described above, is a logical extension of both the certificate-of-need model of facility regulation and recent manpower legislation designed to attract new resources to underserved areas.

Still another expression of interest in manpower distribution based upon need is the Kentucky legislation enacted in 1974 establishing a Special Medical Care Availability Study Commit-
Among the responsibilities of this committee are the review and consideration of approaches for improving the availability of adequate primary medical care to all residents of the state, "including the proposal that the graduates of Kentucky's two medical schools be assigned to designated locations in Kentucky for a period of time after graduation." Although Kentucky has not yet actually mandated such service in shortage areas, placing the issue, instead, on the agenda of a study committee, it does point in the general direction of distributive controls, which are also being considered in a number of other state legislatures.

A recently passed South Carolina statute provides loan and scholarship support for medical students in return for contractual agreements with the students, who must promise to practice in underserved counties of the state, in the area of primary care, for a period of one year for each year of state financial support received. The individual can be excused from the service requirement with special permission and a cash repayment. Similar requirements are found in federal loan and scholarship programs covering a number of health professions. Moreover, there is evidence of much concern in state legislation for insuring a return to the state for its substantial investment in health manpower education. To this end, incentives have been introduced in the form of loan and scholarship opportunities, tuition repayment mechanisms, and even the requirement that a prescribed number of openings in each incoming class be reserved for in-state residents. A 1973 New York bill, requiring that 30 percent of admissions to all state medical schools be reserved for students pledged to practice for at least five years in designated areas of physician shortage, passed the legislature but was subsequently vetoed by the governor. One of the more extreme proposals in recent years is a Florida bill that would assess each practicing physician and dentist an annual fee of $1,000 as a condition for licensure renewal. This money would be deposited in a "health manpower trust fund" to be used in augmenting the salaries of those physicians and dentists serving in critical shortage areas.

A recent study conducted by the Florida legislature recommended that licensure policies be made more directly responsive
to supply and demand variables, and that health planning play a more prominent role in manpower distribution. According to the study report

the Florida statutes should be amended to formally provide for accounting of board examination pass/fail rates and endorsement/reciprocity policies in the Florida Comprehensive Health Plan. The Bureau of Comprehensive Planning of the Department of Health and Rehabilitative Services should submit to the legislature a yearly analysis, status report and plan showing whether or not board examination practices and policies comply with Florida health manpower needs over projected time periods.29

A corollary to the Florida approach of involving health planning in manpower regulation is the recommendation by one writer that health planning agencies be given access to PSRO data on quality assessment. In discharging their fact-finding responsibilities under certificate-of-need laws, Rogatz notes, planning agencies have only limited access to data that would indicate whether or not the professional staffs in institutions undergoing or projecting capital expansion have been doing a satisfactory job. According to Rogatz, "Access to PSRO-developed statistical analyses by facility planning agencies and Comprehensive Health Planning agencies could have a very constructive impact upon the upgrading of hospital and related programs."30

It is also of interest that formal expressions of legislative intent in some statutes on physician assistants are couched in terms of alleviating geographic maldistribution or the rising costs associated with health care.31 Certainly, this is not the same as outright regulation of numbers of providers or places of practice. But conceptually it does represent a further expansion of public control of health manpower in an attempt to address the larger issues of manpower shortages and maldistribution.

These developing policies and proposals, fragmented as they may appear, are beginning to converge as a major new thrust in manpower regulation. According to Rosemary Stevens, state licensing boards have been performing, or attempting to perform, this type of function for many years. The problem, as she sees it, has been that the boards tried to "perform a manpower
function through the use of a test to determine competence. . . . In practical terms, the criteria for controlling entry to practice in a state should not be disguised as a question of competence, but should be made quite explicit." Stevens goes on to propose an explicit system of manpower regulation based upon ground rules contained in the certificate-of-need model:

Each state in the future might set up a physician manpower commission to determine priorities and needs for physicians in the state. New physicians would be admitted to practice according to the explicit criteria of this manpower plan. This is, in effect, what is specifically being done now with respect to the staffing of state institutions. Nor, in other respects, is this a particularly new suggestion. Hospital licensing procedures are now being widely used as a means of regulating the construction of new facilities, on the grounds of public need for services rather than solely with regard to standards of safety. Medical licensing could be extended in a similar direction—i.e., toward determining the evolving patterns of physician supply in the state, both by specialty and by region. For example, one state might decide it had enough obstetricians, and would thus close entry to new applicants in the specialty, except perhaps to practice in stated needy areas.82

Imposing such controls on the number and location of health professionals will undoubtedly be viewed by some as stretching, if not exceeding, the present legal authority of states to regulate health manpower resources. But what are the alternatives? Despite numerous public and private sector attempts to influence distribution patterns—including various financial incentives in the form of scholarships, loan forgiveness, repayment of education costs, and income tax benefits—the maldistribution of health manpower continues. Ultimately, trade offs will need to be made between our traditional values of freedom of movement and occupational choice, on the one hand, and the accepted norm of access to health care on the other. Clearly, these are not easy decisions, but they must be made with full recognition of the serious alternatives implicit in any decision. For this reason, it is all the more important that the American public be made aware of these new directions in manpower regulation and be given an opportunity to approve or disap-
prove its many facets. It is essential that the public debate on health manpower focus specifically on the far-reaching implications of this new generation of health manpower controls.

A Postscript on Manpower Regulation

Two final points should be made with regard to the growing controls on numbers and location of health manpower. First, the American experience with public regulation of major industries is not very encouraging. In numerous instances virtually the entire regulatory process has been “captured” by the regulated industry. As Bice and Kerwin note, “most informed observers of effects of regulation find little to reassure those who would impose it on the health care industry.”33 Thus, notwithstanding the noble intentions of many federal and state legislators to include health manpower within the expanding ambit of health care regulation, there is no reason to expect that decisions influencing distribution of health personnel will be made on objective and scientific grounds. More likely, the professions themselves will continue to play a prominent role in such decision making, with decisions tending to reflect compromises and negotiated settlements between the parties (including professional associations, health care facilities, unions, consumer groups, and public agencies) rather than some hard and fast formula of manpower need. As Bellin pointed out in the area of Medicaid standard setting: “It is the routine article of faith of each participating professional or institutional provider of care that the provider’s legitimate self-interest is necessarily identical with the best interests of the recipients of health services.”34

This leads directly to the second point: we are no further advanced in the basic state-of-the-art in certification of need for health manpower than we are for health care facilities.35 In either case, we see only the very tip of the iceberg; we are not fully certain of the many variables that should be included in need determination, nor of the weights—if any—that should be assigned to these variables. Thus, prior to the development of a sound and widely acceptable methodology for need determination, if this is even feasible, one must realistically expect that professional politics and trade offs will continue as major factors
in any critical manpower decisions. Accordingly, one should not assume that the third generation controls described here constitute a final solution to our manpower problems. It is entirely reasonable that these controls will usher in, or at the very minimum underscore, other associated problems with manpower distribution, such as that of defining shortage or underserved areas in the health professions.

As in other instances of public policy, proposed solutions to health care problems may well create new sets of policy questions far more complex than the original problems. Redistributing health manpower by dictating the choice and location of practice is a serious business and may require a level of economic sanctions, or disincentives that is repugnant to the political values of the public. If indeed public policy is to proceed in this direction, it is necessary that serious consideration be given to its full implications as well as to the specific methods and mechanisms of implementation.

Notes


8. Anne Mehringer, Analysis of 1974 Health Manpower Licensure Legislation (Rockville, Md.: Aspen Systems Corporation, 1975), p. 114. (This study was funded under contract with the National Center for Health Services Research, HEW.)


11. For a number of concerns with the underlying assumptions of continuing education, see Cohen and Miike, Developments in Health Manpower Licensure. Derbyshire mentions some of these concerns but is of the view that some form of continuing education, be it reading, attendance at meetings, or listening to one's colleagues, is of value in improving patient care and changing practice patterns of physicians. Robert C. Derbyshire, "Relicensure for Continued Practice," Federation Bulletin 59 (July 1972): 234–36.


18. H.R. 17084, 93d Cong., 2d Sess., 1974, reintroduced as H.R. 5546, 94th Cong., 1st Sess., 1975. This provision was also found in S.3585 as initially introduced.


22. According to a recent study, this goal may also be accomplished by maintaining high standards for licensure: "The strategy of attracting large numbers of FMG's, licensing relatively few of them, and requiring the unlicensed FMG's to work in certain institutions could allow certain states to ease the critical shortage of physicians needed in hospitals." Arlene Goldblatt, Louis Wolf Goodman, Stephen S. Mick, and Rosemary Stevens, "Licensure, Competence, and Manpower Distribution," *New England Journal of Medicine* 292 (January 16, 1975): 140.


Aristotle expressed a principle that tends to surprise us today because it reflects what we like to consider a contemporary social consciousness. “Health of mind and body,” he said, “is so fundamental to the good life that if we believe men have any personal rights as human beings, they have an absolute right to the measure of good health that society is able to give them.” In response to the needs of our modern medical technology, this same ancient sentiment has helped to generate a veritable army of allied health professionals. Among them are the medical record practitioners.

The keeping of records for the sick and injured is so intimately tied in with the physician’s practice that the history of medicine throughout the millennia can be readily traced through them. Patient records, depicting such things as trephining and amputations, have been found on the walls of caves of the Stone Age. They abound in ancient Hindu literature; they have been found on potsherds and clay tablets from Nineveh and Babylon, on papyri and the walls of tombs and temples in ancient Egypt, Greece, and Rome. Some of these are of such superior quality that we would be hard put to criticize them even by today’s enlightened standards. However, today’s medical record keeping is much more complex and exacting. It must involve not only technical hows and whys, but the evolution of values regarding human life and dignity, the realities of science versus superstition, and the increasing sophistication and refining of human thought in general.

The physician is still basically responsible for writing the
medical or health record. But the "keepers" of the records are no longer the individual scribes, archivists, monks, and disciples of great medical men who collected the works of their masters throughout the centuries. Today's organized medical record department, or health information center, headed by a practitioner of professional status, is a relatively recent innovation, but it functions as an integral part of any modern health care facility.

The turn of the century was an exciting time for American medicine. Everything seemed to be happening at once. Breakthroughs in medical technology lit up the medical horizon at frequent intervals, creating a need for new occupations and professional groups that could handle increasingly specialized responsibilities. Nursing, post-Florence Nightingale, was rising as a profession. Some kind of order and continuity in the patient care regime had to be worked out in order to insure the quality of medical care.

In any profession, the formulation of new roles or the revision of old ones must be accomplished ultimately at the training level. Quality education is always imperative. As different types of practitioners began to encounter one another in what was to become the "medical team," the question of a good education became crucial. A chaotic proliferation of inferior medical programs had been exploiting the needs of an expanding population until the American Medical Association finally put a stop to it. Organized in 1846, the association's Council on Medical Education and Hospitals still approves medical education programs, as well as those of many allied health professions today.

The American Hospital Association, devoted to the management of the total hospital plant, made first mention of the condition of medical records in its 1902 proceedings; however, the national impetus for better records was provided by the American College of Surgeons. Founded in 1913 to raise the ethics and professional standards for the practice of surgery, this organization was finding it difficult to qualify surgeons who wished to become fellows of the College, because adequate records of operations performed by the candidate were often unavailable from his hospital. Moreover, a national survey of hospitals conducted by the College over a period of five years yielded such
horrendous examples of medical and surgical practice that the report was never published.

This survey did result, however, in a hospital standardization program. Begun in 1918, a landmark year in American medicine, the program was based on the now famous Minimum Standards, five brief but all-inclusive statements, or clauses, the fourth of which refers entirely to medical records. It demanded that "accurate and complete medical records be written for all patients and filed in an accessible manner in the hospital."

Such a requirement called for a person specially qualified to obtain and preserve such records. At this time, "record clerks" were already employed in a few hospitals. In fact, in Boston, a small group of these women had been meeting since 1912 as a "Club of Record Clerks" under the leadership of Mrs. Grace Whiting Myers, then chief librarian at Massachusetts General Hospital. The names of such famous advisors as Dr. Richard Cabot and Dr. Harvey Cushing can be found in the club's archives.

Not until 1928, however, did the Association of Record Librarians of North America, today's American Medical Record Association, come into existence. That year, Dr. Malcolm T. MacEachern, then director of hospital activities of the American College of Surgeons, sent out an invitation to all workers of hospital record rooms in the United States and Canada to meet in connection with the Eleventh Annual Clinical Congress of the College in Boston. It was at this meeting, on the motion of Matthew A. Foley, then editor of Hospital Management, that medical record practice was actually launched as a new profession.

Two giant strides had been made on behalf of American medicine: Clause IV of the Minimum Standards had established a guideline by which to measure the quality of a patient record; and an association had been founded that would place medical record keeping on a professional plane, thus encouraging the creation of a system that would ensure the quality, availability, and functional value of individual records.

The first concern of those women whose task it now was to transform an ancient occupation into a modern profession was to develop a plan for the training and education of medical
record practitioners. They envisioned a curriculum that would give a practitioner the requisite scientific, philosophic, and theoretical grounding in the field, and would form also, in the phrase of Alexander Pope, a "common mind" within which each practitioner could operate both as part of a professional community and as a creative individual.

The task was prodigious; but it was difficult not to be caught up in the general climate of progress in the medical and health fields. Hospital programs were established, some of them affiliated with a college or university, and as early as 1932 graduates from these programs were required to pass a national registration examination to earn the title of Registered Record Librarian (RRL). This was the medical record practitioner's professional title until 1971, when the word "librarian" was removed from the designation as a confusing anachronism that did not reflect the professional practitioner's true role. The new title was Registered Record Administrator (RRA).

In 1930 a professional and educational journal was begun, now called Medical Record News. Inservice institutes held in various areas in the country, some sponsored by state component associations in close collaboration with the national, were providing continuing education on timely subjects for practitioners as early as 1939. During these formative years, too, a pledge of professional practice and a code of ethics were adopted. Professionalism was growing.

In 1941, the AMA Council on Medical Education and Hospitals accepted the responsibility of surveying and approving medical record educational programs in liaison with the American Medical Record Association. In the same year, the first major compilation of the profession's basic body of knowledge, Edna K. Huffmann's Manual for Medical Record Librarians (now in its sixth edition) was published. In the foreword, Dr. Malcolm MacEachern, himself author of the classic Hospital Organization and Management, wrote:

With this textbook, we are now provided with a means of systematization and unification in the education of the medical record librarian. . . . She and others like her . . . have been greatly influential in raising . . . standards. . . . The result is reflected not only in better
medical records in our hospitals, but in better care of the patient, since the physician, the surgeon, the nurse, and everyone else who has a part in preparing the record is spurred by the knowledge that a complete record will readily reveal the slightest negligence or error of judgment.

Publication of this text brought the profession increased recognition. In relation to the demand, however, Registered Record Librarians were few and far between—especially after 1952 when the merger of five medical organizations created the Joint Commission on the Accreditation of Hospitals (JCAH). This commission replaced the American College of Surgeons as the recognized hospital accrediting body, and standards were multiplied and tightened. Thus in 1953 a new category of practitioner was developed in order to help fill the need for trained medical record personnel as quickly as possible; this was the Accredited Record Technician (ART). The educational training programs for technicians remained hospital-based until the early 1960s, when allied health education programs began to move out of the hospitals and into community colleges. Persons who had worked under a registered practitioner for at least five years were also considered eligible to take the accreditation examination, but this practice was discontinued in 1958.

At about the same time, in the face of the pressing need, the American Association of Medical Record Librarians (AAMRL), as it was then known, received a grant from the Kellogg Foundation to develop a correspondence course in technical aspects in order to upgrade the education of medical record personnel who had little access to formal training.

Enrollment figures for the course have been high from the beginning. Today the only requirements for enrollment are a high school education or its equivalent and current employment in a medical record department under a registered practitioner. A corps of practicing RRAs serve as corresponding instructors.

According to its late director, Sara McKinney, the correspondence course was not designed to prepare persons for registration. However, the 1963 AAMRL House of Delegates decided that it should be approved as an education program under the bylaws and that students successfully completing the course should be
permitted to take the accreditation examination to earn the title of ART.

Meanwhile, responsibilities assigned to registered practitioners in hospitals and health care facilities continued to increase, as did the sophistication of the systems required to provide adequate medical information. Educational programs needed to keep pace. Standards of eligibility for registration had advanced to the point that by the 1950s two years of college credits or a nursing background were required, plus completion of a one-year certificate course (mostly hospital-based) or a specified regimen of experience under a registered practitioner.

In 1965 eligibility by way of experience was discontinued. Prerequisites for registration were again stiffened when the 1967 House of Delegates voted to require a baccalaureate degree in medical record practice or one in a related field with a one-year postbaccalaureate certificate course in an approved program in order to qualify. These regulations were not put into force until 1971, to allow time for the few remaining hospital educational programs to transfer over to college or university affiliation. Given the continued shortage of qualified practitioners, this was a courageous step towards full professional status.

Today, in the forty-sixth year of association activity, an RRA must complete an approved medical record program either by a four-year baccalaureate program with a major in medical record practice or by a postgraduate certification program and then pass a national registration examination to receive the professional title. As the recognized professional person in the field, the RRA assumes the leadership role in the management of medical and health information services, or functions as a consultant for several facilities. Out of a total association membership of about 14,000, approximately 4,000 medical record practitioners are active RRAs—a small number to serve the more than 7,000 accredited hospitals and innumerable other types of health facilities that cry for such help. As of August 1974, there were thirty-seven approved medical record administration programs graduating approximately 850 persons in the 1974–1975 school year.

Today’s ART will either have graduated from a junior or
community college with an associate degree in medical record technology or completed the correspondence course. Some ARTs serve as managers in the medical record departments of small hospitals or health facilities, usually under the regular supervision of a consultant RRA; others are assigned as subsection supervisors of large departments; and many serve as medical data analysts in medical care evaluation programs. Over 5,000 strong, the active ARTs now outnumber active RRAs, a perhaps significant portent for the association to consider in their future planning.

The qualifying title, ART, does not differentiate between those who have an associate degree and those who have completed the correspondence course, a fact that can sometimes cause confusion among hospital administrators or personnel offices. As of August 1974, there were forty fully approved programs for medical record technicians, graduating approximately 850 in the 1974–1975 school year. In addition, some 2,700 are currently enrolled in the correspondence course; about 400 of these will take the 1975 accreditation examination.

Distinction must be made between a position or job title, which may vary according to the institution, and the national qualifying designations of RRA or ART. RRAs should have a job title in accordance with their qualifications and responsibilities, such as directors of medical record services, health information specialists, or variations thereof. ARTs may be designated as assistant directors, supervisors, managers, or health data analysts.

Educators and planners in the medical record field are presently faced with several problems, not the least of which is the chronic and nearly critical shortage of qualified persons to administer and to teach in the educational programs. Another is the difficulty of progressing from the technician to the professional level. Still another concerns the burgeoning curriculum content of medical record administration programs.

The shortage of faculty and school directors is a crucial problem, since the survival of the profession itself may depend upon its solution. Many colleges and universities are anxious to establish medical record administration or technician programs but cannot find qualified RRAs to administer or coordinate them.
University-based teacher training workshops designed to recruit faculty have been less than successful. The problems of mobility, the rigors of advanced study, and the inability of most colleges to offer salaries comparable to those in nonacademic positions serve to discourage many potentially fine educators.

An easier means of progression from ART to professional status might help to provide a solution to the shortage of qualified teaching personnel, but progression itself is a problem that has preoccupied medical record educators and their college officials for some years. The ART who wishes to go on in the field encounters difficulties on both a personal and an academic level: he has problems with credit transfer and curriculum sequence patterns, must repeat many professional courses that were a part of his technical program, contends with variations in marking practices and evaluative procedures. Moreover, many of these technicians chose the shorter-term programs specifically because they are earning their own living, or have families to raise, and do not fit readily into the usual collegiate calendar.

Obviously, what is needed here is the integration of community college and four-year programs in such a way that the short-term degree can be a stepping stone to the four-year one without forcing the student to backtrack or duplicate courses, just as the master's degree is a prelude to the Ph.D. Some junior colleges and four-year institutions, generally related by geography, have attempted to work out such an integration. By conferring, comparing curriculum patterns and teaching outlines, and attempting to reach some common ground regarding admission and transfer requirements, they have succeeded in clearing the path at least, without compromising their own standards.

An innovative approach to the teaching of allied health that addresses this problem of progression is the career mobility concept, or the stepladder approach—a brainchild of Sister Agnes Mary Monsour, RSM, president of Mercy College of Detroit. The potential of Sister Agnes Mary's ideas for impact on the pattern and cost of national health care attracted the official interest of the federal department of Health, Education and Welfare (HEW), and a five-year experimental program was conceived, to be underwritten by federal funds. In its fifth year now, the success of this program promises to revolutionize the prepa-
ration of students in the allied health sciences. The stepladder approach, briefly, is a simple one: students in allied and associated health fields are educated in at least two stages, allowing the student to get off the academic ladder at early levels with certification potential at the technician level in his field.

The advantage, to the student and to society at large, is a reduction in the numbers of those who, because of financial, family, or "time" problems, drop out of college without being qualified for any job, and the creation instead of a new work force on the technician level in all the allied health fields. At the same time, the curricula are structured so that the student can at some point in the future, when his problems are less pressing, get back on the "ladder" with a minimum of academic adjustments, and advance to the top of it at the baccalaureate or professional level.

Sister Agnes Mary's arguments are based on experience. As is probably true in most colleges in large metropolitan areas, most of Mercy College's 2,000 students are "first generation college," commuting from middle-class working families. The college is coeducational. Over 60 percent of the students receive financial assistance. A fair proportion are married and already raising families. Students are definitely job-oriented and, particularly in the professional areas, are generally serious about their education for their work—sometimes to the point of anxiety. Many work while attending college and sometimes find it necessary to sacrifice full-time enrollment for a semester or two.

One might call Mercy College of Detroit a "practical" liberal arts college. Its challenge is to provide a professional or technical preparation within the context of a liberal arts education. The college's participation in the Consortium, a cooperative program with three area colleges, including the University of Detroit, permits full-time Mercy students to enroll in classes at any of these institutions. This provides them more scheduling flexibility as well as an enriching variety of courses to encourage them to take as many liberal arts electives as possible.

The career mobility or stepladder approach also offers a special attraction for the high school graduate who is not sure he wants four years of college and who, indeed, may be "over-
In the medical record area, the career mobility plan at Mercy is now in its third year. The curriculum is designed so that a student may receive an associate degree in medical record technology and become eligible for accreditation at the end of two years. At this point he may leave, either permanently or temporarily; if the leave is temporary, he may proceed to the baccalaureate program upon his return, receive a bachelor of science degree in medical record administration, and become eligible for registration at the professional level.

General course requirements for the associate degree include general biology, English composition, anatomy and physiology, general psychology, ethics, speech, and elementary statistics. Twenty-seven credits are required in medical record science, including medical terminology, a laboratory practicum, and seven credit hours of directed technical experience in a variety of hospitals, clinics, extended care units, and other medical facilities. The medical record lecture and laboratory courses introduce the student to the basic medical record, its components, and their analysis; coding and classification systems for documenting diseases, operations, drugs, and other medical entities; hospital and medical statistics; institutional accreditation licensing and medical care evaluation requirements; legal aspects; and basic techniques of supervision.

General course requirements for the baccalaureate degree include, in addition to the above, bacteriology or microbiology, chemistry, general organization and management, personnel management, data processing (Introductory Programming), and research methods. In addition to twenty hours of medical record science in the first two years (baccalaureate students are exempt from the seven hours of directed technical experience), the bachelor of science candidate requires twenty-one more hours of advanced medical and health record administration courses, including seven credit hours of directed managerial experience at various affiliation sites and six credit hours of fundamentals of medical science. The medical record courses at this level stress advanced management techniques, including the completion of
a series of management projects; systems analysis; the designing of functional health information systems for various types of facilities, including the determination of space allocation needs, departmental layouts, and acquisition and care of major equipment; exploration of innovative health record keeping techniques; and "professional adjustments" classes related to functioning as a professional in the field chosen.

In both the lower and upper levels there is some room, though it is limited, for liberal arts electives.

Postdegree students seeking certification for registration are required to take only the lower and upper level professional courses plus those courses considered complementary to the medical record curriculum, such as the natural science and business courses.

Since at least 90 percent of the students in the medical record program are transfer students from one of the many community colleges in the area, careful academic counseling on an individual basis is a must; in the long run, this pays off in a relatively smooth professional course sequence beneficial to both faculty and students.

The medical record technician who graduates from Mercy College is generally prepared to work responsibly in many aspects of preparing, analyzing, displaying, and preserving pertinent health information in the medical record department of a hospital, clinic, or other health-related facility. He is also prepared to function in a supervisory or supportive capacity to the RRA.

The baccalaureate graduate is prepared, further, to organize, coordinate, and manage the medical or health information system in any size or type of medical or health-related facility. He is prepared to function as an integral part of the administrative and medical teams in providing a high quality of medical care, reflected, for his part, in well-designed, complete, accurate, and available records, whether in hard copy, automated, or computerized form, or in some combination of these.

After a year of careful planning and restructuring of the curriculum, the medical record career mobility program was implemented at the beginning of the 1972-1973 school year,
not, however, without some trepidation on the part of the faculty. The existing baccalaureate program was a relatively well balanced combination of professional, liberal arts, and professionally related courses. How would it fare if transfer students were foundering at all levels, and the faculty unable, in the confusion and pressures of their increased duties, to categorize them and get them comfortably set in their proper sequential academic patterns? Though timely, the hard work involved in writing new outlines and implementing more advanced courses at the upper level sequence was dreaded. There was also the problem of shepherding through the changes the interim students, those who were already started in the old curriculum pattern, without jeopardizing their graduation dates or having to hold duplicate classes. Instructors could ill afford to expend this time. Nevertheless, anxious not to be left behind in the new and exciting project, the faculty began.

Because of the many applicants in relation to available space and faculty, accepted freshmen and enrolled transfer students were advised that the next year's sophomore class, that is, the class level at which the technician program would be terminated, would be limited to 20, with acceptance based on grade point averages as cumulated at the end of the current school year. Any transfer credits were included in the tabulations so as not to give part-time students an unfair advantage. The student who did not “make” the favored 20 would have these options: he could leave for a year and get a job (the freshman courses qualify one with typing skills to be a medical transcriptionist); or, if he wanted to go on for a baccalaureate degree, he could remain on a waiting list and continue in college, under careful counseling, picking up liberal arts and required business courses while attempting to raise his grade point average. No differentiation was made between technician or baccalaureate aspirants. Only in the third semester (first semester of the sophomore year) did the student declare his intention to step off at the associate degree level, or go on. This policy was put into effect at the beginning of the 1973–1974 school year.

Thus far the program has functioned smoothly, and most of the problems envisioned at its outset have not materialized to any great degree. This is partly the result of extensive counsel-
ing, including careful explanation of the mobility concept and the student’s options within it by the faculty directly involved. This thorough counseling has established an excellent level of communication between students and teachers. In addition, students on both levels actually appear to be more challenged than they were under the old system.

Although the more conservative faculty members continue to believe in the “orderly” progression of knowledge, feeling that a student should have a strong liberal arts background before going on to the professional courses, restructuring the curriculum was surprisingly nontraumatic and disruption relatively minimal. The basic medical record courses, previously offered in the junior year, were included at the first- or second-year level. The liberal arts and other courses required only of baccalaureate candidates could now be picked up in the third year.

To fulfill the requirements of an approved baccalaureate program, upper level medical record courses were designed to cover more advanced material; in addition, a medical record seminar was included to tie the entire professional sequence together. The first class graduated from the revised program, in 1975, averaged above the national norm in registration examinations.

The new technician program, headed by a faculty coordinator who works under an overall director for the entire four-year curriculum, was granted provisional AMA approval in its initial year (it has since received full approval). For this reason, the program’s first graduates were a transfer student, a postdegree student, and a Mercy College student who was already on the sophomore level under the old curriculum when the program was implemented. These three students elected to “get off the ladder” at this level of their education and were eligible to take the accreditation examination. The results were quite gratifying. Two were immediately employed: one in a hospital, implementing medical care evaluation procedures, and one as assistant to an RRA consultant for a number of area nursing homes and extended care facilities. The “interim” student, now an ART, decided to go on to the baccalaureate degree. Because she had already fulfilled most of her liberal arts and other course requirements, she was able to graduate in the 1975 class.
Perhaps the most critical educational challenge facing the medical record profession today is the content of the curriculum that prepares the professional practitioner. The breadth and depth of knowledge needed by the medical record administrator (MRA) for efficient practice of the profession can no longer be contained within the baccalaureate curriculum. Already the signs are there. One need only scan the curriculum patterns of the approved medical record administration programs (the program at Mercy College is fairly typical) to see that they are, on the whole, becoming more and more technical, limited in scope, and yet cluttered. Liberal arts courses are being sacrificed—a philosophy course here, a literature course there—and science requirements minimized instead of encouraged as minor sequences. These are being replaced with more courses in computer science, management methods, and systems design—courses that reflect areas in which the MRA is, indeed, expected to be knowledgeable.

Unfortunately, it is impossible, within the limits of the total medical record curriculum, to delve more than superficially into these areas, which constitute, in themselves, full professional entities. There is simply too much to cover. The medical record curriculum has been attempting, in the last few years, to accommodate itself to a growing number of such multidisciplinary requirements. As a result, students today find themselves either—to amend the old saying—learning less and less about more and more until they feel they are learning nothing about everything, or encountering a curriculum that has become much more management- than science-oriented. Students feel overwhelmed by the professional courses even as school directors and faculty, reluctant to sacrifice the technical base of medical record keeping, are attempting to retain such things as filing techniques, coding and classification systems, and basic hospital statistical formulas, squeezing in the new courses as they can.

The question then is whether the MRA can be adequately trained in the organizational and managerial functions of the profession and be brought abreast of related technological developments, without sacrificing the medically oriented information. The MRA is characterized by a unique combination of medical and managerial knowledge, trained to marry medically
related information to an efficient information system in terms of compiling a record of the total health care package for a given patient. For this reason, the MRA enjoys an unusually broad perspective: he or she must be aware of the administrative, legal, legislative, and evaluative dimensions of that record, and be able to handle these various aspects practically and efficiently to serve the best interests of the patient, the physician, the institution, and the community.

The well-prepared MRA will necessarily have a comprehensive overview of the health facility—its organization and its functions, the interrelation of positions and responsibilities among its medical staff. He is thus in an excellent position to observe, interpret, and discuss as required, changes and trends in medical care patterns. He should be capable of analyzing and presenting data required from both administrative and medical viewpoints, converting the various statistical and terminological data into a common language, and determining what information is pertinent, in terms of both long- and short-range goals. Because the medical record department is still "the pulse of the hospital," as Dr. MacEachern so well put it—with all medical information being channeled through it—the MRA can provide feedback regarding medical procedures and can display for the medical or allied health student and researcher a wealth of cross-referenced resource material. In addition, the MRA—as probably the best resource person for information on accreditation and licensing requirements in the field—will know about release-of-information policies and will be able to judge whether the institution's records properly reflect the care rendered to patients.

The sheer volume of work involved and the need to be exacting demand that the MRA be educated in planning, organization, personnel management, and, more and more now, electronic data processing. The computer is fast changing the character of medical record keeping, as will national health insurance, which is apparently inevitable in America and will affect all modalities of patient care. Hospitals and other health facilities will be but part of a total health care system, each programmed to provide an interfacing dimension of care; patient records of a given institution may well be electronically stored—
perhaps at remote points. The MRA must therefore learn to input, store, transmit, and retrieve information from soft-wear packages he or she may have helped to design, and to utilize and direct the routine use of sophisticated devices such as fiche storage tapes and cathode ray tube (CRT) displays.

The possibility of huge computer data banks demands as well that the MRA be well versed in the newly published patient's Bill of Rights and understand both the legal and moral aspects of the citizen's right to privacy. The MRA must appreciate the fine balance between withholding medically related information in the interests of patient dignity and right to privacy, and making such information available for necessary and appropriate use. As a case in point, Dr. E. M. Gabrielli, director of the Clinical Computing Center in Buffalo, New York, has worked with MRAs from the very beginning in developing a medical computer vocabulary that will allow the creation of a national medical data bank. Now in the late planning stages, this system will exist on local, regional, and national levels, with the patient's identification eliminated beyond the local level. Strict ethical standards will control internal and external access of information; patient privacy will be absolute.

Finally, as the health industry moves into the public utility sphere, with all the governmental and public scrutiny that this entails, MRA educators must be increasingly concerned with all aspects of medical care evaluation.

Is there an answer, then? Can the present programs adequately prepare the MRA for this expanding role? Will the management majors, the biostatisticians, the computer programmers, the systems analysts, supersede or even replace the medical record administrator whose education includes only a relative smattering of courses in these increasingly relevant disciplines? What are our priorities? Should the liberal arts courses be preserved as much as possible in the interests of producing something more than a one-dimensional practitioner? Should the medical and scientific aspects of the undergraduate curriculum be strengthened in order to maintain that added dimension of knowledge which makes the medical record administrator unique?
The recently published observations and conclusions of the Task Force appointed by the American Medical Record Association in 1972 to "brainstorm" about the future role of the RRA, states flatly that the "medical record administration graduate of 1973 will be the technical employee of 1985." In a courageous and clear-eyed report of its findings and deliberations, the Task Force declares with a sense of urgency that what is needed, and quickly, is a "career ladder" for the present MRA, one that will transform him or her into the Health Information Coordinator (HIC) of the 1980s, a professional capable of "playing a key role in the definition and design of a health record system." The Task Force sees the HIC assuming some of the blanket functions of the present MRA—that is, becoming the person with the greatest general knowledge of professional, legal, licensing, and other regulatory requirements and standards relating to health information; the inservice educator for various health professionals; and the "natural" for assuming directorship in medical record educational programs. It also places the HIC in medical and health research, pure and applied, and on survey teams and other projects related to the generating and utilization of medically related information.

The Task Force would recognize three educational strata, producing three categories of medical record practitioner: the ART at the associate degree level, the RRA at the baccalaureate level, and the HIC at the master's and doctoral level. No present practitioner would move from one level to another by a grandfather clause or automatic redesignation. The levels would be unique and require a curriculum keyed to the end product, and subject matter included in the lower order would not be included in the next step. More details of the curricula for the three strata can be seen in Table 1.

The professional image of the health record professional is also being challenged. The present composite MRA is predominantly female and considered stereotypically "feminine"—that is, pliant, given to excessive detail, somewhat conservative, and nonthreatening. This image is no longer adequate or relevant.

The qualities the Task Force envisions in the HIC include the ability to communicate, the possession of a positive self-image regarding one's contribution to health care, self-confi-
Table 1

Degree Programs for Medical Record Personnel

<table>
<thead>
<tr>
<th>Career category</th>
<th>Education</th>
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<tbody>
<tr>
<td>ART</td>
<td>Associate in Arts Degree (Core curriculum, technical)</td>
</tr>
<tr>
<td>MRA, RRA</td>
<td>Baccalaureate Degree (Core curriculum, liberal arts--professional) plus Introductory Courses</td>
</tr>
<tr>
<td>HIC</td>
<td>Master of Arts or Science and Doctoral Degree (Concentration in any of these subjects)</td>
</tr>
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<table>
<thead>
<tr>
<th>Health Information Science</th>
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<tbody>
<tr>
<td>Biostatistics--Mathematics</td>
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<tr>
<td>Education</td>
</tr>
<tr>
<td>Management Science</td>
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source: Medical Record News, August 1974, p. 73.

dence based on adequate preparation to handle a staff role in the total organization, nerve to act rather than react, and courage to be innovative. The proposed category would also encourage a greater number of male professionals and the unabashed exercise of traditionally "male" qualities: leadership, ambition, aggressiveness.

Today's profession of medical record practice also badly needs more members with master's and doctoral degrees in a variety of complementary fields if it is to sustain more than a poverty level of creative leadership. As various medical and health fields become more complex, the field of medical record practice will bear the burden of their increasing informational needs. The profession cannot afford to lag in assimilating the necessary knowledge to articulate with these areas. The Medical Record
Association must not only continue, but accelerate its efforts to encourage its young and talented graduates to pursue advanced studies and take leadership roles in association activities. It must explore all avenues, financial and otherwise, that will facilitate their advancement.

Too much talent that could be used for service on a national scale is expended in single and limited institutions because of the necessity of earning a living. Many of the most creative are caught up in day-by-day demands that needlessly preclude advanced study. Others are stopped short by the number of prerequisites necessary for admission into graduate school from medical record administration programs. The thirty to forty hours of undergraduate medical record courses taken in these programs are not generally transferable as admission credits into a graduate school.

This "dead end" aspect of medical record education needs study. One area of consideration might be the relative merits of "graduate" degrees that are oriented towards teaching and research and "professional" degrees on a master's or doctoral level. The latter would seem to meet the specifications for practice in an applied area and would be more likely to accommodate undergraduate transfer courses.

A healthy quota of able practitioners, leaders, scholars, and dedicated educators is essential to the survival of the profession. It should include a fair representation of both sexes, and should respect its visionaries and creative "mavericks." In addition, the profession could do with an expansion of its intellectual horizons; it needs to woo associate members—distinguished professionals in the fields of education, the behavioral sciences, medicine, allied health, nursing, and others—and bring them within its ranks.

With vision and with effort, there is every hope that medical record practice will rise magnificently to the need it was created to fill: the providing of good medical and health records to reflect and encourage good patient care.
Dynamic social changes and dramatic health science and technology advances continue to propel our nation's health care delivery system to new dimensions and frontiers. They have given rise to a service-oriented society that is requiring more and better-prepared personnel, able to cope with technological progress and rapid skill obsolescence.

Today the people of this country believe that adequate health care in all its aspects—preventive, therapeutic, convalescent, and custodial—is no longer a privilege for some but, rather, a right of every individual. Emanating from this tenet is a national thrust to assure the provision of comprehensive health care to all and at reasonable cost.

Between 1960 and 1972 the health care bill of the United States rose from $27 to $79 billion and it is estimated that it may reach $120 billion by 1975. Yet many people in this country continue to lack adequate care; this is particularly true among the rural poor, urban ghetto and barrio dwellers, migrant workers, and other minority groups.

Our nation's population continues to grow as a result of increased life expectancy, lowered infant mortality, control and elimination of disease, and expanded public health education. And although society is utilizing available medical insurance plans to a greater extent and federal legislation is subsidizing
health care for specific groups of our population, national health insurance—in one form or another—is imminent. These unmet and growing needs call for health services far more extensive than we are now able to provide.

The dimensions of health care continue to be affected by demographic changes. Life-styles and economic circumstances, coupled with the greater mobility that springs from improved communication and transportation, are bringing population shifts in both urban and rural areas. These changes are requiring different patterns of health care delivery and differing competency levels among health workers, depending upon the health problems peculiar to a given area. They also call for modifications in current practices for credentialing health practitioners; licensure, standards, and qualifications will need to be reviewed and, as necessary, adjusted to be compatible with changing needs.

No new development reflects the role of the public in decision-making more than consumer interest in health services. Consumers are evincing greater interest in practitioner-patient relationships and are seeking involvement in the formation of broad public policies as they relate to the quality and availability of health care.

The explosion of scientific and medical knowledge has made possible preventives and cures unknown a decade ago and has brought technological advances that allow more accurate diagnosis and treatment of illness and disease. To assure efficient utilization of the highly technical, and often costly, equipment resulting from this scientific progress, health services increasingly are being provided in a system of cooperating primary, secondary, and tertiary care centers. This system, a stratification of health care units according to their capabilities for providing care, allows a person to enter at a portal appropriate to his immediate health care needs and to move freely, by the usual referral methods, to any part of the system. This calls for a wide array of prepared health workers who jointly assume responsibility for the care provided.

At the turn of the century, health services in this nation were provided almost entirely in homes and doctors' offices and almost exclusively by only three categories of health workers: physi-
E. E. Kerr

cians, dentists, and nurses, numbering about 350,000 in all.² Commensurate with the tempo of social change and technological advance, health care settings have expanded progressively first to hospitals and nursing homes and more recently to extended care units, home care programs, and ambulatory care areas such as community or neighborhood clinics and rehabilitation centers. Correlative changes have occurred in the occupational composition of the health field—most dramatically since World War II; health care personnel now represent over 600 occupations and number approximately 4½ million.³ Yet the capabilities of our health care delivery system, and the educational system which supports it, continue to be challenged by unmet and emerging needs.

Today the efficient and effective delivery of quality health care requires the competencies of a broad spectrum of workers: autonomous primary professionals who carry the greatest burden of legal responsibility for the care provided, and a variety of allied health personnel—professionals, technicians, assistants, and aides—whose work supports that of the autonomous primary professionals.⁴ The level of educational preparation required of these workers varies according to the functions they are expected to perform. Therefore, programs preparing health care personnel range from doctoral level preparation to short-term, on-the-job training.

The term "health occupations education," through popular usage in recent years and as treated in this article, relates specifically to the education of workers whose roles are supportive to health professionals and do not require a baccalaureate degree—for example, occupations for which technical, assistant, or aide-level preparation is deemed appropriate. This is an integral part of the health careers education system that prepares personnel for our health care delivery system; it will be treated in more detail later in this article.

Until recently, health workers generally have tended to fall into five rather distinct categories: 1) autonomous primary professionals: physicians and dentists; 2) professionals: for example, medical technologists, physical and occupational therapists, nurses, medical social workers; 3) technicians: for example, dental laboratory technicians, dental hygienists, environmental
technicians, respiratory therapy technicians, and, by definition of the nursing profession, associate degree nurses; 4) assistants: for example, dental assistants, medical office assistants, and practical nurses; and 5) aides: for example, nurse aides, orderlies, physical therapy and occupational therapy aides, and dietary aides.

Increasingly, however, not all types of health workers can be fitted neatly into one of these five categories. Many occupational titles are assigned on a local basis and, in addition, specialization and reclassification of functions and responsibilities are constantly creating roles that defy clear-cut categorization. For example, physician assistants, independent nurse practitioners, and the increasing number of specialized pediatric and family nurse practitioners present emerging roles whose level of responsibility and autonomy would seem to place them between the categories of “autonomous primary professional” and “professional.”

An additional difficulty in categorization stems from another recent development in the nursing field: in the past this profession has considered nurses prepared at the baccalaureate level to be “professionals” and those prepared at the associate degree and three-year diploma levels to be “technicians.” These designations were based on the type of nursing program completed; yet the graduates of all three program types sit for the same licensure examination to obtain the single legal title, “registered nurse” (RN). This has resulted in disension among nurses generally, and efforts by the American Nurses Association are under way to define more clearly the roles in nursing and subsequently to assign more appropriate titles in this field.

When considered by level of responsibility or autonomy, the five categories of health workers tend to regroup into three: 1) autonomous primary professionals, generally prepared in medical and dental colleges of public and private universities; 2) professionals, increasingly being prepared at four-year colleges and universities in health specialty departments and in schools of allied health professions; and 3) supportive health workers (technicians, assistants, and aides), prepared in many different types of programs located in a variety of administrative settings. The ever-increasing utilization of workers in the latter group has contributed substantially to the numerical growth of
identifiable occupations in the health field, a growth that has been dramatic over the past fifteen to twenty years.

Unquestionably, therefore, health occupations education (HOE) is vital to the preparation of an adequate force of workers to meet the health care needs of this country. Its continued viability and productivity must be assured in light of the United States Department of Labor's prediction that by 1980, 80 percent or more of all service occupations will require fewer than four years of college. Indeed, this forecast has major implications for our predominantly service-oriented health field.

HOE is the composite of less-than-baccalaureate preparatory and supplemental (continuing education) programs that prepare and upgrade personnel supportive to professionals in the provision of health care: technicians, assistants, and aides. These programs—ranging from short-term offerings to two-year associate degree programs—are administered predominantly by public community/junior colleges and vocational-technical institutes in cooperation with state departments of education, though some are administered by hospitals and a few by private schools. And, increasingly, secondary schools are offering programs to provide high school students with opportunities both to explore careers in the health field and, as appropriate, to prepare themselves for selected health occupations. The rapid expansion of vocational-technical education, especially in community college settings, has contributed immeasurably to the growth and quality of HOE, now an identifiable component of this branch of education.

Funding for vocational education in this country was made available initially with the passage of the Smith-Hughes Act in 1917. Among the categories of programs eligible for funding through the act was trade and industrial education. The 1946 George-Barden Act (Title I) provided additional funds for this and the other categories. Although there was no specific reference to HOE, several states used trade and industrial education funds to assist local schools to establish programs in practical nursing. These programs attracted much interest and support and, as practical nurses proved to be effective in their roles sup-
portive to professional nurses, additional groups of health professionals moved to utilize assisting personnel. Today this practice is widespread among the health disciplines.

Probably the greatest single stimulus to HOE, however, came with the passage of the Health Amendments Act of 1956, which, in essence, amended the 1946 George-Barden Act by including Title II, "Vocational Education in Practical Nurse Training." Its purpose was to improve the health of the people by helping to increase the number of adequately prepared practical nurses. This act provided $5 million to be used as matching monies awarded by the federal government to cooperating states for the development of practical nursing and "other health occupations education" programs.

For the first two years, matching was based on a ratio of three to one, and for the remaining three years, on a dollar-for-dollar basis. While these monies could be used to support any HOE program "of less than baccalaureate level," by far the greatest portion was used for practical nurse education; consequently, the act often is referred to as the "Practical Nursing Act." This act required that each state accepting these funds employ a professional nurse to serve as the state supervisor (consultant) for HOE. Customarily, this nurse was employed through the trade and industrial section of the state's educational agency responsible for the administration of vocational education.

Two additional federal acts, the Area Redevelopment Act of 1961 (ARA) and the Manpower Development and Training Act of 1962 (MDTA), contained provisions for funding the training of the underemployed and the unemployed. In many cases, practical nursing and other HOE programs were supported with these funds. Some institutions, however, elected to continue operation with regular vocational education funds but to include MDTA students in their enrollments. By doing so they maintained greater control over program administration and student selection and had more assurance of continued operation with no funding delays between class admissions.

The Vocational Education Act of 1963 (P.L. 88-210) authorized appropriations of up to $225 million annually for occupationally oriented programs of all types except for those "generally considered professional or as requiring a baccalaure-
reate or higher degree." This act prompted a rapid expansion of HOE, and within the United States Office of Education, HOE was transferred from the trade and industrial branch and established as an independent arm of the Bureau of Adult, Vocational and Technical Education. A similar reorganization has been made in most state divisions of vocational-technical education. The Vocational Act of 1963 was amended in 1968 to provide increased monies for vocational-technical education programs, thus enabling even further expansion of HOE.

Vocational-technical education programs are conducted in each state and territory of the United States in accordance with a state plan. Data on health occupations education, compiled by the Health Occupations Education Section, Division of Vocational and Technical Education, United States Office of Education, give a national summary of annual reports submitted by these constituencies.

In compliance with a policy of vocational-technical education, the appointment of an advisory committee is a first step in the development of every HOE program. Appointed by the chief administrator of the controlling institution, committee members should have concern for the people's well-being in general and health care in particular; they should be committed to a belief in the significance of preparing supportive personnel for health careers, and they should believe in multidisciplinary and interdisciplinary action in behalf of the related goals of continual improvement of health care services and improvement of health careers education.

Each committee member is selected primarily for the unique contribution he can make either to the total or to some specific aspect of the program. In the planning stage, committee membership includes persons active in community affairs, consumers of health services, and providers of health care services. As the program becomes operational, membership is enlarged to include representation from among graduates and students. Membership should provide a mix of health professionals, educators (from career education, general education, and special education), and knowledgeable lay persons. With this composition the committee is able to assume one of its primary roles,
that of liaison between the HOE program and civic and professional communities.

Although the purpose and functions of this committee are advisory rather than policy-making, it serves as an idea-generating body. It is hoped that it will be flexible and sensitive to emerging and sometimes unforeseen needs of the program. Different members have specific contributions to make, depending on the program's stage of development. Some may be more effective during the early phases—in program design, perhaps, or in fostering early community acceptance of the new program; others make their best contribution when the program is in operation. The productivity of this group is dependent in great measure upon the quality of its leadership and membership rather than its size.

Despite a rapid growth in the number and types of HOE programs following the passage of the Health Amendments Act of 1956, by 1965 the need for highly competent workers prepared in HOE had become even more urgent. A shortage of health care personnel already existed and was expected to become more acute in view of the 1965 amendments to the Social Security Act and the health legislation that funded a nationwide attack on heart disease, cancer, and stroke. In an effort to help ease the shortage, HOE was encouraged both to expand its existing programs and to create new types of programs to broaden the scope of occupational roles.

Table I shows that from 1957 to 1973 there has been a yearly increase in total enrollments in HOE programs partially funded by vocational education. It should be noted, however, that the figures in Tables 1 and 2 reflect enrollments in both preparatory and supplemental (continuing education) programs.

Table 2 shows, by type of HOE program, enrollments in fiscal years 1971 through 1973 and projections for FY 1978. Between 1971 and 1973 a decrease in enrollment occurred in only two of the seventeen program types: "Other Medical Laboratory Technology" and "Environmental Health." Among the remaining fifteen, many experienced a marked yearly increase. The 1978 figures show a predicted increase in all program types including those two with a previous decrease.
### Table 1

**Enrollments in HOE Programs**
**Partially Funded by Vocational-Technical Education**

<table>
<thead>
<tr>
<th>Fiscal year</th>
<th>Enrollment</th>
<th>Fiscal year</th>
<th>Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957</td>
<td>7,101</td>
<td>1966</td>
<td>83,677</td>
</tr>
<tr>
<td>1959</td>
<td>30,769</td>
<td>1968</td>
<td>140,987</td>
</tr>
<tr>
<td>1960</td>
<td>40,250</td>
<td>1969</td>
<td>175,101</td>
</tr>
<tr>
<td>1961</td>
<td>47,264</td>
<td>1970</td>
<td>198,044</td>
</tr>
<tr>
<td>1962</td>
<td>48,985</td>
<td>1971</td>
<td>269,546</td>
</tr>
<tr>
<td>1963</td>
<td>53,957</td>
<td>1972</td>
<td>336,652</td>
</tr>
<tr>
<td>1964</td>
<td>59,006</td>
<td>1973</td>
<td>421,075</td>
</tr>
<tr>
<td>1965</td>
<td>66,772</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 2

**Enrollment in Vocational-Technical Education HOE Programs, by Type**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental assisting</td>
<td>12,189</td>
<td>15,446</td>
<td>16,895</td>
</tr>
<tr>
<td>Dental hygiene</td>
<td>3,828</td>
<td>4,754</td>
<td>5,523</td>
</tr>
<tr>
<td>Dental laboratory technology</td>
<td>2,581</td>
<td>2,948</td>
<td>3,748</td>
</tr>
<tr>
<td>Medical laboratory technology</td>
<td>5,650</td>
<td>10,524</td>
<td>11,412</td>
</tr>
<tr>
<td>Other medical lab. technology</td>
<td>7,798</td>
<td>3,156</td>
<td>2,941</td>
</tr>
<tr>
<td>Nursing, associate degree</td>
<td>47,090</td>
<td>64,931</td>
<td>77,912</td>
</tr>
<tr>
<td>Practical nursing</td>
<td>73,372</td>
<td>82,896</td>
<td>93,827</td>
</tr>
<tr>
<td>Nursing assistant (aide)</td>
<td>54,868</td>
<td>58,903</td>
<td>74,975</td>
</tr>
<tr>
<td>Occupational therapy</td>
<td>686</td>
<td>1,504</td>
<td>1,721</td>
</tr>
<tr>
<td>Physical therapy</td>
<td>1,200</td>
<td>1,501</td>
<td>1,713</td>
</tr>
<tr>
<td>Radiologic technology</td>
<td>4,868</td>
<td>5,766</td>
<td>7,316</td>
</tr>
<tr>
<td>Environmental health</td>
<td>2,998</td>
<td>1,401</td>
<td>1,785</td>
</tr>
<tr>
<td>Mental health technology</td>
<td>2,380</td>
<td>3,898</td>
<td>6,555</td>
</tr>
<tr>
<td>Inhalation therapy</td>
<td>3,767</td>
<td>5,759</td>
<td>5,774</td>
</tr>
<tr>
<td>Medical assistant</td>
<td>7,549</td>
<td>10,326</td>
<td>14,422</td>
</tr>
<tr>
<td>Health aide</td>
<td>2,282</td>
<td>8,438</td>
<td>10,165</td>
</tr>
<tr>
<td>Other (new and emerging health occupations)</td>
<td>38,112</td>
<td>54,724</td>
<td>84,391</td>
</tr>
</tbody>
</table>

Total | 269,546 | 336,652 | 421,075 | 800,000 |
Table 3

Enrollments in Vocational-Technical Education HOE Programs, by Level

<table>
<thead>
<tr>
<th>Level</th>
<th>1972</th>
<th>1973</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secondary</td>
<td>59,466</td>
<td>75,596</td>
</tr>
<tr>
<td>Post-Secondary</td>
<td>177,466</td>
<td>192,612</td>
</tr>
<tr>
<td>Adult</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preparatory</td>
<td>32,055</td>
<td>43,708</td>
</tr>
<tr>
<td>Supplemental</td>
<td>67,620</td>
<td>108,758</td>
</tr>
<tr>
<td>Apprenticeship</td>
<td>45</td>
<td>401</td>
</tr>
<tr>
<td>Cooperative</td>
<td>......</td>
<td>21,546</td>
</tr>
<tr>
<td>Total</td>
<td>336,652</td>
<td>421,075</td>
</tr>
</tbody>
</table>

Among HOE programs, those related to nursing have consistently been the most numerous. It is estimated that there were 11 practical nurse programs in the United States in 1930. Between 1958 and 1970 the total number of state-approved practical nursing programs had increased from 520 to 1,253. In that same twelve-year interval, the enrollment in this type of program had risen from 17,925 to 53,000.⁸

Further evidence of the predominance of nursing programs is that in 1973, among the seventeen types of HOE programs with a total enrollment of 421,075, the number of students enrolled in the three types of nursing programs totaled 246,714 (58.6 percent). In FY 1972, 84.2 percent of all practical nurse graduates in the nation completed their preparatory programs in public education institutions, and for 88.2 percent of all practical nursing programs in the country the principal source of financing was public funds.⁹

Table 3 identifies the various educational levels at which HOE programs are offered and lists enrollments, by level, for fiscal years 1972 and 1973.¹⁰ It is assumed that the 1972 cooperative enrollment figure is included in the figures of secondary and postsecondary levels, in which case the 1973 figures in these levels represent an even greater increase over 1972 than may be recognized at first glance.

As noted earlier, there has been a marked expansion of vocational-technical education in community college settings. Table 4 substantiates this, and the trends shown can be assumed
Table 4

<table>
<thead>
<tr>
<th>Expenditures*</th>
<th>Enrollment†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Federal</td>
</tr>
<tr>
<td>Grand total</td>
<td>$927,346,619</td>
</tr>
<tr>
<td>Comm. colleges</td>
<td>494,282,812</td>
</tr>
<tr>
<td>Tech. institutes</td>
<td>197,054,464</td>
</tr>
<tr>
<td>Voc-Tech, other</td>
<td>236,009,343</td>
</tr>
</tbody>
</table>

* No report: District of Columbia
† No reports: District of Columbia, Hawaii, North Carolina, and Pennsylvania

Table 4 also shows that in FY 1973 more than five state/local dollars were expended for every federal dollar spent to support programs, clearly reflecting the federal-state-local partnership for funding vocational-technical education. Other indications of the continued expansion of HOE are the increases in both the number of programs and in instructional personnel. In keeping with the philosophy of vocational-technical education, any HOE program utilizing funds from this source is to be established and maintained in a given community only for as long as there are employment opportunities in the field for which this program is preparing personnel. When such opportunities cease to exist, the program is discontinued. This results in frequent fluctuations in the number of existent programs, and, because of the reporting schedule, makes it difficult to obtain accurate statistics on the number and types of ongoing programs at any one time. However, the annual increase in enrollments shown in Tables 1 and 2 is clear indication of the continuing rapid expansion of HOE programs. In the period between 1965 and 1973, the number of teachers increased from 3,429 to 16,780.

Growing along with the number of HOE programs and students being served has been the need for teachers and administrators to staff these vastly expanding efforts. Vocational-technical education has played a prominent role in teacher
VOCATIONAL-TECHNICAL EDUCATION

education, particularly through the establishment of inservice education offerings to assist health professionals—many in transition from health practitioner roles to roles in education—to gain the necessary competencies for effective teaching.

With the broadening of federal legislation to include HOE, vocational-technical funds, while not earmarked specifically for teacher education in this area, were used within the general intent of the legislation to prepare and upgrade HOE teachers. Such offerings were conducted by four-year colleges and universities both during the academic year and in summer sessions. In addition, special short-term workshops were held to help meet the needs of health practitioners with no previous experience in classroom teaching or educational strategies. These workshops concentrated on areas such as interpersonal relations, planning of instruction—including lesson plans and behavioral objectives—methods of instruction in terms of lecture presentations, demonstration skills, and use of audiovisual materials. Additional content was devoted to evaluation of instruction and students, encompassing all instructional components of a program: classroom, simulated laboratory, and actual clinical laboratory.

Early on, HOE personnel development offerings were provided by teacher educators in the trade and industrial education section of vocational-technical education. While many questioned their ability to provide content specific to HOE, they did, in fact, convey many of the concepts and principles of educational methodology to many newly employed health occupations educators. While some criticisms may be valid as to the applicability of the instruction provided, the effect of these programs cannot be underestimated in terms of having provided HOE teachers with the basic tools necessary to their new instructional roles.

With the continuing expansion of programs and the concomitant increase in the need for teachers in HOE, there came increasing demands for universities to develop teacher education programs specific to the field. Utilizing special funding under the Educations Professions Development Act, many colleges and universities have developed teacher education programs geared to the particular needs of HOE teachers and
administrators. Within the last several years many educational institutions formally engaged in vocational-technical teacher education and many private colleges, as well, have modified these types of specific programs to provide credit for previous work experience. Completion of an HOE preparatory program in a community college or of a hospital program in diploma nursing is now applicable toward a baccalaureate degree. Such programs parallel traditional university offerings but recognize previous work and education experience as the major of a traditional teacher education program. Universities assume responsibility for the provision of an educational methodology component and the liberal arts core requirements for a bachelor of arts or bachelor of science degree. Such programs are currently identified as inverted degree or two-plus-two programs and provide for a logical and systematic articulation of existing community college and hospital-based programs as the major components of a university degree.

Over the past ten years, efforts to provide teacher education for HOE educators have moved from happenstance endeavors to a highly developed and valuable delivery system. This system addresses the basic teaching needs of health workers entering the field of HOE either with or without a baccalaureate degree. It not only provides opportunities for achieving a baccalaureate degree but also for articulation with the graduate level of preparation. Further, current efforts to introduce and develop competency-based teacher education programs are being pioneered in many instances by universities with active departments of vocational-technical education in which HOE instructional personnel are being prepared.

It appears that HOE is receiving its fair share of vocational-technical education research monies. *Review and Syntheses of Research in Health Occupations Education*, compiled by Holloway and Kerr and published by the Center for Vocational and Technical Education, Ohio State University, identifies many HOE-related studies up to 1970. Among the many research efforts completed since that time, probably the most ambitious is the "Allied Health Professions Project," conducted under the direction of Dr. Melvin L.
Barlow at the University of California, Los Angeles (UCLA). After extensive task analyses of selected functional areas, curricula and instructional materials were developed for those allied health functions that can be taught appropriately in programs up through the associate degree level. Materials were also designed for inservice and preservice offerings in those health-related occupations for which on-the-job training is adequate and plays the primary educational role.

With the help of vocational-technical funds another outstanding document, *Guidelines for HOE Programs*, was developed at the University of Illinois. The purpose of this publication is to encourage cooperative planning among health and related associations, health facilities, educational programs, and governmental agencies at the state, regional, and local levels, where activities can and must be coordinated. The guidance it offers should assist local, regional, and state personnel as they design programs and correlate action to meet health occupations education needs and problems. The appendices provide supplemental references and resource information.

The ERIC Clearinghouse, formerly at Ohio State and now at Northern Illinois University, De Kalb, is the primary source from which to obtain reports on research studies conducted in the total field of vocational-technical education, including those related to HOE.

Vocational-technical education has encouraged the establishment of youth clubs in each of its instructional areas: Future Farmers of America (FFA), Future Homemakers of America (FHA), Distributive Education Clubs of America (DECA), and Vocational Industrial Clubs of America (VICA). These clubs are expected to provide opportunities for students to gain leadership, organizational, and public-speaking skills as well as to enhance camaraderie among those with like interests and aspirations.

There has been limited development of HOE clubs, however, because of the broad age range and differing home responsibilities of students and the disparate geographic locations of their domiciles and assigned clinical experience areas. The pace with which HOE student clubs (used in preference to "youth clubs" because of the age factor) are being formed varies from
inertia in most of the fifty states to vigor in those few where clubs are being established at the high school level. Some HOE educators believe that students wishing to avail themselves of the experiences offered in the other instructional area clubs should seek membership there; for example, they are welcomed enthusiastically by VICA. A major benefit seen in this approach is that it would broaden the horizons of HOE students beyond the health field which, by its very nature, tends to be a "world all its own" and to confine HOE students to their own field of education and practice.

By established policy, consultant assistance is available on request to educators using either of these approaches. The writer, however, believes the merging of all these club groups into one overall organization would be advantageous; the same purposes could be achieved, and through this interdisciplinary approach the horizons of all members could be broadened beyond that of their individual area of educational pursuit.

In the attempt to provide adequate health services to all at a reasonable cost, there have been, and will continue to be, changes in patterns and practices in our health care delivery system. These changes, in turn, are requiring corresponding adjustments in our education system, since it is expected to prepare the needed number of health workers at varying levels of competency.

From kindergarten through high school, more effort must be directed to the development of curricula providing orientation to all types of health careers and to the dissemination of information on roles of health workers and the preparation required for each role. For each student expressing interest in a health career, secondary schools should provide the opportunity for in-depth exploration of those careers most in keeping with that individual's interest, motivation, and abilities. As appropriate, these schools should provide quality preparatory programs for those not planning to continue their formal education after leaving high school but electing to work in an entry-level health occupation. Such programs necessarily will be limited in number and scope because of existing legal requirements and program approval standards. Another potentially limiting factor,
and one deserving careful consideration, is the maturity level of students.

At all levels of post-high school education, opportunities for preparation in a health career should be available not only to recent high school graduates but also to mature men and women, including those seeking a second or third career: former military personnel, members of minority groups, handicapped persons who can complete a preparatory program satisfactorily, persons from central cities and rural areas, those from so-called "fringe areas" of our society, and those who need remedial work to make them eligible for existing programs. Potential students should have the opportunity to make a wise choice from among the various health careers, whether the choice be one requiring initial preparation or one allowing advanced standing in a program by virtue of previously achieved education and/or experience. This calls for knowledgeable guidance personnel and for school admission officers who espouse the concept of career mobility and who, in cooperation with the faculty of the educational programs, will make appropriate and reasonable decisions when considering applicants in the admission process.

To assure increased opportunities for career mobility, some traditional patterns and relationships must be changed. It is imperative that more progress be made nationwide in providing strong linkages to increase traffic between vocational and technical level preparation and between technical and baccalaureate level preparation.

Indeed, there are increasing demands nationally for inservice and continuing education programs to upgrade or retrain professionals, technicians, assistants, and aides for careers in the health field. Therefore, these types of educational programs must be offered at all education levels—vocational, technical, baccalaureate, and graduate. More and more, states are requiring that practitioners of health care achieve a prescribed number of continuing education units to qualify for relicensure. Educational institutions must assure that continuing education is accessible to all health workers who need and want it.

Opportunities for career advancement, based on previous formal preparation and competencies gained in employment, are slowly becoming more available; but the development of
curricula especially designed to facilitate progression in the health careers must be accelerated. One study directed toward this end is Health Services Mobility Study, a federally funded project sponsored by City University of New York. It deals with health careers in relation to the development of methodologies to analyze jobs, to create job ladders, and to design curricula that will prepare students for jobs. In studying jobs at the professional, technical, and aide levels of selected health fields, the researchers are confident it will be possible to design job ladder sequences that rise from the entry level to points corresponding to the associate degree, baccalaureate degree, advanced specialty, and medical school levels of education. The researchers expect to be able to design sequential steps whose implementation may require some redesign of existing jobs and curricula. The results of this study should be of interest to health careers educators at all levels.

For too long there have been barriers limiting the accommodation of many who desire initial preparation for a health career and blocking opportunities for career mobility within the hierarchy of health workers. Too often, organized groups at each rung of the ladder have erected obstacles aimed at fending off encroachment by other workers. Many barriers are maintained by tradition and by concepts more appropriate to a guild of the Middle Ages than to a modern profession; they have no justification other than to protect the positions of those already ensconced. Upward advancement is hampered when skills, knowledge, and attitudes acquired in pursuit of one occupational goal are not applicable toward a higher goal and when work experience is undervalued. This is extremely discouraging to aspirants who should be challenged with promise at every entry level.

Curriculum developers must embrace two major concepts that are central to providing expanded career mobility opportunities: accommodation and articulation. Here, "accommodation" means providing what is needed or desired for an adjustment of differences, making goal-directed movement possible. Both an attitude and a process, it implies generosity and flexibility in the adaptive aspects of planning and implementing. Accommodation is educationally and administratively prerequi-
site to the development of new curricula for students with diverse backgrounds and indeed to total program development. Operating at various program entry points, it necessitates highly skilled counseling with astute assessment of educational records and career histories followed by a plan of study tailored for each student or group of students. Individualized plans should be developed jointly by student and faculty and should be compatible with the career goal of the student and with the admission and graduation requirements of the educational institution. Provision should be made for the use of evaluative procedures to determine existing competencies. "Articulation" is the system of links and connections that provides a network mechanism for vertical and horizontal movement in and through the various territories of our education system.

To further foster the "ladder" and "lattice" concepts, educators must promote and provide for increased traffic among the several educational systems: general, vocational-technical, and professional. When accommodation fosters articulation, it can be expected that this traffic will indeed increase and that this will lead to true "career education."

It is imperative that all health careers educators accept two basic principles: 1) that the educational system that prepares health care personnel must respond to the real needs of our health care delivery system in terms of both the number of workers needed and the functions they are expected to perform; and 2) that within this educational system, there must be appropriate and effective correlation among and between these various levels of preparation. Just as the health care system must provide comprehensive health care, the educational system must provide comprehensive programs in health career education. Following are five guiding statements toward this end:

1) Occupational choice and career development is a continuous activity; each person starts his own pattern in his early years.

2) The public school has the major role in enhancing each individual's occupational opportunities as a part of his development in becoming a productive and contributing member of society.

3) To assure occupational options, each individual not only must be aware of vocational opportunities but must also be able to obtain preparation for entering the occupation.
4) Participation in educational activities has become a life-long activity; programs for preparation, upgrading, retraining, and maintenance of competencies are required at all performance levels.

5) Comprehensive programs in health occupations education require continuous interrelationships among all levels of education, health specialties and services, and health agencies and associations.16

In the past decade there has been a substantial shift in administrative responsibility for health careers education—from health service agencies to public educational institutions. This shift embraces the philosophy that the cost of educating health workers should be charged to the public tax base rather than to patients. It requires new alliances between the agencies and institutions; their collaboration and collective resources are essential to the success of preparatory, continuing, and inservice education programs that are endeavoring to prepare the number and types of health workers needed.

Citizen-consumer participation is particularly appropriate to the concept of a public-professional partnership in matters related to health care. Increasingly, and rightfully, users of health services are seeking not only involvement in the formation of broad public policies pertaining to the quality and availability of health care, but also more direct and active participation with health providers in care settings. The laity also should be encouraged and given the opportunity to become involved in the planning and evaluation of health careers programs. Indeed, a program, its purpose, and objectives should be developed and maintained within the context of the community and known by the public it serves.

Greater efforts must be expended to build an adequate corps of qualified and effective instructional personnel for health careers education. Too few universities have undertaken programs to enable health practitioners to become accomplished teachers in the health field. And supervisors, consultants, and administrators for health careers education are also in short supply. Educational opportunities and planned experiences to increase skills for these positions must receive greater attention.

In general, the current structure of accreditation of specialized fields of study is geared to an anachronistic perception of accreditation as a private activity, accountable only to the pro-
fessional organizations by which it is sponsored, conducted, and controlled. Particularly in health careers programs, insufficient responsibility in the expansion of accreditation has resulted in the duplication of accrediting agencies in the same health field. Because of this duplication and the inherent fragmentation, both the efficiency and the efficacy of the accreditation process have been hampered. There is little evidence to suggest that positive steps are being taken to improve this situation. Where is the needed action?

Credentialing is one of the stickiest wickets in the health field. The present system of licensing health care personnel is being questioned, and some feel that it risks breakdown if faced with public confrontation. Effective changes in credentialing practices are slow in coming about, primarily because of vested interest resistance. Much discussion has been devoted to the certification, registration, and licensure of health care personnel. Can our current practices be validated, or even justified? Many believe they cannot. Is the licensure process truly protecting the consuming public by assuring minimum safe-practice standards? Many doubt it. Too long we have assumed that safe practice and quality care result from completion of a program and passage of an examination that tests ability to memorize and recall information. Greater effort must be devoted to conducting research to determine the specific competencies needed for safe practice in a given health career.

There is dire need for legislation that will allow more responsibilities and greater flexibility in roles to all levels of health care providers. As long ago as June 1971, the secretary of the United States Department of Health, Education and Welfare submitted to Congress a report entitled Licensure and Related Health Personnel Credentialing in which it was recommended that all states take action to expand the functional scopes of their health practice acts to broaden delegational authority in order to facilitate the assignment of additional tasks to qualified health care personnel. In light of the ever-increasing demands for health services, professional standards of performance and public interest in quality and safety must be balanced against health manpower needs. Task analyses that identify the skills and qualifications of specific health occupations, and match
these with continually changing technology and educational curricula, are in the very early stages of development. A rational and definitive consideration will be hampered until such time as generally accepted criteria of high-quality care are established. The search for balance between level of preparation and functions performed must continue unabated.

The identification of more than 600 job titles in the health field is a symptom of a chaotic condition, precipitated by successful, but uncoordinated, endeavors to prepare many needed new types of supportive workers. The determination of more uniform titles for groups of workers performing like functions is long overdue. It is to be hoped that barriers imposed by current credentialing practices will disappear as continuing education concerns bring licensure under closer scrutiny. Practice acts could be modified to provide several levels within a given licensed occupation, for example: entry level, step 1, step 2, step 3, and so on, or identification of specialties within this occupation. This could result in fewer categories of health workers being licensed and also in the broader use of a certification process that labels and identifies competencies and proficiencies needed for a given category of health worker. Cannot certification be warranted by the satisfactory completion of an approved curriculum and the achievement of proficiency through occupational experience?

With reference to institutional licensure, two potential major drawbacks are apparent: the lack of objectivity in the determination of those who merit credentialing, and the questionable opportunity for mobility of workers from one institution to another—to say nothing of from one state to another. The whole area of credentialing needs a great deal of attention; it is fraught with inequities and problems.

The many federal acts and their amendments related directly or indirectly to health careers education pose another challenge: in addition to funds appropriated by vocational education acts, HOE uses funds from the Health Professions Development Act and a variety of other federal acts under their provisions for the preparation of health care personnel. But a given act or section of an act may provide funds for only one purpose, while another act may have a combination of provisions, which may include
assistance for one or all of the following: planning, research, curriculum development, program improvement or expansion, construction of facilities, student stipends, or student loans. And to compound the confusion, the administration of these acts involves multiple federal agencies and different unit levels within these agencies.

Ways and means must be developed to better coordinate and plan the expenditure of federal funds so as to reduce duplication of effort and assure a more productive use of monies. A more comprehensive approach is needed in this area if the needs of a larger number of adequately prepared health care personnel are to be met.

Any and all efforts to meet the health care needs of our society today require creative and innovative leadership. The ideas and plans of those in the vanguard of new movements may be challenged by those more comfortable with the status quo. Leaders must be alert to, and knowledgeable about, the issues and be actively and forthrightly involved in the planning and execution of actions to resolve them. These actions must be devoid of two devastating maladies: the illogical love of the old and the illogical fear of the new. These diseases manifest procrastination—the art of keeping up with yesterday—and must be eradicated.

The challenges, while staggering, are surmountable with the concerted action of leaders representing all levels of health care providers and health career educators, along with the support of their respective associations, health facilities, educational institutions, voluntary agencies, organized labor, government, and industry.

No longer can any single one of these groups plan unilaterally; they must work in concert lest separate courses of action build new rigidities into a system that is already in desperate need of more flexibility. It is imperative that there be open and continual communication within and between them, for only through their sustained cooperation and collaboration will it be possible for existing barriers to be lowered, conflicting opinions to be resolved, and plans for the future to be formulated and then carried out wisely.
NOTES


14. ERIC Clearinghouse for Career Education, Northern Illinois University, De Kalb, Ill. 60115.


Environmental health is a relatively new subject in academe. It has evolved from the subject area called sanitary science, which had its origins in the reduction of disease transmission through control of our food supply, drinking water, waste disposal, and other components of our environment. The application of sanitary science principles is called sanitation, and the specialist in the application of these principles and the practice of sanitation is the sanitarian.

Environmental health is a newer and more inclusive term, now in more common use than sanitation or sanitary science. This change in language has evolved along with changes in our health problems and in our concepts of health and environmental controls. The great reduction in the incidence of communicable diseases transmitted through the environment has permitted us to give greater emphasis to the control of the environmental components that affect man's respiration, hearing, vision, comfort, and ability to function efficiently. In general usage now for the professional practicing in this field are the titles *environmental health specialist* and *sanitarian*.1

Many people confuse environmental health with ecology and concern for the environment. The ecological movement has had mixed effects on environmental health education. The broad interest in environment has brought attention to the rather obscure environmental health curriculum. This has resulted in increased student interest and enrollment and in added university and college support. Training programs that previously never graduated enough students to fill available positions in
environmental health can now meet the demand for trained personnel. At the same time, some institutions provide in their ecology programs a token emphasis on environmental health to increase the employment potential of their students. This has created confusion and frustration in the environmental health field, where there is a need for well-qualified, health-and-environment-oriented officers with a direct commitment to public health.

In this paper environmental health will be used in its broadest sense, applying to disease control and to the improvement of man's total health and well-being, thus substituting for the terms sanitary science or sanitation. The meaning of the word sanitarian has changed over the years as the practice has changed. The term professional sanitarian or environmental health specialist will be used to denote the college-educated professional practitioner in environmental health.

A review of the history of environmental health practice and its predecessor, sanitary science, provides a perspective on the changing programs, manpower requirements, and curricula related to the control of the environment for the promotion and protection of the health of man. This review will give an insight into why environmental health is included in allied health, a field in which most professions provide direct patient care.

Many factors have had an impact on environmental health and have stimulated changes in education programs. A major shift in the problems encountered by the environmental health worker because of new medical discoveries and practices has altered the disease picture; increased industrialization has created new health problems relating to our environment; governmental agencies responsible for the control of the environment have been reorganized; national and international concern with ecology has grown; and the variety of employment opportunities for environmental specialists has increased.

Public health and other governmental agencies concerned with environmental health control measures have increased in number and in manpower since the early 1900s. Our higher standard of living, increased technological and scientific development, and expanded industries have resulted in a need for
more and better-qualified environmental control personnel. Now the demand is for professionals with a substantial academic preparation in environmental health technology and planning.

A major development in environmental health took place at the time of the great "Sanitary Movement" in England in the early nineteenth century. This movement developed when the relationship between disease, death rates, and the foulness of the environment was documented by Sir Edwin Chadwick, Dr. Southwood Smith, and Dr. Arnott Kay. The movement to improve the quality of the environment in the cities had a wide political and social base: it was concerned with the health impact of sanitary conditions, the influence of the environment on the quality of life, and the degradation of morality that was one effect of living in filth.

Sanitary reform in the United States followed that in England, but it came more slowly. Lemuel Shattuck, the author of "Report of the Sanitary Commission of Massachusetts, 1850," spoke of the need for a sanitary survey of our cities and the necessity for health reforms focusing on unsanitary conditions. Shattuck estimated that nearly 50 percent of all deaths resulted from environmental factors that society could amend or eliminate. Once disease appeared, the physician could only mitigate and alleviate the seriousness of the illness; its cure depended mostly on nature and the constitution of the patient. Preventive medicine was little known, but its importance was evident.

Shattuck advised the creation of a board of health with power to control environmental factors contributing to death and disease within each community and the authority to hire specially trained sanitarians. The term sanitarian was to be applied for many years to physicians, who worked with patients, but also worked with the patients' environment to assure that factors such as milk, food, water, wastes, insects, rodents, and housing conditions would not be sources or carriers of disease.

When the physician could not effectively work with both his patients and their environment, he selected assistants from the community and tutored them so they could help him in carrying out sanitary surveys and environmental control activities. Physician-sanitarians continued to carry out environmental con-
trol measures until public health agencies were established to take over these functions. The professional engineer, with training in hydraulics and knowledge of water and waste treatment processes, also worked with the physician in environmental control.4

The quality of the working or industrial environment came under attack in the sanitary reform, as did general environmental conditions. Proposals were made and programs developed for workshops and courses that focused on infectious and contagious diseases and the necessary control measures to be taken in places of work.5

In the sanitary reform movement there was an ethic that focused more on the quality of life than on a specific disease or source of contamination. The ethic carried with it an air of impending crisis based on a conviction rather than an actual working theory relating cause and effect. The technology of environmental control for the prevention of disease was in its infancy at the time of the reform but quickly evolved as knowledge developed relating to bacteriology.

Nowhere in the United States was there an institute, college, or school where sanitary science was thoroughly taught. The teaching of hygiene in our medical schools and veterinary medical schools was limited and was not meeting the need for training those engineers or biologists who were to become sanitarians.

In 1911 P. B. Tustin raised the question of whether a sanitary institute was needed in America.6 In England the Royal Society of Health had established a Royal Sanitary Institute that was promoting education and training in sanitary science and providing for certification of those completing that study. While there was consideration of the need to teach sanitary sciences in our universities, there also was disagreement between the boards of health and the educators about the role of educational institutions in public health work. The universities saw their role as providing technical assistance through laboratory services that were not readily available in the governmental agencies.7

It was not until several years later that specific education programs were established for nonphysician sanitarians. In the late 1910s and early 1920s, boards of health and health agencies were
established, as Shattuck had recommended. A physician usually served as the medical director of the overall public health program and a sanitary engineer as the director of the division of sanitation. Community public health programs served the masses of people in an impersonal way, while the physician living and practicing in the community cared for individual patients.

With the improvement of general medical care in the 1920s there came an increased emphasis on the positive side of health. In a paper on the education of health officers, George C. Whipple presented this perspective in defining a role for other health workers in addition to the physician in public health. "Health is more than the absence of disease; it includes comfort, vigor, ability to work efficiently, and ability to enjoy life. Amelioration of unsanitary conditions for the sake of human comfort, cleanliness for its moral influence, exercise, athletics, and attention to posture and the movements of the body, are parts of the modern health movement. These are matters of hygiene, but of a hygiene focused upon normal living and not upon abnormal conditions. They also extend outside the ordinary realm of the physician."8

In his 1921 paper, Whipple, a professor of sanitary engineering at Harvard University, reviewed the training a physician receives and the professional studies available to the nonmedical student of public health. There were no undergraduate education programs in sanitary science, environmental health, or public health. Students who had an engineering or biological science background and were interested in public health had to pursue graduate level studies, including hygiene, sanitation, preventive medicine, statistics, and public health administration.9

In the years between 1915 and 1925, several schools of public health were established to provide special training for the physician and nonphysician public health or environmental control specialist. However, few of these specialists enrolled. An editorial on the recruitment of sanitarians appeared in the Journal of the American Public Health Association, lamenting the lack of trained personnel in the field of sanitation and the fact that schools of public health were not full.10
The need for graduate training for the nonmedical sanitarian was reiterated by Abel Wolman, who stressed the same concepts and ideas expressed by Whipple. Graduate level training was encouraged for public health and environmental health administrators. However, many already working in environmental control had no education beyond high school and only on-the-job training. Because they lacked the background for graduate studies, it was proposed that they receive training in a university summer session. There they could learn public health principles and be trained as generalists in the control of the environment, functioning in the field as educators rather than as enforcers in accomplishing changes or improvements in the environment. Specialization in environmental control was at the graduate level.

The American Public Health Association (APHA), through its committee on professional education and the engineering section committee on training, has been the leader in defining educational qualifications for sanitation personnel. The association published a series of reports reflecting the growth and development of environmental health technology and practice. The nonprofessional sanitary officers made up the greatest number of sanitation personnel in public health before World War II and had little if any college training. In earlier days, selected and tutored by a physician, these officers were now more likely to be political appointees in a patronage system. The APHA felt it essential that these personnel have sufficient education, including field experience, to permit them to work with the public. Their role was to convince the public of the need to control the environment for the protection of community health, and to give practical information on how this could be done.

In 1936 the APHA subcommittee on educational qualifications of sanitarians recommended that nonprofessional sanitation employees be given courses equivalent to a two-year college curriculum in which they would receive instruction in public health and environmental sanitation. This subcommittee also recommended that the engineer working as a sanitarian have at least one year of graduate study which would include bio-
The next report on proposed educational qualifications for sanitarians, published in 1948, was much more comprehensive. It reflected the changes that had taken place in an increasingly technical and sophisticated field and the need for qualified personnel who would work as sanitarians in local health departments. The report listed the duties to be performed by sanitarians and recommended that persons thus employed have two years of university education and one of public health experience; supervising sanitarians should have four years of university education with special courses in public health and sanitary sciences.

After World War II, the availability of federal social security funds for the training of public health personnel permitted many college graduates to attend special courses for sanitarians. This financial support provided the impetus needed by several universities to develop curricula in the sanitary sciences.

The APHA Report of Educational Qualifications for Sanitarians was again revised in 1956, and the new version further defined the duties of the sanitarian and the educational background needed at a variety of levels in public health. The professional sanitarian was now expected to have a baccalaureate degree in a biologically oriented program, preferably in sanitary science. However, so few institutions had a curriculum in sanitary science that it could not be made a required course of study for specialists in the field.

Rutgers University has been identified as the first school to offer an undergraduate program in the sanitary sciences leading to a baccalaureate degree. The Rutgers program was started in 1917 and between 1917 and 1930 graduated approximately one student each year. Utah State Agricultural College started an undergraduate program in 1935 and graduated its first student in the 1936–1937 school year. A year later, Washington State University also developed an undergraduate program in public health.

These last two programs were located within departments of bacteriology and public health in colleges of arts and sciences.
They trained undergraduates oriented in biological science for environmental control activities, in contrast with previous college-trained public health personnel who were engineers skilled in water and waste technology.17

The greatest developments in environmental health education took place after World War II. Educational qualifications for sanitarians were defined by public health practitioners and educators, recommended curricula were developed through a series of conferences, and a number of new undergraduate environmental health curricula were started by institutions across the country.

William Ingram wrote the first significant paper addressing the education of what today is the professional sanitarian. The professional today is a college graduate with a biological science background and training in environmental health practice, as compared with the original sanitarian who was a physician, engineer, or physician's assistant. Ingram took a philosophical approach as he described what the job is that needs to be done in the field of sanitation, how it is done, who does it, and how much and what kind of training is needed. The knowledge required of a professional sanitarian was divided into units of basic chemical, physical, biological, and social sciences which were related to principles, applications, and methods in public health practice. This, in turn, was related to the application of that knowledge to the various components of an environmental sanitation program. In addition, the various levels of sanitation personnel were defined, and the educational preparation needed at each level was outlined.18

The concepts and suggestions presented in Ingram's paper greatly influenced the First Working Conference on Undergraduate Education in Sanitary Sciences (the Kellogg Conference).19 The American Public Health Association and the Kellogg Foundation sponsored the conference in 1951, bringing together educators from sixteen universities and colleges who had independently developed undergraduate programs in sanitary science since World War II. The need for this conference to develop curriculum guidelines can be understood when one considers that the new training programs were located in col-
leges of arts and sciences, medical schools, schools of public health, and agricultural colleges and that additional educational institutions had shown an interest in developing similar curricula.

The participants at the Kellogg Conference were divided into four groups. Each group considered an assigned topic and the discussions and recommendations were summarized and presented to the entire conference for comment, refinement, and approval. The four topics were general education and degree terminology; concentration area of study; faculty and facilities, field training, and relationships; and student recruitment, selection, guidance, placement, and follow-up.

The conference participants did not attempt to lay down hard and fast rules for the type of professional training required for sanitarians. They felt that once high standards for sanitation personnel had been established and sound foundations were laid, there should be flexibility for schools to develop programs utilizing their unique resources to the fullest. According to the Kellogg Conference report, the first objective in the training of a sanitarian is to develop the student's competence in the formulation of intelligent judgments; qualifying him to enter the field of environmental health comes second. Conference participants felt that only larger colleges and universities would have the depth, resources, and personnel essential to a successful sanitary science curriculum.

The group considering the topic General education and degree terminology recommended the following:

I. Curriculum
   A. The curriculum in sanitary science must give the student a sound preparation in the physical, chemical, biological, and social sciences, in expression in English, and in the humanities. The four-year curriculum must maintain as its unique primary objective education in fundamentals.
   B. The curriculum should be planned so that transfers from junior colleges would be possible.
   C. The curriculum should be rigorous in its presentation of fundamental sciences so that it will appeal to a higher level student and command the recognition of the public health profession as a worthy pursuit.
D. The curriculum should fit into the system of universities and colleges for general education.

II. Degree Terminology
A. The degree designation must be in keeping with basic educational and cultural content of the curriculum. It must be academically recognizable and creditable to graduate institutions in public health and in the biological and chemical sciences.

B. The Bachelor of Science is the appropriate academic degree. Uniformity in nomenclature is desired and the adoption of specialized degrees is discouraged, i.e., baccalaureate of public health, sanitary science, or sanitation.

III. Suggested Course Guide
A. General education
1. English, including speech 9 semester hours
2. Mathematics through calculus 6 semester hours
3. Science
   a) Chemistry: inorganic, qualitative, organic 12 semester hours
   b) Physics: mechanics, sound, heat, light, electricity 6 semester hours
   c) Biological sciences: general biology, bacteriology, parasitology, medical entomology 15 semester hours
4. Social sciences
   a) including a course in psychology, economics, sociology, and political science 12 semester hours

B. Laboratory course
1. There should be laboratory courses in each of the science courses outlined above.

The recommendations for the group topic Concentration area of study were as follows:

I. The concentration program, based on the fundamentals in the general education report, should include the following:
A. Introductory courses concerned with basic principles involved in health practices to provide orientation in public health consisting of:
   1. Health organizations (administration, law, functions) 3 semester hours
2. Principles of statistical analysis 3 semester hours  
3. Epidemiology 3 semester hours  
4. Human relations (concepts and techniques of motivation and communication related to health practice) 3 semester hours  

B. A series of courses concerned with the study of environmental factors affecting public health and the application of the basic sciences and social sciences to the solution of the problems involved. Instruction should be approached through consideration of the following broad environmental areas:  
1. Air  
2. Water  
3. Food  
4. Shelter 24 semester hours [total]  

C. Field training. A guided opportunity to bridge the gap between academic instruction and practice by study and participation in the field application of principles and practices of public health.  

The group considering Faculty and facilities, field training, and relationships recognized that there must be adequate budget and physical facilities if a successful professional training program is to be developed. Their recommendations included:  

I. Faculty and Facilities  
A. Director. There must be a full-time faculty member as director, to prepare and coordinate the curriculum, select faculty, evaluate courses and instruction, encourage, develop, and direct research in his area, and keep up-to-date with current practices and procedures in the field. A director should have a minimum of five years experience in public health instruction or practice, preferably in the field of environmental sanitation. He must have an advanced degree in a recognized science in a public health field.  
B. Facilities. The school must have adequate instructional, library, and physical facilities, and budgetary support to properly carry out the instruction in the basic courses, public health orientation, and the areas of concentration as specified in the preceding group topics.  

II. Field Training  
A. Field training is an essential part of the education of a sanitarian. The minimum time recommended for field training
is twelve weeks. A guide for field training is included in the proceedings from a conference on sanitation field training. (American Public Health Association Yearbook, Part 2, American Journal of Public Health 41, May 1951:99-112)

III. Relationships
A. An active relationship must be maintained between the school and available health personnel, agencies, and resources, in the development and operation of the program. Consideration should be given to in-service training and community education in connection with this program.

The fourth group topic addressed the problems of: Student recruitment, selection, guidance, placement, and follow-up. Their recommendations were:

I. Enlistment and Recruitment. National and regional surveys should be made indicating the demand for trained sanitarians. Contacts must be developed with counselors in high schools, junior colleges, and other institutions to apprise them of the programs and opportunities in this environmental field.

II. Selection and Screening. Candidates for these curricula should be selected whose reasons for entering the program are based on a sincere social conscience, a realistic appraisal of the role of a sanitarian, and on academic attainment. Persons should be screened out whose physical or emotional characteristics would interfere with effective functioning in the community.

III. Guidance of the Selected Candidates. Women and persons who belong to minority groups should be aided adequately to visualize the advantages and disadvantages inherent to their status. All students should have access to and utilize the usual college counselling programs. Advice should be given to the students for the avoidance or correction of annoying traits and attitudes.

IV. Placement. The directors of sanitation education should maintain contacts with agencies and industries who hire or could hire sanitarians. They should promote the employment of trained sanitarians and inform their students of potential employment opportunities.

V. Periodic communication with former students as well as with employers of the students to assess the success of the program in the selection, training, and placement of graduates and to determine where post-graduate studies, workshops, short courses, and institutes would be beneficial.
A great number of the recommendations developed at this conference on undergraduate education in sanitary science are still appropriate today. They address fundamental issues in education and the practice of environmental control for the promotion of the health of man in a general manner. Participants in later curriculum conferences would have saved themselves many hours in meetings if they had studied the report and recommendations of the Kellogg Conference.

It was eleven years before another conference was to be called to consider the academic preparation of the sanitarian. The National Environmental Health Association (NEHA), through a contract with the Public Health Service, HEW, organized a conference in 1962 to consider the capability of sanitarians to deal with disasters; special reference was made to their academic preparation. The group reaffirmed the need for broad preparation in the biological, physical, and social sciences, discouraging specialization in specific areas of environmental health during undergraduate studies. It was recommended that the number of semester hours for sanitary science and public health courses be reduced to about half that recommended at the Kellogg Conference. This was to permit more time for additional study in the basic sciences and social sciences.

Another curriculum conference, also sponsored by the NEHA, was held in Saint Paul, Minnesota, in 1964 to reexamine the original Kellogg curriculum proposal in light of new developments in public health and environmental control. This conference recommended that the biological science requirement be increased from 15 semester hours to 22, the chemistry requirement be increased from 12 semester hours to 14, and physics be made an optional and not a required course. For the specialized courses the conference recommended reducing the introductory course from 12 to 9 semester hours and the technical courses in sanitary science from 24 to 6 semester hours, with a number of the technical courses being optional. At this conference it was proposed that the terminology be changed from sanitary science to environmental health. Sanitary science carried a connotation of dealing with the control of disease, while environmental health suggested the enhancement of the physical, mental, and social well-being of man through the manipulation or control
of the environment. This was not actually a new concept but did give recognition to a new emphasis in environmental health practice.

The most recent national conference focusing on undergraduate curricula in environmental health was held in April 1967.\textsuperscript{22} This was the first formal meeting of the National Accreditation Council for Undergraduate Curricula in Environmental Health, an organization established through the efforts of the NEHA in an effort to give direction and coordination to the burgeoning numbers of environmental health programs. Many of the Kellogg Conference recommendations were included in the guidelines for accreditation of undergraduate curricula in environmental health. The typical curriculum recommended by the council reflected the changes brought about through research and improved technology in environmental health between 1951 and 1967. A professional sanitarian was to be knowledgeable in the areas of solid waste, accident prevention, recreational environment, radiological health, and occupational health and safety—in addition to the fundamental areas of air, water, food, and shelter.\textsuperscript{23}

Even before the development of environmental health curricula after World War II, there had been major efforts to provide field training for people in or entering the field. The majority of personnel working in environmental health had no formal education or training in this field. It fell on the local and state health departments to develop and conduct training programs if they were to have effective environmental control. Many groups and agencies were working to promote and enhance the quality of field training programs. The United States Public Health Service, through the Center for Disease Control in Atlanta, Georgia, operated a number of regional training centers. In some cases training personnel were loaned to states to assist in the development of programs. The USPHS also offered a number of training courses each year at various locations around the United States and prepared extensive training materials, including films or film strips. The W. K. Kellogg Foundation made grants to ten states for the development of sanitation field training programs with the anticipation
that once the program was established it would be continued by
the agency making use of it. A number of the environmental
health leaders were products of a Kellogg-sponsored training
program conducted at the end of World War II by the Univer­
sity of Michigan.

Guidelines on the content and administration of field training
programs were needed because of the great diversity in existing
programs. The School of Public Health at the University of
North Carolina, the W. K. Kellogg Foundation, and the Ameri­
can Public Health Association sponsored a four-day conference
on sanitation field training in 1950. A series of reports and
recommendations was prepared on the following subjects:
1) objectives of field training for sanitation personnel, 2) types
of sanitation personnel to be trained, 3) existing patterns of
field training for sanitation personnel, 4) types of field training
for sanitation personnel, 5) principles and practices of field
training, 6) criteria for field training areas, and 7) administra­
tive and cooperative relationships and responsibilities of agen­
cies concerned with field training programs for sanitation
personnel.

The recommendations for field training from this conference
were incorporated, by reference, into the report and recommen­
dations of the Kellogg Working Conference on Undergraduate
Education in Sanitary Science. Field training was recommended
as an important part of the preparation of the sanitary in each
of the reports on educational and other qualifications for public
health sanitarians, in the proceedings from each conference on
the academic preparation for sanitarians, and in the guidelines
for the accreditation of undergraduate curricula in environ­
mental health.

The general recommendation for field training has been for a
twelve-week training period in which the trainee has an oppor­
tunity for group observation and discussion on sanitary prac­
tices, individual trainee observations of procedures performed
by a professional, an opportunity to apply these procedures
under direct supervision, and, finally, to apply the same proce­
dures alone, with a follow-up conference with the training
supervisor. The trainee should be exposed to public health phi­
losophy, organization, and programs, as well as to community
agencies and resources, health education activities, program planning, and the wide range of environmental sanitation activities. Schedules and checklists have been developed to guide agencies planning or conducting full training activities.

In 1971 the National Environmental Health Association developed an internship program for environmental health personnel.25 This one-year program emphasizes broad multiprogram training accomplished essentially through supervised field experience. The key to its success is the supervision that an intern receives from a sanitarian certified by the National Council on Sanitarian Internship Programs. The intern profits from the quality of supervision and the wide range of exposure and experience he gains during this year of training.

A further extension of the training concept is promoted by the NEHA through a residency program.26 A two-year, individualized program in an environment specialty, this residency is a melding of graduate study and a guided practicum with the objectives of developing specialized competencies and preparation for management positions.

There have been relatively few takers for the internship or residency programs. The expense and the commitment required from the trainee and the training agency without a corresponding guarantee of ample rewards for voluntary participation has dampened enthusiasm for these programs.

The need for independent field training programs has diminished with the development of the undergraduate curriculum. All such curricula offer some field training experience, but the allocation of time and the degree of commitment varies widely. The accreditation guidelines do not require, but do recommend, a twelve-week field training experience as a transition from the academic to the working world.

The field experience provided by most schools is offered through a cooperative arrangement between the institution and an agency. Students are assigned to a local or state environmental health unit and receive their immediate supervision from the agency. Most institutions have an agreement with an agency for the type of experience the trainee is to receive and the trainee's responsibilities to the agency. The institution representative will make occasional visits to the training site, pro-
vide consultation to the student or agency, and participate in the evaluation of the student. The student may receive a training stipend from the agency to defray a part of his expenses, but this is not always the case. Agencies are not paid a fee for service by the university or college for accepting trainees from that school.

Improved field training and education programs had been developed for sanitarians, but recognition for having been a participant in such endeavors was lacking. In 1938, the NEHA began certifying its members as Registered Sanitarians to encourage them to upgrade themselves, to give them recognition, and to establish and protect the professional status of qualified sanitarians. To become registered, a sanitarian must have completed a specialized training program in environmental sanitation and have one or more years of experience in applying the principles of his specialty. In the following years the standards evolved until today a baccalaureate degree in environmental health or its equivalent, at least one year of experience, and a passing score on a qualifying examination are required for graduation.

Legislation providing for certification of sanitarians was passed in the state of California in 1945 and since that time additional states have passed registration acts. In twenty of the states registration is voluntary but restricts the use of the titles registered sanitarian, sanitarian, and professional sanitarian to those qualified under definitions provided in the legislation. Ten states have laws requiring the professional sanitarian to meet minimum standards for education, training, and experience, and persons working in this capacity must be registered in those states.

The Joint Council of Sanitarians, consisting of representatives of the American Public Health Association, the International Association of Milk, Food and Environmental Sanitarians, and the National Environmental Health Association, developed a model registration act for sanitarians in 1960. Its purpose was to encourage adoption of uniform requirements for registration nationwide. Registration has been helpful in giving recognition to professional sanitarians by identifying these individuals to
industry and the general public and by restricting the indiscriminate use of the title by persons not qualified by training and/or experience.

Thirteen undergraduate programs in sanitary science were organized between the end of World War II and 1951, bringing the total number of undergraduate curricula to sixteen. There were no publications describing these programs or offering information on the time allocated for teaching selected groups of subject matter, enrollment, or number of graduates. The Public Health Service conducted a survey in 1953 of all schools known to have such programs in order to obtain this information and to determine the general characteristics of each program.28

The sixteen institutions responding to the questionnaire had similar course-hour requirements in the natural sciences, biological sciences, and social sciences, and all programs compared well with the recommendations from the Kellogg Conference. The greatest variation came in the requirements for engineering subjects. Five of the sixteen offered no courses classified or defined as “engineering,” while one program required approximately twenty-six semester hours in engineering subjects. The curriculum with the highest number of required hours of study in the biological sciences was lowest in the medical science and health professions courses. The one that was highest in engineering requirements was lowest in the biological science requirement and marginal in the medical science and health professions requirements. The institutions that deviated most from the recommended curriculum were those that had not graduated any students since the time of the Kellogg Conference. The total number of students graduating from all these programs in the early 1950s averaged about fifty per year.29

A similar study was performed in 1959 by the faculty of the School of Public Health, University of California.30 They reported the existence of twenty-one undergraduate curricula in sanitary science. However, five schools had never graduated any students in the specialty and two others had not graduated any between 1951 and 1959. Two schools had initiated their programs in 1958 or 1959 and had not yet had an opportunity
to graduate students. Between 1959 and 1965, nine of these twenty-one undergraduate curricula in sanitary sciences were discontinued by their universities, one obvious reason being small enrollment or total lack of enrollment in a few courses.

Another survey of schools was conducted in 1968, and fourteen responded as having environmental health curricula. The average annual number of graduates from all of these was 150. Six of these fourteen programs had been established between 1964 and 1967. While several of the original environmental health curricula were still offered, many new institutions were making efforts to enter the field. A major change was taking place in the type of educational institution offering undergraduate study in the specialty. All schools of public health had discontinued courses at the undergraduate level and now offered only graduate-level programs. Many of the larger or major universities had also discontinued undergraduate offerings. The curricula that were added between 1954 and 1967 were primarily in state colleges, something that the Kellogg Conference participants had not considered likely because of the resources required to offer a sound program.

The National Environmental Health Association (NEHA) had compiled its own list of programs in 1968 and included twenty-nine colleges and universities that were reputed to be offering undergraduate education in sanitary science. Many of the new programs identified by the NEHA were at institutions that modified existing biology curricula by the addition of a course or two or through a slight change in orientation of a course of study so that graduates might be eligible for employment in the field of environmental health. There was a second reason, in 1968, to offer an environmental health curriculum: by implementing training courses or redefining or revising existing ones, some schools could become eligible for federal support for programs training sanitarians or environmental health personnel.

In 1974, officers for each state affiliate of the two professional sanitarian organizations, the National Environmental Health Association and the International Association of Milk, Food, and Environmental Sanitarians, were asked to identify the environmental health curricula in their state or region that were
training sanitarians employed by local or state agencies. Fifty-eight four-year programs in environmental health were identified in this survey. A follow-up study is now under way to determine when the curricula were developed, the general characteristics of each, the course requirements, the number of students enrolled, and the number who have graduated from the programs.

What has happened during the last ten years? A decade ago there had been a big drop in the number of environmental health curricula; yet in the last five years the number of programs has risen sharply.

Four factors have had a significant impact on increasing the number of undergraduate curricula in environmental health: 1) predictions of environmental health manpower requirements for 1975 and 1980, 2) federal funding available for environmental health curriculum development or improvement, 3) a national interest and concern regarding our environment, and 4) a need by institutions to develop curricula in areas of study for which there will be a demand for graduates.

In 1962, a survey was conducted by HEW to determine the numbers, location, and characteristics of sanitarians employed in the United States. This information was to be used in connection with studies of health personnel requirements, professional education, and civil defense. A questionnaire was sent to 16,000 environmental health personnel; there were 11,000 responses, and from this it was estimated that the total environmental health manpower supply was in excess of 14,000. The survey reported on the employment of sanitarians, their major work activity, salary, education, and general characteristics such as age, years of experience, membership in professional organizations, and other data. Thus were compiled the first fairly comprehensive data on sanitarians employed in the United States. However, the study had one major defect: the study group did not present a definition for the occupational title sanitarian, and thus it elicited responses from all individuals who regarded themselves as sanitarians. Some were doubtless not qualified to be so classified in the strictest sense.

In a report from the National Center for Health Statistics, it
was estimated that 15,000 sanitarians and sanitary technicians were employed in 1965. This was an increase from the Center's estimate of 11,000 personnel working in 1960 and 5,000 in 1950. The estimated increase of 800 personnel per year between 1960 and 1965 can be compared with the estimated 150 graduates annually from baccalaureate programs in environmental health. It must also be borne in mind that a portion of the 800 figure is for two-year college graduates. However, the nationwide need for technicians with high school or two-year college education was being surpassed by the need for persons with specialized training at the college level who possessed the ability and judgment to work with people and help them solve their environmental problems.

Institutions studying these employment figures and noting the opportunities in their regions saw a manpower need. Professional organizations actively sought out institutions that might be willing to develop environmental health-curricula and offered them technical assistance.

In the report to the president and Congress, required under the Allied Health Professions Personnel Training Act of 1966, environmental health manpower employment figures were presented through 1967 and predictions made for the number of these personnel needed in 1975 and 1980. It was estimated that there were 54,500 engineers, scientists, and technologists working in environmental health in 1967, and the report predicted a need for 80,000 such personnel by 1975 and 90,000 by 1980. Also, it was estimated there were 10,500 environmental health technicians employed in 1967 and a need foreseen for a total of 20,000 technicians in 1975 and 30,000 in 1980.

The sanitarian and the sanitarian technician training programs were not included under the Allied Health Professions Training Act until fiscal year 1969 (October 1, 1968). Eighteen baccalaureate programs training sanitarians and two two-year training courses for sanitary technicians received basic improvement support money during that first year. In fiscal year 1970, twenty-one baccalaureate programs and three technician curricula received this basic improvement support, and in fiscal year 1971, four more baccalaureate programs qualified for federal funds. During this same year, two sanitarian programs
received special project grant monies from the Division of Allied Health Manpower (DAHM).

An institution seeking support under the basic improvement program had to be eligible as an allied health training center and was required to state that it was training sanitarians or sanitary technicians. The environmental health curriculum was not required to conform with the recommended curriculum established by the Kellogg Conference in 1951 or the National Accreditation Council for Undergraduate Curricula in Environmental Health. However, schools did have to make a commitment to increase enrollment in the program to maintain eligibility.

The value of this grant program was that it provided monies for improving or strengthening a program in almost any manner deemed prudent by the institution. The grants to any one program were not large, however, and it was felt by the administrators of this program that the funds were too fragmented to be meaningful. Also the DAHM lacked machinery to monitor the program adequately.

The basic improvement grant program was discontinued at the end of fiscal year 1972, and special improvement and special project grants became available to programs training sanitarians beginning in fiscal year 1973. Under the Special Improvement Grant Program an institution would submit a grant request proposal to accomplish specific program goals that were in keeping with the purposes of the grant program. Grants were awarded on a competitive basis. In fiscal year 1973, eighteen sanitary training programs received special project or special improvement grants, and in fiscal year 1974, ten environmental sanitation curricula qualified for special improvement grant support.

The special improvement and special project grant support did accomplish the intended goal of providing enough money to programs that there would be a potential for significant achievement. Under this new system, approximately twice as much grant money went to half as many environmental sanitation programs. The grant applications funded were those judged by a peer review group to offer the greatest potential for success and to have met the eligibility criteria. One criterion
for eligibility was that a program's curriculum meet the guidelines set by the proper accrediting body. The guidelines and recommendations of the National Accreditation Council of Undergraduate Curricula in Environmental Health were used in establishing eligibility of environmental courses of study.

Under the Allied Health Personnel Training Act, environmental health curricula training sanitarians are eligible for financial support for program improvement or for special projects, but environmental curricula without health orientation are not. There is virtually no source of grant support for the latter type of undergraduate environmental program.

Earth Day—April 22, 1970—represented the culmination of a new movement on our campuses after a two-year gestation period. Attention was directed at the abuse of our environment, the waste of our natural resources, and the need for immediate action. The “in” thing was to be an environmentalist.

Curricula in existence for years were modified and revised to accommodate this new interest in the environment. Environmental health curricula that had been relatively obscure and of interest primarily to the premedical and predental student now became attractive to a much larger group of students. A large portion of these new environmentally oriented students desired to improve or safeguard our environment primarily to conserve and preserve the natural world and its resources. Health was an incidental factor.

This same trend was seen nationally in the establishment of the federal Environmental Protection Agency. This new agency was to exercise authority over a number of environmental programs that previously had been administered by a variety of governmental agencies. Environmental health programs in the Public Health Service were transferred to the new super agency and health virtually became a nonentity in the big environmental picture.

The loss of concern for the health and well-being of man as the most important reason for controlling the environment was lamented in a paper presented by Gershon W. Fishbein at the Annual Educational Conference for the National Environmental Health Association in Houston, Texas. Fishbein's analysis indicated that conservation, public works, and health care
received ample support politically and financially; however, similar attention or support had not been given to the prevention of illness of man resulting from environmental contamination or degradation.

The emphasis on environment and ecology has not, however, created a large number of employment opportunities for the relatively large group studying in this area. The students who had been majoring in other fields and changed their majors to ecology and environment have found that the environmental fields do not offer any greater opportunities for employment. On the other hand, the field of environmental health has been an exception because opportunities for employment there have remained high.

When one considers the manpower study findings and the predictions for future manpower needs, the potential of funding for academic programs in environmental health, national interest in the environment, and the general tightening of employment opportunities in many other fields, it is readily understandable why we have had an increase in the number of environmental health curricula in our universities.

The formation of the National Accreditation Council for Undergraduate Curricula in Environmental Health in 1968 was timely. The guidelines that were prepared on course content, faculty, facilities, and the like have been of assistance to many institutions that have developed new environmental health curricula. The council approved seven undergraduate programs between 1968 and 1973 and five institutions submitted their applications for accreditation, along with their self-study documents, during 1974. In addition the council has received many requests from institutions for guidance in developing and evaluating two-year programs and graduate programs in environmental health. As a result, in 1970 the council was modified in name and purpose to include accreditation of curricula for environmental health technicians, and in 1974 it approved guidelines and criteria for accrediting graduate programs in the specialty.

The renamed National Accreditation Council for Environmental Health is still very new in the field of accreditation.
It was developed after a careful review of the difficulty institutions and employing agencies faced in producing and recruiting qualified environmental health personnel, an examination of accreditation activities by other professional organizations and agencies, and the study of information from the National Commission on Accrediting and the United States Office of Education. The council has not yet sought official recognition from the Office of Education but intends to do so.

A great deal of discussion during the last ten years has centered on the need for technician level programs to help meet the need for environmental health personnel. A number of job activities in environmental health can be adequately handled by persons with less than baccalaureate or graduate level preparation, but concern has been expressed that the sanitarian technician poses a threat to the professional sanitarian who might be supplanted by the lower-level and lower-salaried environmental health worker. Another view is that the employment of technicians would strengthen and enhance the position of the professional by relieving him of many supportive duties; he could thus serve as a manager of environmental health services and perform those duties that are truly germane to his profession.

Treusdell addressed the issue on the role of the sanitarian assistant versus the sanitarian. He related how the nurse, the physician, and many other health professionals have turned over some of their tasks to auxiliary personnel without losing stature or position. Limited experience in environmental health indicates the same applies to the field of sanitation.

Michael enumerated four critical elements in proper training and placement of aides or supporting environmental health personnel: 1) definitive knowledge of the extent of the disparity between health manpower needs and resources available to meet these needs; 2) development of a specific training program designed to develop specific skills to be used in specific health programs; 3) delineation of functions, responsibilities, and authorities for the auxiliary and his supervisor; and 4) maintenance of professional supervision over the auxiliary. Following these guidelines, institutions and professionals could define
exactly what training is needed by supportive personnel, and the field of environmental health could gain through using them.

A two-year curriculum must be examined closely to determine just what the environmental technician is being prepared to do and where he might be able to function effectively and efficiently. Many programs provide students with sufficient skill and knowledge to perform such specialized tasks as water and sewage treatment plant operation, air pollution control, and solid waste disposal monitoring. Others are directed at preparing the environmental technician for work in public health under the supervision or guidance of the sanitarian or public health engineer. A few programs are general enough that graduates can go in either direction.

Steinberg, Shatz, and Fishman wrote on meeting the crisis in health manpower through the training of technicians or new careers people. The few articles appearing on technician training have addressed the critical manpower situation and pointed out how environmental technicians could reduce or modify this problem. However, there are no published reports of how successful or how effective such programs have been.

Forty-two environmental technician programs have been identified, varying from courses in water or sewage treatment plant operation to classes training technicians for general environmental health programs. Two programs in the United States have been models for the training of environmental health technicians. Ferris State College in Michigan originally offered only a two-year curriculum and some years later added a baccalaureate program in environmental health. Most of its two-year graduates now continue their studies in the four-year program. The Broome Technical Institute in New York was another school that trained environmental technicians. Its program operated for several years, training a relatively small number of well-qualified and capable sanitarian or environmental health technicians. It was terminated in 1973 because of low enrollment and the difficulty of finding jobs in that region for its graduates. The relatively low salaries paid technicians do not make it feasible for them to move to other regions of the country where there might be employment opportunities.

An impetus for the establishment of environmental techni-
Sanitarian technician programs have been eligible for funding under the basic improvement and special improvement grant programs provided for under the Allied Health Professions Personnel Training Act of 1966. The Environmental Protection Agency has also funded training programs for environmental technician personnel.

Because of publicity on potential job opportunities, community colleges have shown interest in the preparation of environmental personnel. Though there will be increasing employment opportunities for environmental health technicians, this job market potential may have been overrated.

A survey conducted by the University of Washington in 1970 sought to establish the attitudes of environmental health program directors toward use of sanitarian technicians trained in a two-year community college program. It tried also to determine the potential needs of twenty-seven local health departments in the state. All departments indicated interest in employing such personnel. A few were already hiring technicians trained by the armed forces and found these employees to be very satisfactory and the turnover rate very low. However, each department indicated a lack of funds for hiring a technician then or in the next two or three years. As a consequence of this study, community colleges in the state of Washington have postponed developing such curricula until a market for graduates can be identified.

The United States Civil Service Commission has anticipated an increasing need for environmental health technicians and has developed position classification standards for the environmental health technician series. This is an important step in defining a fairly precise role and an area of responsibility for this group. It is valuable also in the design of training programs.

The National Accreditation Council for Environmental Health Curricula recognizes the need for the environmental health technician who can function in the field of environmental health and public health, and it has developed guidelines for a curriculum. A workshop was held in 1969, attended by educators involved in two-year technician training, employers of technicians, and other environmental health person-
nel who were members of the National Accreditation Council for Environmental Health. In addition to curriculum guidelines, other accreditation standards were developed for two-year programs.

The most important recommendation from this conference related to the type of courses students should take. It was recommended that 40 percent of the curriculum be devoted to science and liberal arts courses transferable to a four-year institution—courses that could be "built on" as opposed to courses offering a partial survey of a field of science with heavy emphasis on applied subject matter. Another 40 percent of the curriculum should consist of technical courses and the remaining 20 percent, elective or special college requirements. At least one full year's work—if not all of the courses in the curriculum—should be transferable to a four-year curriculum in environmental health, according to the conference recommendations.

The environmental or community aide is a new auxiliary in environmental health. During the last few years a number of programs have been developed—primarily through federal funding—for training aides and demonstrating their usefulness. Generally high school graduates or the equivalent, these aides receive a short period of on-the-job training and then work under the supervision of an environmental health specialist. Two environmental health control programs employing aides are lead paint poisoning surveillance and rat control. An important aspect of the programs for the training and placement of aides is the recruitment of minority or disadvantaged persons into the work force and into useful or meaningful jobs with some potential for further training and advancement.

Some consideration has been given to the training of aides at community colleges on a part-time basis in conjunction with a technician program. This would allow the aide to advance on the environmental health career ladder. While this is possible, it is likely that aides will primarily be trained on the job and will not be associated with academic programs.

Graduate level education and training in environmental health has provided the cadre of leaders for this profession. The
The greatest number of graduate degree holders in the specialty have completed their studies while on leave from a health department. The availability of traineeships under the Public Health Service Training Act has made this possible. Studies at the master's level provide the depth of technological knowledge in a specific area of environmental health, as well as administration and management skills needed by persons directing environmental health programs. Very few sanitarians with doctoral degrees are employed in local or state environmental health agencies. Most are involved instead in academic programs or in research.

Graduate level training has changed over the years, just as technology and the manpower situation have changed. Early graduate programs were offered by colleges of engineering and by schools of public health. The graduate programs in sanitary engineering included subject matter in chemistry and biology in addition to courses on water and wastewater treatment. The environmental health and public health content in these programs was generally minimal. Many of the schools of public health offered a one-year program leading to a master's in public health degree for environmental health personnel who had worked at least two or three years in the field of public health. This type of curriculum included courses on epidemiology, biostatistics, health administration, and environmental sanitation.

In the years following World War II, an increasing number of environmental health personnel with undergraduate training in environmental health rather than engineering sought graduate training in our schools of public health. This required several such schools to revise and modify their curricula so that these students would not be faced with repetition of the technical instruction they had received in their undergraduate years.

The one-year program leading to a master's degree in public health was a sound one for these students. An abundance of traineeships available through schools of public health resulted in elimination of the requirement that graduate students have experience before entering an MPH program in environmental health. Consequently, many students entered graduate studies in environmental health directly from undergraduate studies, where they usually had not majored in environmental health. To accommodate the changing characteristics of their students,
many graduate programs have been extended to two years to provide sufficient time to cover the basic environmental health sciences and public health principles and to provide some field experience.

The total number of graduate programs in environmental health is unknown. Under the Public Health Service Act, monies have been provided to forty-five institutions for improving and increasing the size of their graduate programs in environmental health and for traineeships. These forty-five graduate programs are offered through schools of public health, schools of medicine, colleges of engineering, colleges of arts and sciences, and colleges of agriculture. Thus there is an extreme diversification among the faculty and the graduate curricula in the specialty, allowing the student wishing to concentrate on a specific subject area to select the curriculum closest to his interests and goals. One problem is that potential graduate students cannot easily find information about the specific strengths or capabilities of individual programs. Very few institutions with graduate programs in environmental health have a national reputation, and the majority serve a limited geographical region.

There have been no major conferences or workshops to bring together representatives from institutions offering graduate level environmental health curricula, such as there have been at the undergraduate level. The National Accreditation Council for Environmental Health Curricula has been concerned with graduate curricula because of the lack of common goal or the lack of commonality among them. More particularly, this concern has centered on the lack of public health orientation in many programs.

At the 1974 meeting of the council a document presented by the committee on graduate education was accepted. It outlined the purposes and objectives for the accreditation of graduate curricula and contained guidelines and recommendations for courses of study and their general subject content.47

The National Accreditation Council for Environmental Health Curricula recommends topics to be covered (not necessarily by separate courses) in three general subject areas: core areas fundamental to the field of environmental health (biostatistics, epidemiology in public health, environmental health
sciences, organization and administration of environmental health programs); administration and management (finance, planning, management, political science-public administration, environmental and/or public health law); and areas of specialization (one or more of the following: environmental microbiology, environmental chemistry, environmental toxicology, air resource management, food sanitation, housing, industrial hygiene-occupational health, institutional planning, land use planning, noise control, water supplies and wastewater disposal, environmental radiation, consumer protection, solid waste management). The graduate student wishing to major in administration should have a minimum of three years' experience in environmental health before entering that area of specialization.

The National Accreditation Council for Environmental Health Curricula, as its name implies, accredits only environmental health curricula. The institutions offering the curricula are accredited by the American Public Health Association/Association of Schools of Public Health, which accredits schools of public health on the basis of overall quality and program balance. A school of public health may not have an environmental health curriculum and still be accredited by APHA/ASPH. If a school of public health does have an environmental health program the APHA/ASPH accreditation is concerned only with the quality of the faculty and not curriculum content.

The majority of graduates from two-year, baccalaureate, and graduate programs in environmental health are employed by governmental agencies and a few by industry. The largest number work in local health departments serving cities, counties, or combinations of government organizations at this level. Environmental health specialists employed at the state and federal levels of government more frequently serve in an advisory capacity and are more likely to have graduate training and several years of experience in the field of environmental health than those working at the community level. Sanitarians or environmental health specialists, in addition to working with health-oriented agencies, are also employed by other governmental agencies in fields such as agriculture, ecological or environmental protection, labor, and defense.
The environmental health specialist serves a variety of functions. A basic activity is surveillance or inspection to assess environmental conditions and in particular to determine the existence of hazardous or potentially hazardous conditions. This person must be able to evaluate the seriousness of the conditions observed and make appropriate recommendations about ways to eliminate or reduce the problem. These two activities require a depth of technical knowledge in environmental health principles and practices, the use of good judgment, and the ability to communicate to the public what needs to be done and why, and how it can be done. The specialist must be able to define community- or industry-wide environmental health problems and develop plans, including evaluation, for alleviating the problems. Many professionals have responsibility for program or project management, which includes planning, administration, and supervision of technicians and other professionals.

As in most governmental agencies, environmental health personnel work under a civil service or merit system. To qualify for employment they must possess the required academic preparation and work experience and must successfully pass a civil service examination. As openings occur within that civil service system, those candidates who have been ranked highest on the basis of their qualifying examination scores and evaluation of their experience and education will have first opportunities for employment.

Technicians may have the opportunity to prepare themselves for a professional position by pursuing studies on a part-time basis in an undergraduate curriculum in environmental health. Health agencies will frequently give technicians released time for this type of study. In some states or local civil service systems employees are permitted to take the qualifying examination for the professional sanitarian entry level position after they have had a given number of years of work experience as a technician. Normally, the technician would have to have done a considerable amount of independent study and participated in in-service training courses and technical workshops in order to pass the civil service examination.

Industries employ sanitarians or environmental health personnel, most frequently selecting those who have had experience
with an official agency. Job opportunities outside government exist in food manufacturing, processing, and retailing businesses; architectural and consulting engineering firms; insurance agencies; hospitals and other health care institutions; universities; aircraft industries; and other businesses and agencies.

Wherever environmental health personnel are employed they will normally be working with and dealing with people who have problems or responsibilities associated with the environment. It is important that the specialist have the ability to relate well to people and that he be generally found acceptable as an individual by others in addition to being technically qualified. Unfortunately, our educational institutions have relatively little influence on the personal characteristics and productivity of individual students and can only attempt to select those applicants who appear to be suited to the profession.

Persons who have completed both undergraduate study in environmental health and graduate level training are gradually replacing the environmental health engineers who have dominated the administrative and higher level positions. An example of the trend in the employment of engineers versus sanitarians within the local and state health departments is shown in a Public Health Service study conducted in 1966.48 Between 1958 and 1964 there was a 26 percent increase to a total number of 1,294 engineers employed. During the same time period there was a 38 percent increase to a total of 8,196 sanitarians employed in the same departments. Since 1950, there has been a continuing increase in the total number of environmental health personnel employed because of the expansion of programs within governmental agencies and industries requiring this type of personnel. The number of new positions now open and the placement of graduates in these positions is greatly reduced and corresponds with the tightening of the economic situation throughout the country. In fact, several industries and governmental agencies have cut back in the number of environmental health personnel they employ.

This employment situation is offset by other factors. An increasing number of environmental health personnel are retiring because of age and/or years of experience, creating vacancies to be filled by recent graduates. The education, training, and
work experience of environmental health personnel have made them a valuable manpower resource for other health programs. This has resulted in the recruitment of trained specialists from environmental health programs to these new program areas.

Major programs are now under development in occupational safety and consumer protection, and academic programs in environmental health and safety are expanding. The United States Department of Labor's annual forecast of manpower needs continues to rate employment opportunities in environmental health as good.

Environmental health curricula at the technician, baccalaureate, and graduate levels will continue to undergo extensive change, reflecting the concern of citizens in our communities for an improved environment. The impact of federal legislation will continue to be felt. Today people have a concern similar to the one that stimulated the sanitary movement in England and the sanitary reform of the United States in the middle of the nineteenth century. The original anxiety about the spread of infectious diseases through an environment fouled with human wastes has changed to alarm over chronic diseases, genetic defects, and impaired efficiency of performance arising from exposure to a variety of chemicals that are incidentally or deliberately added to our environment.

Except during times of national emergency, the quality of the industrial or working environment has received relatively little attention in our community environmental health programs. During World War I and World War II, efforts were made to protect the health and well-being of factory workers because of the shortage of manpower and the urgent need for the materials being produced. In peacetime production, unfortunately, the major concern has been the cost factor.

An important step toward remedying any ills in our working environment came with the passage of the Occupational Safety and Health Act of 1970. This federal legislation requires that places of work be inspected, and if hazardous conditions are found the management must be cited and fined. Implementation of the occupational health and safety program requires employment of a large number of personnel educated in industrial hygiene and environmental health. These persons are em-
ployed by the United States Department of Labor and related agencies who enforce the federal law at the state level.

Existing environmental health programs at all levels have a role to play in preparing the personnel needed for these tasks. Curricula not already including specific content on occupational safety and health need to be expanded. Many environmental health programs are making such changes, as evidenced by the notices inserted in professional journals by schools seeking faculty qualified to teach occupational safety and health subject matter. The United States Department of Labor and the National Institutes for Occupational Safety and Health are funding the development of a few academic programs within educational institutions.

The Consumer Protection Act of 1970 is another example of federal legislation mandating the establishment of programs to improve the health and well-being of man through the regulation of devices affecting the daily lives of the people. Putting these programs into effect will also require manpower with training and orientation related specifically to consumer interests and provided through our environmental health curricula.

In the last few years great emphasis has been placed on comprehensive health planning that can seek to identify health problems and plan for their alleviation in an area, a region, or an entire nation. This work requires personnel with knowledge of the planning process as well as officers capable of administering and managing the programs that are devised. Undergraduate and graduate level programs must incorporate enough content on program planning and management that graduates can function effectively and efficiently in organized environmental health programs.

The biggest unknown facing health manpower training programs today is the impact of national health insurance legislation. The goal of guaranteeing high quality medical care for all citizens through a national health insurance program is meritorious; there must be an accompanying program to reduce the need for medical care, however, and that will come only through a sound and substantial program in preventive medicine.

Environmental health and occupational health programs are
integral parts of preventive medicine. These programs—with well trained, highly qualified technical personnel knowledgeable in the control of the environment—must work very closely with the physician to prevent disease and conditions detrimental to the physical and mental well-being of man. The medical doctor and the environmental health specialist may be placed in a working relationship similar to that which existed between the physician and his assistant in the early 1900s, when they worked together to control environmental conditions that were detrimental to the health of the physician's patients. It is important that our environmental health curricula incorporate subject matter on public health and preventive medicine that will facilitate the working relationship between the physician and the environmental health specialist. The academic programs in environmental health must recruit students of high quality and maintain a very high academic standard if compatible relationships are to be developed and maintained between the environmental health specialist and the physician.

An area in environmental health that we have great difficulty in defining and relating to is the environment's impact on the social and mental well-being of man. A challenge for the faculty in environmental health is to work with the behavioral scientists to identify the cause-and-effect relationships between man's well-being and his environment and then devise curriculum revisions so that our programs will lead rather than follow trends in environmental health.

There is almost no end to the modifications and revisions that can take place in our environmental health curricula. Program change should come only after the needs in environmental health practice have been carefully studied and future needs contemplated. To do this, each institution presenting courses of study in the specialty must maintain a continuing relationship with the field of environmental health practice, be knowledgeable about the needs for manpower in technology, and play a leadership role in accomplishing an improvement in man's environment.

The directors and faculty of professional curricula have as great a responsibility in the areas of certification or registration and accreditation as the professional organizations, and they
must all work together to achieve the ultimate in environmental health education.

Notes

27. W. W. Sampson, "The History of the National Association of Sanitarians" (Paper delivered before the National Environmental Health Association, Denver, Colo., 1967).
28. Miller, "Formal Education."
A REVIEW OF
CLINICAL EDUCATION
IN ALLIED HEALTH

Keith D. Blayney

Perhaps the most difficult aspect of education for the allied health professions is the appropriate development of the clinical portion of the student's training rather than that achieved in the classroom or laboratory. For this reason, it seems ironic that in the past decade so much effort and money have been expended on increasing the quality of on-campus education, while very little attention has been paid to comparable improvement of clinical education. Unfortunately, it is the rule rather than the exception that students are "dumped" into a clinical setting with little guidance given to the clinical faculty as to what competencies should be developed.

While the "site visit" approach to the affiliations has, no doubt, improved good will between the educational institution and the site, it is doubtful that this mechanism has done much to improve the educational experience of the student. It is rare to see team approaches to clinical education, and if allied health students do interact with those from nursing or medicine, it is frequently in the school cafeteria or perhaps at "Joe's Bar and Grill." Critics of this process have observed that what affiliated institutions have gotten in full measure from their participation in allied health clinical education is the privilege of paying the bill or, perhaps more correctly, the opportunity to pass it on to the paying patient.

There are even problems of what one means by clinical education. Some allied health professions define it as a student's
preclinical experiences before he undertakes the didactic portion of a program; another approach (growing in popularity) attempts to combine didactic course work with clinical experience; and finally, some consider clinical education to begin only after completion of all didactic course work. There is general agreement, however, that clinical experiences are a necessary part of all allied health programs at some time and at some level, if not at a variety of levels with increasing depth and breadth of experience.

We propose here to review selected aspects of clinical education in allied health with a view to the future.

Both learners and educators appear dissatisfied with attempts to relate the classroom with "the real world." Student complaints that they are used as cheap labor are heard on one side while at the same time clinical faculty members lament the lack of technical skills found in students trained in "the old school." And there is some evidence that we are producing allied health graduates that are overeducated in theory and undertrained in skills. Tinsley Harrison, one of our nation's senior medical statesmen, commented on the failure of nursing educators to use clinical experience to best advantage. These comments also have relevance for allied health educators:

The patient is the most important source, not only of inspiration but also of information. The functions of books, lectures and of teachers are primarily to help students learn from patients. In your better medical schools your third- and fourth-year students are now essential parts of the patient-care team. They do many of the diagnostic procedures. And they are responsible, under careful supervision, for administering much of the treatment which their seniors order. Those older teachers who thought that the kind of medical training which they, themselves, received more than forty years ago was by definition the best possible, opposed these changes. It has taken much faculty in-fighting among you to initiate them. But there is now general agreement in the U.S.A. that a high degree of participation in responsibility for patients is essential for the medical student.

During the same period your trend in nursing has been precisely the opposite. The student nurse spends less time with patients and more being "educated." It is almost as if we decided that the way to train pilots was to give them a large amount of instruction in aero-
dynamics and minimal time in air. Either the people responsible for nursing education are mistaken as regards nurses or your medical faculties are as regards their students. That is the Educational Paradox.

The Administrative Conflict is another problem. Long ago you ... learned that in training medical students, interns and residents, it is essential that the same individual have final responsibility for teaching and for service to patients. Thus the head of the department of surgery of the school must be the surgeon-in-chief of the main teaching hospital. And so for medicine, psychiatry, etc. But again the trend has been the opposite in nursing. The nurse who has the main responsibility for teaching surgical nursing is usually not the chief surgical supervisor. The student nurse may thus be told in the class room that things ought to be done a certain way and then see them done in a different fashion on the surgical ward. Small wonder that she is often confused. Until service and educational responsibilities can be unified your nursing education will probably remain inferior.1

In Iowa, where I grew up, anyone who has ever set fence knows that in order to set fence straight you must look ahead. Any Iowa farmer can tell you that you can't set fence straight by looking backward. You must know where you are going in order to do the job correctly. I believe the analogy holds for training allied health professionals.

How can one possibly organize the correct clinical experience for a future that is so unclear? One of the more interesting forecasts of the future health care system used the Delphi technique to depict the major consequences of the changing configuration of the health industry.2 The predictions included the following: 1) there will be increased efforts to make use of ambulatory services and expansion of hospital outpatient services; 2) more convalescent and long-term nursing facilities will be created; 3) allied health and administrative personnel will assume more authority for the health system; 4) health care will be provided by multidisciplinary health care teams; and 5) health care will continue to become more consumer-oriented.

If the future does hold major role realignments for allied health professionals, then the clinical experiences of allied health students must also be redefined. If this assumption is correct—and I believe it is—the question arises as to who will do the redefining? Professional associations, which often develop
a "guild orientation" or what I choose to call "hardening of the categories," and which are primarily dedicated to self-preservation and controlling the tasks to be delivered only by their specialty, are not, in my view, best qualified to establish clinical training requirements for the allied health professions.

Even the casual observer is able to discern the sharp division between the academic and the service world. I am constantly amazed at the lack of understanding of hospitals on the part of allied health educators. The hospital is organized around patient care; teaching, if it is to continue in such a setting, must be subordinated to that task.

There is a basic difference between the teaching methods of the classroom and those of the hospital. The primary orientation of the university is toward knowing, whereas the hospital is chiefly concerned with doing. The university has more freedom in choosing methods of instruction. Pedagogy has not yet advanced so far that anyone can point to one "best" way to teach. And the pressure of the life or death of the patient is not present in the university.

A university professor can assign a student a laboratory problem, knowing that the chances are perhaps two out of three that he will fail but that he will still have an educational experience. You can't do this in the hospital setting. If the experiment fails, the patient may die.

In the university, the balance between research and teaching is difficult but manageable. In the teaching hospital, however, with more complicated aims, the task of balance between different purposes is nearly impossible. The analogy of the three-legged stool, with equal weight upon patient care, teaching, and research, simply does not apply. The patient must remain more important than generating new knowledge by research, or even than teaching. The hospital does have a more difficult task than the university and consequently is fraught with more tension, some conflict, and with eternal searching of conscience.

Under the present system of clinical instruction (taking nursing again as an example), there may be a serious need for simple nursing services for a patient at the very moment when pupil nurses who could provide these services are only a few feet away, receiving unnecessarily elaborate instruction in biochemistry.
Common sense indicates that such a situation is wrong. If third- and fourth-year medical students regularly “work” eight to ten hours with patients, as many do in addition to time spent in study, I see no reason for regarding an eight-hour day as sacrosanct for student nurses, allied health students, or any other pupil members of the health care team.

It is abundantly clear to students of health services delivery that if you want to change something in health care you arrange to pay for it differently. One has only to analyze the changing mix of patients created by Medicare and Medicaid, or to examine the difference in practices of physicians whose income is derived by salary, fee-for-service, or capitation payment schemes, to understand the important role that the payment incentive plays in changing the patterns of health care delivery. I believe the same logic applies to clinical education in allied health. The changes in method of delivery of clinical education will be prompted, if not controlled, by the way this training is financed and the amount of imagination used in the application of these funds.

I have been dismayed by how little allied health educators know about the financing of patient care. Reimbursement formulas, negotiations with Blue Cross, cost-per-patient-day audits are an essential part of the administrator’s life in the health delivery setting; yet many of us who were formerly involved in providing health services cannot help but marvel at the naïveté of educators with respect to the costs involved in clinical education. I suspect that one of the primary weaknesses of allied health administrators is a lack of sophistication about how clinical facilities must recover the cost of education. “Who is going to pay for it?” is one of the most frequently asked questions in any hospital administrator’s office. It is unfortunate that allied health administrators don’t have a ready answer to that question; or perhaps the real problem is that many don’t even understand the question.

Community agencies are often less able to support the work of the trainer-supervisor and/or the student than are hospitals. Many universities and colleges are facing problems in supporting faculty to develop and maintain quality educational expe-
K. D. Blayney

The "site visit" approach to affiliations touches only the tip of the iceberg.

One of the biggest unsolved problems related to clinical education of all types of health students is determining whether their experiences are educational or service-oriented. Third-party payers, insurance commissioners (Denenberg from Pennsylvania being the most notable example), and the federal government are all demanding that patient-care dollars not be "misused" for educational purposes. They have recognized that clinical education is expensive and that if these costs could be removed, or placed on the bill of the educational institutions or the students, the cost of medical care would have one source of inflationary pressure removed. What is not so readily recognized is the impossibility of cleanly separating "service" from "education." Indeed, according to a widely quoted study of the cost of hospital-based education undertaken recently at Hartford Hospital in Hartford, Connecticut, if all education programs in hospitals were abolished, it would cost more to provide the same quality of essential hospital services.3

One solution to this dilemma is to treat allied health students, especially in long-term clinical experiences and after completion of didactic course work, as junior staff members or interns, and pay them a salary for their contribution to patient care. Since more and more students are receiving integrated clinical experiences during didactic training, this seems a feasible solution to the nearly impossible problem of separating "service" from "education," using institutional accounting systems that are too primitive to cope with the complex issues involved.

A real estate promoter in New Mexico used to advertise on the radio saying "Remember, there will always be more people but never more land." Finding "good" health care environments to provide clinical training for the myriad new allied health programs is almost as difficult as finding new land. More and more schools are going out of their local environs to find appropriate settings, and as the distance between the educational program and clinical affiliation increases, working relationships become more difficult. There is also the question of the soundness of using state-appropriated monies to send students halfway across the country. Should Alabama send occupational therapy stu-
students to North Carolina or Florida for clinical experiences when we need to recruit them in Alabama?

The need to develop new types of clinical affiliation for students is pressing. Health Maintenance Organizations (HMOs), Physician Service Review Organizations (PSROs), and Health Service Agencies as proposed by P.L. 93-641 are examples of the types of organizations that might provide clinical experiences for allied health students. Traditional settings are not the only places able to provide clinical experiences. Kentucky January, an extramural, interdisciplinary education program of the College of Allied Health Professions, University of Kentucky, has involved twenty-eight sites and nearly a hundred organizations in providing clinical experiences to students from a variety of disciplines. In Alabama, the regional technical institute/junior college linkage program of the School of Community and Allied Health Resources has developed clinical experience sites for students in their home communities, and early reports are that these students do return home for employment.

A clinical allied health education project designed to address several of the problems with clinical education identified here is currently under way in Michigan. Sponsored by the Grand Rapids Area Medical Education Center (GRAMEC), the project has seven objectives:

1) To develop a consortium of educational institutions, hospitals, health departments, and community health agencies in the Grand Rapids, Michigan, regional area.

2) To improve the quality of clinical education in the allied health disciplines and continually to evaluate the effectiveness of this approach.

3) To integrate the clinical education of allied health disciplines.

4) To integrate the allied health disciplines with undergraduate medical education.

5) To develop a clinical education faculty and skilled coordination of their efforts through an administrative structure which would be an integral part of the Grand Rapids Area Medical Education Center.

6) To determine the cost effectiveness of the approach to clinical education.

7) To provide professional counseling and advising of students in this phase of their education.
A recent national study of the settings chosen for clinical experiences by five different types of community college programs selected to represent primary and ambulatory care showed that hospitals were the most frequently used site for clinical experiences (30 percent), followed by nursing homes (20 percent), community health centers (13 percent), private offices (12 percent), clinics (6 percent), and other settings (19 percent), including schools, group practice centers, industrial settings, public health departments, and simulation. This study also demonstrated the need for a standardized vocabulary acceptable to educators, practitioners, employers, and other personnel interested in clinical education. The report on the study placed considerable emphasis on the need for maintaining liaison and cooperative work patterns among colleges, hospitals, university medical centers, clinics, and government agencies. Because of the wealth of valuable information contained in this report, it is worthy of careful study.

It is becoming increasingly apparent that more imagination will be required in the future if clinical sites appropriate to the changing patterns of health care delivery are to be made available for students in the allied health professions. It is hoped that the experiments identified here, and others, will help show the way to develop these learning experiences.

A number of interesting experiments using “mock” laboratories or other simulations of actual real world work environments are now being evaluated. For example, at SCAHR at the University of Alabama in Birmingham, students in laboratory sciences are being exposed under controlled conditions to work situations expected in a “service” laboratory. The simulated lab is also being used to evaluate education and on-the-job experience of supportive lab personnel for advanced placement in the medical technology curriculum. Retraining of inactive medical lab personnel is also taking place in the “mock” lab.

“Mock” laboratories provide a solution to a major problem of providing clinical education—that is, that the primary commitment of most service labs (quite properly) is to the delivery of laboratory service and therefore learning activities vary as the workload permits. When the workload is light, the student
encounters a certain learning experience; when it is heavy, the student's instructor, harassed by the workload pressure, sometimes has difficulty evaluating the student's performance if, indeed, he is trained to make the evaluation in the first place. SCAHR's "mock" lab provides students with varied but controlled activities under the supervision, instruction, and evaluation of trained teachers.

The availability of the "mock" lab has changed the amount of time spent in the "service" lab by focusing attention on the unique learning that must take place only there, and on special procedures: toxicology, radioisotopes, vitamin assay, micromethods for pediatrics, endocrinology assays, and electives of the student's choice. It can be used to include further experiences in areas already covered in the "mock" lab.

In the simulated laboratory a preselected number of specimens of all types (blood, urine, throat swabs, for example) are received each day from the clinical labs of University Hospital and Veterans Administration Hospital. These specimens are processed, assayed, and reported by the students under "routine" conditions as well as under such added pressure as STAT requests and machine breakdown.

During the course of the simulated experience each student also has the opportunity to practice supervisory techniques such as assigning work, ordering reagents and supplies, and monitoring quality control of results. "Case studies," relating results of the various laboratory tests to the physical findings and history of the patient, are emphasized. In short, the students experience situations that simulate actual working conditions. Having been taught basic methodology and theory in the previous two quarters, they are evaluated on how well they adapt to the various situations in which they are placed.

It is my belief that "mock" labs will play an increasingly important role in the future of allied health education because they address several of its pivotal problems: less dependence on the "service" facility to provide "education," greater assurance that each student will experience each learning activity, and, finally, greater opportunity to concentrate in the clinical facilities learning which can best be done there or which does not lend itself to the "mock" lab concept.
The era of the gentlemen's agreement between the educational institution and the agency providing clinical experiences is rapidly passing. The growing need for written agreements spelling out responsibilities and functions has resulted in a sizable literature on "how to" develop legal documents. I, for one, am sad to see the passing of the gentlemen's agreement because I am not so sure that the appropriate legal language of a formal, notarized, properly executed document takes the place of the more fundamental philosophical commitment to education. But nostalgia won't pay legal counsel and, after all, our law schools are producing bright young attorneys who themselves must find employment along with our own allied health graduates. Some of our own colleagues—Margaret L. Moore, Mabel M. Parker, and E. Shepley Nourse—have published a comprehensive monograph on this subject so I will direct those readers whose interest lies in contracts, affiliation agreements, rights and responsibilities of parties, regulation, review or termination of contracts, to their publication, which in my opinion is the best available.

More effort has been devoted in the past to evaluation of classroom instruction than to clinical instruction, as we have noted. This is probably because classroom teaching is easier to evaluate. Yet it is the complexity of the problem itself that demands that studies be undertaken so that evaluation of clinical teaching-learning situations can become more meaningful.

Examination of the differences between classroom and clinical situations in terms of the learner, teacher, subject matter, learning objectives, and evaluation methods may be helpful.

In the classroom, learning is for the most part cognitive, and the student operates in a passive manner with only minimal emotional distress. In contrast, the clinical setting calls for learning in action and the student must demonstrate skills, often under considerable emotional tension. In the clinical setting, where the emphasis is on doing, the student is forced to participate. His personality, often hidden in the classroom, is fully exposed.

Because of the one-to-one basis of instruction in the clinical setting, the personality of the teacher is more readily revealed to the student than in the classroom, where the teacher can hide
behind mass communications techniques. Emotional involvements are rare in the classroom, and social distance between teacher and student is great as compared to the intimate interaction among clinical teacher, student, and patient. In fact, physical contact often occurs between these persons, indeed a rare happening in the classroom.

The subject matter of the classroom is usually highly organized, minutely detailed, and presented in a formal manner. Clinically, however, the subject matter tends to be loosely organized. Whereas the subject matter in the classroom is often highly theoretical, the clinical situation—because it is a "doing" activity—stresses the practical aspects of problem solving. The adjustment from the classroom to the clinical situation, where clinical judgment must be matched with the ability to get along with patients, may be the most difficult transfer in the student's academic life.

Unlike the classroom, where paper-and-pencil tests can be spaced at convenient intervals, the clinical setting requires that judgments regarding the care of patients be measured on a more nearly continuous basis. The classroom measurement assignment, because it is subject-matter-centered, is relatively easy compared to evaluation in the clinical setting, where patients often form an integral part of the learning environment.

Perhaps the most difficult factor to keep in mind in relation to evaluation is that the objectives of both the classroom and the clinical experience are directed toward changing the behavior of the learner. Therefore, it is essential that objectives be stated in terms of what the student should be able to do rather than what the teacher plans to do. When this is done it is possible to measure behavior changes. It thus becomes obvious that because clinical situations differ significantly from classroom experiences, evaluation procedures for teaching and for teachers must be adapted to the requirements of these disparate settings.\(^\text{10}\)

Various evaluation instruments for clinical education have been developed and are available.\(^\text{11}\)

A major weakness of health care in America is the lack of a dependable system of front-line, first-contact, ambulatory health care. Too many Americans have been forced to rely on the
emergency room of the local hospital for too much of their primary care. What has been lost by the lack of enough “family” physicians is medical care by someone who knows us personally and who can bring both personal and scientific medical expertise to bear on our health problems. One way this kind of care can be provided in the future will be through multidisciplined health teams made up of physicians, dentists, allied health professionals, and other types of new health practitioners.

The development of formalized approaches to health team instruction is embryonic, but there are pioneering efforts underway at five health science centers: University of Washington-Seattle, University of California-San Francisco, Michigan State University, University of Alabama in Birmingham, and University of North Carolina. These innovative programs are being sponsored by the Institute for Health Team Development, established in 1973 with a grant from the Robert Wood Johnson Foundation. The institute is involved in research, development, and implementation of a curriculum for the training of health science faculty from a variety of disciplines. Its aim is to provide training and follow-up consultation to faculty teams so that they, in turn, can give clinical training in family-centered primary care to students acting as members of a health team.

The institute evolved from work conducted by Harold Wise with primary health care teams at the Martin Luther King, Jr., Health Center and subsequent work in postgraduate physician training at Montefiore Hospital in New York. The experiences of working with teams and training house staff to work on teams led behavioral scientists Richard Beckhard and Irwin Rubin to the conception of an institute that would train interdisciplinary health science students (including allied health students) on primary health care teams within a clinical setting.12

It is clear that health professionals trained in isolation have difficulty working collaboratively. Because they do not know what the other team members are trained to do, they become locked into stereotyped roles that result in fewer health resources being available to the patient. There is now abundant evidence that interaction of health science students during their educational experiences creates greater likelihood of cooperation when they go to work. It appears that the introduction of
an interdisciplinary team experience in the clinical setting pro­
vides a powerful influence on later ability to practice medicine
using a team approach.

Exciting publications describing the results of the work of the
Institute for Health Team Development are available and are
recommended as worthwhile reading.13

Summary

As new approaches are sought to provide clinical experiences for
allied health students, the critical element needed is flexibility.
There is enormous pressure from professional associations and
accreditation mechanisms for guidelines, for uniformity, and for
rigid definition of how clinical experiences are to be provided.
It is my hope that this essay has shed some light upon the subject
of clinical education in allied health and, more important, upon
the opportunities for all of us to look ahead. Like the Iowa
farmer setting fence, we need to pay more attention to where
we are going in order to do the job of restructuring clinical
experiences to best advantage.

Notes

1. "A Discipline without Discipline: Some University Schools of Nursing, the
Ghost of a Noble Woman," Business, Health and Educational Disciplines, no. 1

2. Forecasted Changes in the Health Care Industry, Bureau of Business and
Economic Research, College of Business Administration, University of South Caro­


4. For more information write Kentucky January Project, College of Allied
Health Professions, University of Kentucky, Lexington, Ky. 40506.

5. For further information write Mr. Jack Hawkins, Coordinator, Junior College
Linkage, Regional Technical Institute for Health Occupations, School of Com­
munity Allied Health Resources, University of Alabama in Birmingham, Univer­
sity Station, Birmingham, Ala. 35294.

6. Further information may be obtained from the Grand Rapids Area Medical
Education Center, 220 Cherry S.E., Grand Rapids, Mich. 49503.

7. These objectives were taken from pages 3–4 of an unsolicited contract pro­
posal submitted by Farris State College, Big Rapids, Michigan, to Division of
Allied Health Manpower, BHRD, HRA, on March 8, 1974.

8. Mary E. Hawthorne and J. Warren Perry, Community Colleges and Primary
Association of Community and Junior Colleges, 1974).


MENTAL HEALTH
SUPPORTIVE PERSONNEL

Harold L. McPheeters

The field of mental health has experienced a series of remarkable changes over the past ten to fifteen years. Originally it was concerned only with the treatment of the mentally ill, the emotionally disturbed, and the mentally retarded. Little more than a decade ago, agency settings for mental health services were large mental hospitals, schools for the retarded, psychiatric outpatient clinics, psychiatric units in general hospitals, and the offices of private practicing psychiatrists.

All these agencies were considered to be part of a medical treatment system in which the psychiatrist, a physician, directed the efforts of members of the other professions. Officially, other workers in the mental health agencies were fully qualified professionals who worked under the direction of the psychiatrist. There were no career systems whereby the many thousands of psychiatric aides or attendants in the large institutions could move up the ladder without leaving work and going to the regular professional schools.

Beginning in the late 1950s and early 1960s, a series of forces began to press for change in the mental health system. Among the first—and destined to be the most significant—was the Joint Commission on Mental Illness and Health, which was appointed by President Eisenhower in the late 1950s but made most of its reports during President Kennedy's administration.¹

The final report of the Joint Commission, entitled Action for Mental Health and published in 1961, argued for community-oriented approaches to the treatment of mental illness. Other
reports of the Joint Commission suggested still further changes. At least two publications had already made a strong case for new approaches to mental illness. Marie Jahoda's *Current Concepts of Positive Mental Health*, published in 1958, described a concept of mental health that was more substantive than simply the absence of mental illness. George Albee's *Mental Health Manpower Trends*, a year later, pointed out the impossibility of meeting mental health manpower needs by employing only the traditional professionals in age-old patterns. Albee suggested the possibility of training new kinds of mental health workers who might be prepared in a shorter time than the traditional professionals and who might serve broader needs than those of the acutely ill, emotionally disturbed, or mentally retarded.

Acting on the commission's recommendations, in 1963 President Kennedy asked Congress to pass the Community Mental Health Centers Act to establish new agencies to work with the mentally ill and retarded in their own communities. The centers were also to offer education and consultation to the public and to other agencies in order to prevent emotional maladjustment and to promote a higher level of mental health in the population as a whole.

The community mental health centers introduced new kinds of programs and new services: day hospitals, emergency services, halfway houses, social rehabilitation programs, sheltered workshops, telephone "hot lines," crisis centers. Many of these were contract agencies that created entirely new organizational forms and called for new kinds of workers.

The centers were asked to develop treatment and counseling programs for many kinds of emotional maladjustment that were not necessarily medical in nature—among them behavioral and learning problems and marital difficulties. Many of the strategies for the prevention and treatment of emotional maladjustment required changing the social systems that had to do with such things as housing, employment, and financial security rather than purely medical intervention. At the same time, it was evident that the mentally ill and retarded needed a firm system of social and rehabilitation programs if they were to survive in the community on their own. Medical services alone
were not enough. Thus the field of community mental health found itself deeply immersed in social welfare.

Later in the 1960s the civil rights movement and antipoverty programs focused the attention of mental health agencies on the needs of minorities and the poor, groups that had traditionally been served rather meagerly except in the large public institutions. There were pressures to offer more help to these groups through increased financing of poverty area programs and through New Careers, an organized effort to employ indigenous workers from minority groups and poverty areas to work with other local residents. This movement called for career ladders as well as jobs.

The late 1960s and early 1970s found the nation experiencing an epidemic of drug and alcohol abuse. The president created a Special Action Office for Drug Abuse Prevention, and Congress, led by Senator Harold Hughes, established funds for rehabilitation of alcoholics and prevention of alcohol abuse, later to become the National Institute of Alcohol Abuse and Alcoholism. All these programs expanded the demands for manpower, often recruiting workers of nontraditional kinds who could better relate to drug users and alcoholics than could traditional mental health professionals.

The early 1970s brought further changes as pressure mounted from “right-to-treatment” court orders. The first of these was the 1972 case of Wyatt vs. Stickney in the federal district court in Alabama. This landmark decision specified that mental patients were not to be held in state institutions without clear evidence that they were receiving active treatment. It further set forth many of the conditions that would have to be fulfilled (including staffing ratios) in order to provide evidence that such treatment programs existed. As an alternative, many states moved to find community placement for large numbers of patients who resided in institutions offering largely custodial care. New workers and new structures were needed to provide living arrangements and aftercare for these patients, many of whom were aged or still somewhat mentally impaired.

At the same time, several state and local governments were consolidating their human service programs and creating what they termed “departments of human resources.” The exact com-
ponents of these new agencies vary, but they are likely to include programs for health, mental health, welfare, child welfare, vocational rehabilitation, treatment of alcohol and drug abuse, help for the aging, and corrections. In some places the new entities are simply umbrella agencies in which the individual components still operate quite independently; in others the overall agency attempts to consolidate the delivery system for clients and families. The Allied Services Bill in the Congress would allow for further consolidation of human services.

New structures and patterns of employing manpower are thus evolving for mental health as well as for other agencies. Workers in mental health find themselves in new relationships to the overall pattern of human services—usually in less discrete and professionalized positions than they once held. As a result, the term "human service workers" is supplementing the older "mental health workers" in both legislative and educational contexts. This is especially true at the aide and technician levels.

With all of these changes, some of them just now occurring, it is not possible to categorize the mental health field as entirely a health field and its workers as entirely allied health workers. Yet in many aspects the field is primarily health-related—especially in the treatment of the mentally ill—and many of the workers are truly allied health workers. The medical model, in which all the professionals work to assist the physician and are directed by his orders, no longer prevails in much of the mental health field, although it tends to remain in acute treatment programs.

Against this background of recent and current changes, it is appropriate to look at the individual professions and technologies in the field with special attention to their training and placement.

Because of the uncertainty that often exists about just what psychiatry is and how it differs from psychoanalysis and psychology, information about psychiatrists is included here although they are not support personnel in the usual sense.

_Psychiatrists_. The medical specialty of psychiatry requires three years of residency training beyond regular medical school, usually following an internship. Training is customarily in a hospital setting such as the psychiatric service of a general hos-
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pital or a state psychiatric hospital or institute, but it also includes outpatient clinical work, some community-oriented training in consultation work, and usually some child psychiatry. There is a strong expectation that every psychiatric training program will soon be affiliated with a medical school department of psychiatry.

Psychiatrists are certified by the American Board of Psychiatry and Neurology. Subspecialties of psychiatry encompass such areas as child psychiatry, administrative psychiatry, and forensic psychiatry. Some of these—child psychiatry in particular—require one or two years of additional training.

The subspecialty of psychoanalysis is the process of treatment by free association of thoughts, dream analysis, interpretation of the unconscious, and close analysis of the interaction between the therapist and the patient following the techniques and concepts developed by Sigmund Freud. A classical psychoanalysis may last for as long as three to five years with the patient coming for daily hour-long sessions on the couch. Most psychoanalysts practice a shorter form, which may require only three sessions a week over a two-year period. Psychoanalysis requires specialized training, usually in a psychoanalytic institute, during which the student undergoes analysis himself and performs a controlled training analysis.

Most psychiatrists are trained in psychoanalytic concepts and theories, which they use to a considerable extent in psychotherapy sessions with patients, but they do not have the specialized competence or certification to qualify as psychoanalysts. Psychiatrists are trained to diagnose and treat the full range of medical and emotional disorders that are called mental illness: the psychoses, the psychoneuroses, psychosomatic disorders, personality and character disorders, and mental retardation. Psychiatric treatments range from psychotherapy to the prescribing of psychotropic medications and the use of physical procedures such as electroconvulsive therapy.

In some situations the psychiatrist works entirely in a one-to-one relationship with his patient, especially when the treatment of choice is outpatient psychotherapy in a private office. More often, however, he functions as a member of a team with other kinds of professional and technical mental health workers.
Sometimes he may serve as the leader of the team and sometimes as a consultant.

Clinical psychologists. Clinical psychologists are trained in an academic department of psychology in a university and receive the full academic doctor of philosophy degree after completion of a course of study including psychological knowledge of behavior, learning theory, personality growth and development, abnormal psychology, and research. They also learn skills of therapy, testing, behavior modification, and research procedures. The typical program is strongly oriented to research and statistical approaches; it does not include medical training, although there is some study of physiological psychology. It includes a period of practicum or internship training with clients. A dissertation is required.

In most states clinical psychologists are licensed by a state board of psychology.

While the traditional degree for a clinical psychologist is the Ph.D., there are a few training programs at the master’s and baccalaureate levels to prepare psychologists for work in the overall field of mental health. Some are described by such terms as counseling psychology, community psychology, or psychometry to distinguish them from programs leading to a Ph.D. in clinical psychology.

Other subspecialties of psychology, primarily oriented to academic teaching or research, or to other fields besides mental health, are experimental psychology, animal psychology, industrial psychology, and educational psychology.

Clinical psychologists carry out a variety of functions, depending on the setting and the need. Some have private practices in which they see clients in office consultation much like that carried out by psychiatrists, except that they are unable to prescribe medications or hospitalize clients should that become necessary. A great many psychologists in mental health centers or hospitals carry out psychotherapy as a part of their supportive role.

Psychologists are likely to be trained in the use of group psychotherapy, in which perhaps five to ten clients meet together to gain insight into their own behavior, emotional problems, and interpersonal reactions and learn to deal with them. This
therapy requires knowledge of group dynamics and group leadership in addition to understanding of the psychodynamics of individuals.

Many clinical psychologists conduct psychological tests to evaluate patients' intelligence, memory, and personality patterns as part of the initial evaluation and perhaps again at periodic intervals. Such testing is also useful in rehabilitation work. It is probably the one unique skill of the clinical psychologist, but it is far from the most important.

Another function of clinical psychologists is to design and carry out behavior modification projects. In this technique, specific behavior patterns of the client are identified and an effort is made to modify these patterns by a series of systematic rewards for acceptable behavior. The rewards may be small cash payments, staff approval, candies (for children), or other items the client finds desirable.

Frequently the clinical psychologist carries a major responsibility for evaluation of programs. His research and statistical training particularly qualify him for this assignment. Because of these skills he is also asked to take part in program planning and development, especially in studies to assess the need for programs and in helping to set the criteria by which new programs will be evaluated. Sometimes clinical psychologists serve as unit or team leaders in mental health centers or hospitals.

Clinical psychologists are also likely to be called upon to help with various aspects of staff development for new workers, such as psychiatric aides or mental health assistants, who are trained on the job.

_Psychiatric and mental health nurses._ Psychiatric and mental health nurses are registered nurses holding the master's degree in the clinical specialty of psychiatric or mental health nursing from a university school of nursing. The knowledge and skill bases for psychiatric nursing and mental health nursing have much in common, but there are differences in emphasis. Psychiatric nursing features work with individual patients who are emotionally disturbed, while mental health nursing focuses on the public health concepts of prevention, and on consultation service to community workers. Thus the mental health nurse most frequently works with public health nurses and teachers,
helping them recognize and deal with the everyday emotional problems of their regular clients.

The training in psychiatric and mental health nursing at the master's level follows upon the regular baccalaureate degree in nursing. It includes specialized knowledge of psychiatric disorders and their management as well as specialized skills in the psychotherapeutic use of oneself. It is also concerned with the development of a totally therapeutic environment for patients so that the physical surroundings and the psychosocial climate of the staff facilitate patients' growth into healthier patterns. This is called \textit{milieu therapy}.

Psychiatric nurses have traditionally worked mainly in hospital settings—mental hospitals, institutions for the mentally retarded, and psychiatric units of general hospitals. Increasingly, however, they are being employed in day hospitals, outpatient, and aftercare programs. Mental health nurses usually work in community mental health centers or health departments where their primary duties are community consultation, education, and early case detection.

Psychiatric nurses are often responsible for carrying out medication regimes or behavior modification programs that have been outlined by the psychiatrist or clinical psychologist. They may also supervise the activities of the other nursing staff—nurses without specialized training in psychiatry, practical nurses, and psychiatric aides—a responsibility that requires some expertise in supervision and teaching.

\textit{Social workers.} Social workers are trained in graduate schools of social work and receive a master's degree, usually the M.S.W. (Masters in Social Work). This is generally a two-year master's degree program which includes a background of knowledge in the social sciences and skill training in various methods of intervention. These range from one-to-one case work with clients to work with small groups of clients to community process skills that until recently were called "community organization" skills. The training also includes a good amount of field experience in an operating agency.

Social workers are licensed in a few states.

Until the early 1960s, schools of social work offered specialties in areas such as psychiatric social work, medical social work, and
child welfare. During the 1960s specializations by method were offered: case work, group work, or community organization. Now, however, most schools provide a core curriculum along with a fair number of electives. For many students, the electives include psychiatric and mental health knowledge and techniques.

Social workers serve in virtually all kinds of mental health agencies—in hospitals, clinics, child guidance centers, adult mental health centers, aftercare programs, rehabilitation programs, and schools for the mentally retarded.

At one level social workers help clients and their families to obtain some of the practical necessities of life—housing, money, clothing. This may involve knowing and using a wide variety of community resources on behalf of clients.

At another level they work with families of specific clients (patients) to help them understand what is happening to the client, to help them relate to the client in more supportive ways, to help them make homegoing arrangements for patients, or to help them with home management situations such as child-rearing practices, budgeting, or daily schedules.

At still another level social workers help individual clients or groups achieve healthier adjustments in their life situations, that is, in relationships with their families and friends, in their living arrangements, and in their use of money, time, and other resources. In short they try to prepare formerly dependent clients for independent living.

At the time patients enter into the mental health treatment system, social workers are active in taking social histories and in doing social evaluations. They may reenter the picture at times of major transition in patient status, perhaps when the patient goes to a halfway house or day hospital or when he returns home.

Social workers take an active part in broad community work: developing new resources such as recreation programs or ex-patient clubs; finding Alcoholics Anonymous a place to meet; encouraging and assisting senior citizen programs, Boy Scouts, and other organizations to include the mentally ill or emotionally disturbed among their members.

A great many are involved in various aspects of the administration of mental health programs, frequently directing a unit
of a mental hospital or a satellite mental health program of a mental health center. Social workers are also called on for supervision of certain other workers and for staff development.

In most states there are now baccalaureate level training programs in social welfare. These programs do not provide the depth of specialization offered social workers, but they do offer good basic knowledge for working with individual clients and families and assisting in small local programs such as day care centers for the retarded, halfway houses, and satellite centers.

Alcohol and drug counselors. With the increasing concern for persons who abuse alcohol and the many mind- and mood-influencing drugs has come a tremendous growth of programs to treat these persons, and two new types of lay therapist have emerged: alcohol counselors and drug counselors. Employed in hospitals, clinics, halfway houses, mental health centers, prisons, and "hot line" programs, these therapists work with clients and families for whom alcohol and drug abuse are known or suspected problems.

The training programs are highly variable. Some are baccalaureate or master's level programs; some are associate of arts programs; a large number are simply on-the-job training in agencies that treat alcoholics and drug addicts. A very common but not invariable criterion for selection of these workers is that they have successfully worked through some previous personal experience with an alcohol or drug problem. They thus have an understanding and rapport with their clients that is often difficult for full professionals to establish.

While alcohol and drug counselors often have a very close therapeutic relationship with their clients, they always have access to the consultation and supervision of more formally trained professionals. They are first-line workers but seldom administrators. The National Institute on Alcohol Abuse and Alcoholism has a plan to certify alcohol counselors.

Pastoral counselors. The past decade has seen a considerable expansion of the training and employment of pastoral counselors in community mental health centers, psychiatric hospitals, general hospitals, and psychiatric rehabilitation programs. These are usually fully qualified clergymen who have had additional special training in pastoral counseling in accredited semi-
nary and clinical training programs. Their preparation includes knowledge and skills in psychodynamics, personality theory, counseling, and psychotherapy. They may be certified by the Association for Clinical Pastoral Education.

The pastoral counselor is especially qualified to work with the person whose mental or emotional disturbance may involve spiritual and religious concerns, such as guilt or religious preoccupations, but their area of skill is much broader than this. Their value in mental health rehabilitation work is particularly significant when the client needs to develop a new sense of purpose and meaning in his life. To a considerable extent pastoral counselors work in outpatient programs where family and marriage counseling predominates rather than therapy for major psychiatric illnesses.

*Other rehabilitation workers.* In the rehabilitation of the mentally ill and retarded workers of several other professions, such as recreational therapy, occupational therapy, and rehabilitation counseling, have specialized training and work as support personnel in the overall treatment programs. These workers are usually professionals fully qualified in their regular fields, with specialized clinical training in the area of psychiatric rehabilitation. A few have completed specialized master's degree programs. They are most often concerned with programs and techniques that develop strengths in the client's psychosocial functioning, rather than in physical functioning as in physical rehabilitation programs. Their work is customarily carried out on a prescriptive basis as part of the overall mental health treatment effort. They are employed in mental hospitals, psychiatric units of general hospitals, community mental health centers, schools for the retarded, sheltered workshops, and halfway houses.

*Special teachers.* Special teachers for the emotionally disturbed and the mentally retarded are significant workers in programs for children. These teachers generally hold a master's degree in special education from a university school of education. These programs specialize in the treatment of emotional disturbance, learning disability, educable mental retardation, and trainable mental retardation. A few baccalaureate level programs train special teachers for work in mental retardation.
Special teachers for the emotionally disturbed are employed in children's units of mental hospitals, in day hospitals, in public schools, and in child guidance clinics. Special teachers for the mentally retarded are employed in schools for the retarded, public school classes, and programs for the mentally retarded, and in some day activity and sheltered workshop programs. In most situations they are the classroom teachers for a small group of eight or ten students, but frequently they function as consultants in special education techniques with regular classroom teachers. This is a growing trend as more and more schools are moving to serve the mildly emotionally disturbed child and the educable retarded child in regular classes. The change in approach stems from parental concern that children in special classes for the emotionally disturbed or the mentally retarded may be stigmatized by other children and neighbors, possibly nullifying the advantages of being taught in special classes.

In all cases special teachers are concerned with the academic growth of their students, but they are also skilled in emotional management and motivation, so that their work is therapeutic as well as educational.

Mental health technicians/associates. Mental health technicians or associates (the terminology varies with the locale and the institution) are workers prepared in mental health technology programs that grant an associate of arts degree. These programs are most often located in two-year community colleges but may be in four-year colleges or universities. These are all relatively new training programs with new workers. The first mental health technology training course was a Purdue University Extension Program at Fort Wayne, Indiana, in 1966. There are now at least 174 college programs with about 7,000 graduates.

The training programs are a blend of general studies, behavioral sciences, mental health courses, and field training, totaling sixty to seventy credit hours but many more clock hours. The classes are usually small so that there is opportunity to give the student a great deal of self-knowledge as well as factual information and clinical skills. Most programs prepare graduates for a "generalist" role—that is, working with small groups of clients and families to help them with the totality of their treatment
and restoration. Generalists call for consultation and supervision from a variety of professionals, as needed, but never totally give up their clients. The part played by the mental health technician is similar to that of a parent surrogate.

Mental health technicians/associates work in virtually every kind of mental health agency: mental hospitals, schools for the retarded, mental health centers, clinics, halfway houses, children's services, and alcohol and drug programs. About half function as generalists—often in community outreach and aftercare settings—while others serve as assistants to one or another of the established professionals—particularly in hospitals that are traditionally organized.

Because many graduates of mental health technology programs have found employment in agencies such as public school counseling services, corrections programs, special education programs, nursing homes, senior citizen programs, housing programs, and the like—providing services not specifically identified with "mental health"—a dozen or so of the colleges have changed the name of their training course to "Human Service Technology" to reflect this broader range of work setting.

Mental health assistants/psychiatric aides/attendants for the mentally retarded. All large public programs for the mentally ill and retarded employ many persons called mental health assistants, psychiatric aides or technicians, or attendants for the mentally retarded—depending upon the setting.

These workers are usually drawn from geographic areas close to the programs they work in, and hence they are familiar with the natural and social environment of the clients they serve. Their training frequently takes place on the job in the agency which employs them, but it may also be conducted by local technical schools or community colleges in collaboration with the agency. The training programs vary greatly in length, but most require three to six months of rather intensive classroom and practicum work with a strong on-the-job orientation.

There is no overall accreditation or approval of these new programs at present. Some training programs feature the skills of outreach and referral, while others concentrate on basic physical care or inpatient psychiatric care skills such as simple recreational and activity skills, remotivation, and ward-level
behavior modification programs. These workers do not function in independent situations as a rule, but are rather closely supervised. However, they are a front-line contact with clients and a very important link in the therapeutic process.

Perhaps the most notable recent change in manpower placement in the mental health field has been the movement of psychiatrists away from command responsibility. This has occurred both in administrative and in clinical settings. While a fair number of local mental health agencies are still administered by psychiatrists, many are run by other professionals or lay administrators. In addition, the psychiatrist is much more likely to be called in as a consultant on medical-psychiatric issues regarding individual cases or programs, rather than to serve the overall case as program manager. This is partly because of the scarcity of psychiatrists and partly because of a feeling that this is a more appropriate application of their special training and talents. The other professions are much more likely to be involved in program development, administration, and evaluation than previously.

In the traditional mental health programs as conducted in mental hospitals and mental health clinics, there was a rather standard team of mental health workers. The psychiatrist was the captain of the team and responsible for the basic diagnosis and treatment. The clinical psychologist performed psychological tests. The social worker took social histories and worked with the families. The nurse gave medications and provided general physical care and surveillance of the wards. In mental health clinics the team was usually made up of only the psychiatrist, the clinical psychologist, and the social worker. Other kinds of workers were present in hospitals, largely to care for the general physical and social welfare of the patients but not to become much involved in their mental and emotional treatment.

This pattern still persists in many places, especially in acute treatment hospitals, but it has largely been replaced with other patterns of manpower organization and employment. Many large mental hospitals have done away with professional specialty departments—separate departments of nursing, of psychol-
ogy, of social services—and have moved to a variety of unit programs. These units may be geographic (admitting all the patients from certain counties or certain sections of the city) or functional (admitting only children, only alcoholics, and the like). Smaller units are often headed by persons from any of the professional disciplines who have the necessary leadership and administrative interest. The basic psychiatric responsibilities remain with the psychiatrist, while other authority is retained by appropriate professionals; but the overall administrative leadership has shifted to another professional.

Under such team arrangements the patients are sometimes assigned to the team as a whole and overall decisions regarding treatment are made by the entire team in frequent meetings. In other cases each patient is assigned to a single staff person who becomes his personal agent and case manager. This staff member still calls on the individual professionals for their expertise, but he is likely to carry most of the overall responsibility for each of his patients. This arrangement seems to give greater patient satisfaction, for the patient feels that he has a single person to whom he can turn for questions and a person who can act as his advocate. It also cuts down on the need for frequent meetings of the entire team.

Under these new team arrangements the performance and objectives of the various professionals have expanded considerably. This is especially true when each patient is assigned to a single worker. The worker then becomes a comprehensive therapist and uses a wide range of techniques. This has been referred to as a “blurring of the roles” of the professionals. To a certain extent this description is justified, as differentiating the case-manager style of team from the model in which each professional has his discrete functions which he performs with the patient or family. However, in most respects this “blurring” is simply an expansion of roles in which the various professionals carry out some of the common techniques and functions of all of the mental health professions.

The role of “middle level” workers in mental health is still in the process of development. In the traditional psychiatric team model there were no middle level workers. All the work was
done by professionals, except for certain custodial functions that were given to psychiatric aides or attendants with no real status in the manpower system. There were no career ladders by which the psychiatric aide or attendant could move upward in the system except by going through full professional training in the regular professional schools. There were no middle level training programs.

When middle level training programs were begun in the mid-1960s, there was considerable uncertainty about the roles in which these people would be trained to perform. Would these new workers be trained for only a single function, such as psychotherapy or psychological testing? Would they work primarily as assistants to one or another of the established professions? Would they be only hospital workers or only community workers? Or would they have new duties altogether?

These questions were explored in depth from the perspective of what patients and families seemed to need most. The greatest need of most mentally disabled patients and families seemed to be for a single worker—again, the mental health generalist—to help them deal with the whole process of diagnosis, treatment, and rehabilitation. This kind of role has become the most common one taught in most of the colleges. The generalist worker has the basic competence to work with patients and families in a wide variety of ways to help that patient through the entire process of treatment and rehabilitation. He calls on the expertise of the various professions as needed, but continues his overall concern for the patient. He extends whatever services he can himself and helps the patient to get the others as needed. This calls for a range of competencies—knowledge, skills, and attitudes—at some level of adequacy but not necessarily at great depth in any one area.

The employment of these middle level workers (mental health technicians or associates) has been highly varied. They have found jobs in virtually every kind of mental health program and in many kinds of human service agencies outside of mental health (juvenile courts, aging programs, school counseling services). Recent studies show that slightly over half are employed as mental health generalists. The others are assigned in a variety of jobs, most often as assistants in one or another of the estab-
lished professions. They are employed as social work case aides, rehabilitation aides, or psychological assistants, although a few are in jobs designed around a single function—intake workers, hot line workers, behavior modification technicians. In general, the large, traditionally structured agencies such as state mental hospitals have maintained older ways of using all staff workers while the innovations have occurred in smaller, newer, and more flexible programs such as community mental health centers, halfway houses, aftercare programs, social rehabilitation programs and sheltered workshops.

The New Careers programs for the training and placement of entry level workers in community mental health projects received major emphasis from the antipoverty programs of the mid-1960s. Considerable effort was made to recruit and train persons who were indigenous to the communities to be served. The major training effort took place on the job within the agency where workers were employed.

In the mental health field many training programs have been established for New Careerists, but they are quite variable in content and objectives. Some programs are limited to preparing people to be outreach workers and to refer patients to the mental health centers, while others offer training for a much wider range: counseling, treatment, and follow-up care.

Some New Careerists have been remarkably successful in establishing their relationships with both clients and professionals so that they have truly expanded their agencies' services to the community. Many others, however, have become disillusioned with the lack of real career opportunities; a few have even been leaders in protest activities against the professionals. It remains to be seen whether the New Careers program will become firmly established as a true career system for auxiliary personnel working in their own communities.

Another change in manpower placement has come about with the introduction in a variety of new roles, especially alcohol and drug counseling, of supportive workers whose credentials have not followed traditional academic training patterns. These lay counselors have generally become the primary therapists for
their clients, relying on the traditional professionals as consultants. This has generally been a very productive pattern of service which recognizes that there are some unique elements in the therapeutic relationship in addition to those based on the professional techniques of the therapist.

**Summary**

The mental health field has been in a state of continuous change and upheaval for the past fifteen years. Once narrowly conceived, it now recognizes the powerful relationship between emotional maladjustment and flaws in the individual's social and economic environment.

This broadened concept has brought about the training of many new kinds of mental health workers with close alliances to the social welfare field. Concurrently, it has given rise to the development of community mental health centers and the burgeoning of new counseling programs. Designed to help the common man cope with his problems rather than to treat the acutely ill mental patient, these programs deal with such wide-ranging matters as behavioral and learning problems, marital difficulties, and the abuse of drugs and alcohol.

The traditional dominance of psychiatry has been modified over the past decade and a half, although psychiatrists still play a key role in psychiatric treatment in the mental health field in general. The other traditional professions—clinical psychology, psychiatric social work, and psychiatric nursing—have tempered or "blurred" roles to take on expanded responsibilities. New kinds of workers—alcohol and drug counselors, pastoral counselors, "middle level" mental health technicians or associates and New Careerists—have come on the scene. New patterns of team organization have emerged. Training programs are adjusting to the requirements of these new patterns and are preparing graduates to perform new and expanded duties.

Some of the most recent events to impinge on the mental health field, such as "right-to-treatment" court orders and merged departments of human resources, are still having their impact. Still to come, probably, are further pressures for change: cutbacks in federal spending, some form of national health
insurance, passage of the Allied Services Act, and demands for accountability. These pressures— with the possible exception of national health insurance—appear likely to take the mental health field even further away from its traditional patterns.

Leaders in the field will be wise to respond to these continuing changes by revising and adapting employment of mental health personnel. Only in this way can a higher level of mental health be achieved for all people in the nation.

NOTES

5. In the United States District Court for the Middle District of Alabama, Northern Division, Wyatt vs. Stickney, Civil Action No. 3195-N (Bryce Hospital and Searcy Hospital, 13 April 1972).
14. Southern Regional Education Board, Creation of a Discipline: Middle Level Mental Health Workers (Atlanta, Ga., 1973).
Physical therapy as a field of study in the United States had its beginning almost sixty years ago. But physical therapy as a healing art has been recognized as an essential element in the treatment of man's physical ills since ancient times. Sunlight, warmth, and "rubbing" have always been used to lessen the effects of disease and injury. Electric shock for headaches, and baths, massage, and gymnastics for other ailments were important treatments in early Greek and Roman cultures. Yet it was not until World War I that physical therapy's value came to be fully appreciated in the United States, when it was recognized as an important aid in decreasing convalescence time for wounded soldiers. With this recognition, concerned orthopedic surgeons and others were influential in organizing a Reconstruction Aide Corps in the United States Army to perform physical therapy in military hospitals.

To prepare qualified persons for the Reconstruction Aide Corps, fourteen schools quickly organized courses in massage, corrective exercise, and hydrotherapy. Physical educators and nurses were recruited as students for this new venture. The first training program was established in 1918 at Reed College in Oregon by a British-trained physical therapist, Mary McMillian, who had served with the United States Army. By the time World War I ended, almost two thousand women had studied physiotherapy in the United States.

Before World War I, physiotherapy, as it was called then and still is in some areas of the world, was learned through on-the-job apprenticeship training obtained under the tutelage of a few
orthopedic surgeons who appreciated its value in the treatment of persons paralyzed by poliomyelitis. After the war, physiotherapy found more general use not only in the regular army hospitals, but in civilian hospitals as well. With these new demands for physiotherapists additional impetus was given for formal instruction.

In 1925 the professional association, which was founded in 1921, assumed responsibility for the identification of approved physical therapy schools, for establishing the qualifications of graduates, and for publishing a list of approved courses of instruction. These standards were published in the June 1928 issue of the *Physiotherapy Review* and the February 8, 1930, issue of the *Journal of the American Medical Association*. They called for at least 1,200 clock hours of physical therapy courses in a nine-month-long program open to graduates of recognized schools of nursing or physical education. In August 1928 the *Physiotherapy Review* published the names of six schools approved by these standards.

Data on courses were furnished originally by written report. In 1929, schools were first surveyed through site visits. The initial trip for such inspection purposes resulted in eleven schools being listed as approved in the July–August 1930 *Review*. But the young professional organization lacked the funds and the experience in accreditation, and when the job of surveying and accrediting became too difficult, it asked the American Medical Association (AMA) to assume this responsibility. By 1936, the Council on Medical Education and Hospitals of the AMA took over the task of accrediting programs in physical therapy.

At this time, the *Essentials of an Acceptable School of Physical Therapy Technicians* were formulated and adopted. These *Essentials* showed little change from the minimum standards decided upon in 1928. Graduation from an accredited school of nursing or physical education or a minimum of 60 semester hours of college, including courses in physics and biology, was necessary for admission. A minimum of 1,200 clock hours was required in the curriculum, 400 of them in clinical experience with patients.

Until the early 1940s most physical therapy schools in the United States were organized in either hospitals or colleges.
According to William's (1941) study of physical therapy education, as reported by Pascasio, "Eleven of the sixteen existing curricula were associated with universities or colleges. Seven of them gave academic credit for courses. One school offered a four year program leading to a Bachelor of Science degree."¹

During World War II, when the demand for physical therapists was very great, nine- and twelve-month emergency programs were established throughout the United States. By 1946, twenty-one schools were on the approved list. Fifteen of them were planning to offer courses leading to a bachelor of science degree or give credit toward an advanced degree. Up to this time the field had largely been occupied by women practitioners, but ten of the twenty-one programs approved in 1946 admitted men.

Rehabilitation, swept into the United States by the war, had become a major health concept, and physical therapy gained new impetus as an integral part of rehabilitation. By 1954, an upward swing in enrollment in the schools had begun. In that year 1,660 students were enrolled in the thirty-four schools; only a year later the number had risen to 1,929. Eighty-one percent were enrolled in degree granting institutions.

Aware that the 1936 Essentials were outmoded, the AMA's Council on Medical Education and Hospitals in 1955 adopted new Essentials of an Acceptable School of Physical Therapy as proposed by the American Physical Therapy Association (APTA). These Essentials doubled the amount of time suggested for physiology and therapeutic exercises and the time for clinical experience in the curriculum was increased from 400 clock hours to 600.

The evolution of training programs in physical therapy over a period of roughly four decades is evident in a comparison of the curriculum content for an early educational program at Reed College in Oregon, the 1928 Standards, and the 1936 and 1955 Essentials (Table 1).²

In 1956, the Council on Medical Education (formerly the Council on Medical Education and Hospitals) of the AMA asked the APTA to participate in the on-site surveys for accreditation. The AMA/APTA collaborative arrangement was established in 1959. The National Commission on Accrediting, the nongovernmental body with authority to recognize accrediting
Table 1
Subject Matter, by Hours, in Accredited/Approved Physical Therapy Programs

<table>
<thead>
<tr>
<th></th>
<th>1918*</th>
<th>1928</th>
<th>1936</th>
<th>1955</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>(4 mos.)</td>
<td>(9 mos.)</td>
<td>(9 mos.)</td>
<td>(12 mos.)</td>
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<tr>
<td>Basic sciences</td>
<td>163</td>
<td>606</td>
<td>315</td>
<td>390</td>
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<tr>
<td>Anatomy and kinesiology</td>
<td>105</td>
<td>336</td>
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<td>210</td>
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<tr>
<td>Physiology</td>
<td>32</td>
<td>72</td>
<td>75</td>
<td>150</td>
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<tr>
<td>Pathology</td>
<td>26</td>
<td>36</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Chemistry</td>
<td>0</td>
<td>81</td>
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<td>0</td>
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<tr>
<td>Physics</td>
<td>0</td>
<td>81</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Therapeutic procedures</td>
<td>262</td>
<td>464</td>
<td>260</td>
<td>480</td>
</tr>
<tr>
<td>Exercise and equipment</td>
<td>117</td>
<td>230</td>
<td>105</td>
<td>210</td>
</tr>
<tr>
<td>Physical agents</td>
<td>145</td>
<td>234</td>
<td>155</td>
<td>165</td>
</tr>
<tr>
<td>Tests and measurements</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>105</td>
</tr>
<tr>
<td>Clinical medicine</td>
<td>15</td>
<td>108</td>
<td>160</td>
<td>90</td>
</tr>
<tr>
<td>Psychology</td>
<td>10</td>
<td>18</td>
<td>15</td>
<td>15</td>
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<tr>
<td>Ethics, administration, history, electives</td>
<td>7</td>
<td>6</td>
<td>50</td>
<td>30</td>
</tr>
<tr>
<td>Clinical education</td>
<td>163</td>
<td>...</td>
<td>400</td>
<td>600</td>
</tr>
<tr>
<td>Total hours</td>
<td>620</td>
<td>1,202</td>
<td>1,200</td>
<td>1,605</td>
</tr>
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</table>

*A pioneer program at Reed College in Oregon

agencies, approved the AMA in collaboration with the APTA as the official accreditation agency for physical therapy programs in 1964. The collaborative arrangement has continued since that time.

By 1965, curricula accredited by the AMA/APTA collaborative arrangement were offered in forty-two institutions. Of these programs, thirty-five offered the bachelor’s degree, two schools offered the master’s degree for the basic preparation in physical therapy, fourteen of the thirty-five degree-granting institutions also offered a certificate course of study for students who had attained a bachelor’s degree in another subject area. “Four schools were not able to offer a degree, but credits earned in these institutions were utilized by students in one or more colleges with which the schools were associated. Two schools awarded only the certificate.3

All forty-two approved programs existing in 1965 participated
in an on-going study directed by Catherine A. Worthingham. Over the succeeding years (1968–1970) the results of the study appeared in seven articles in *Physical Therapy.* This study provided the profession with an excellent reservoir of information for self-study and planning as physical therapy education continued its exciting development.

Today physical therapy focuses primarily on providing services to patients whose potential or actual impairment is related to the neuromusculoskeletal, pulmonary, and cardiovascular systems; on methods of evaluating the functions of these systems; and on the selection and application of appropriate therapeutic procedures to maintain, improve, or restore these functions.

To meet these responsibilities physical therapy education prepares students to work as members of the health team. With the referral of a physician a physical therapist performs and interprets tests, assists in differential diagnosis, and determines the degree of impairment of relevant capacities such as muscle strength, motor development, functional capacity, or respiratory and circulatory efficiency. Physical therapy students are also taught to perform therapeutic procedures including exercises for increasing strength, endurance, coordination, and range of motion. They learn to provide stimuli to facilitate motor activity and learning, and to instruct patients in activities of daily living and the use of assistive devices such as braces, prostheses, and ambulatory aids. The application of physical agents, including massage, heat, cold, and electrotherapy, to relieve pain or alter physiological status is another important aspect of their education.

In planning educational programs for students to attain these competencies, physical therapy educators are aware that these competencies may be practiced in many kinds of patient care environments. These may include direct patient care institutions such as hospitals, rehabilitation centers, or extended care facilities. Or it might involve direct patient care in home health agencies, school programs and/or private practice. Physical therapy educators are also aware that in addition to acquiring specific skills of patient care, students need to be prepared for consultation, supervision, teaching, administration, research, and community service.
This need for breadth and depth of preparation for physical therapy service presents educators with many curriculum decisions. They must face the challenges faced by all professional educators: providing enough qualified entrants, and preparing those entrants for the field.6

At present, the major preparation for the field is provided through the basic education of the professional physical therapist. There are, however, educational programs for the physical therapist assistants and also advanced graduate educational programs for students who have already completed their basic education.

In 1974, accredited basic education for physical therapy was provided by sixty-six educational institutions.7 These programs are offered by universities at baccalaureate and post-baccalaureate levels through their undergraduate, graduate, and medical colleges. Since the 1960s many of the basic educational programs have been located in specific units (schools, colleges, divisions) educating other health professionals.

A physical therapy student may receive his basic professional education through one of three plans: 1) a bachelor's degree program for high school graduates and transfer students; 2) a twelve- to sixteen-month program leading to a certificate of proficiency for students possessing a bachelor's degree in another field; or 3) a two-year master's degree program for students possessing a degree in another field. These curriculum patterns have been frequently referred to as the blended four: the three-year plus one-year, or the two-year plus two-year at the baccalaureate level; the four-year plus one-year at the certificate level; and the four-year plus two-year at the master's level.

In 1973/1974, there were 2,052 students in their senior year of baccalaureate programs, 273 certificate students, and 69 students in their second year of basic preparation at the master's degree level. Table 2 presents the growth of the basic physical therapy education program and the increase in student enrollment over the last five years.8

When 1975 began sixty-seven institutions were providing seventy-nine AMA/APTA accredited programs: sixty-one baccalaureate degree programs, twelve certificate programs, and six master's degree programs. There were also fourteen developing
Table 2

*Enrollment in Physical Therapy Education Programs, 1970–1974*

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of institutions</th>
<th>Baccalaureate programs</th>
<th>Certificate and master’s programs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>52</td>
<td>1,255</td>
<td>1,193</td>
<td>238</td>
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<tr>
<td>1971</td>
<td>54</td>
<td>1,220</td>
<td>1,336</td>
<td>427</td>
</tr>
<tr>
<td>1972</td>
<td>59</td>
<td>1,553</td>
<td>1,518</td>
<td>471</td>
</tr>
<tr>
<td>1973</td>
<td>59</td>
<td>1,819</td>
<td>1,827</td>
<td>415</td>
</tr>
<tr>
<td>1974</td>
<td>66</td>
<td>1,831</td>
<td>2,052</td>
<td>393</td>
</tr>
</tbody>
</table>

Although there is no specific recommendation for the arrangement of the professional phase of the curriculum, a model pattern does exist. Generally, didactic and laboratory courses compose the early professional curriculum, with some time devoted to an early introduction to learning in the clinical setting. The three units of didactic, laboratory, and clinical education continue throughout the curriculum with the clinical aspect increasing while the didactic and laboratory aspects decrease. The curriculum generally is concluded with a full-time assignment in a clinical or field setting for a period lasting two to four months.¹⁰

The faculties of these professional programs are composed of persons whose primary appointments are both in the academic and clinical or field facilities. It is the responsibility of the academic and clinical faculty to prepare students with the competencies in patient evaluation, treatment planning, treatment skills, administration, professional growth, and communication to begin their practice of physical therapy. Because of the difficulty of preparing the physical therapist in his basic education to meet all these competencies, other educational programs have evolved in the field.

In 1967, the APTA endorsed the development and utilization of the physical therapist assistant. This endorsement came in response to a general realization that different levels of competency were needed to supplement the work of the professional physical therapist if the growing demands of society for physical
therapy services were to be met. The physical therapist assistant's functions have been described in this way: "to assist the professional physical therapist in patient-related activities; to perform such procedures delegated to him that are commensurate with his education and training; and to carry out designated tasks which are required for the operation of the service."11

Education to meet these functions is offered for students in associate degree programs at community or junior colleges that have met the standards established by the APTA. In 1969, there were two such programs with 15 graduates; in 1972, twenty-three programs graduated 383; and by 1974, the number of programs had risen to forty-two with 574 graduates.12

Some data are known on the utilization of the physical therapist assistant in the field. In 1971, Carol Vincent conducted a survey of 39 institutions known to hire assistants. The 34 institutions responding to her questionnaire reported the procedures performed by assistants as follows: massage, 29 institutions; hot or cold packs, 26; diathermy, 23; electrical stimulation, 4; neuromuscular reeducation, 2; iontophoresis, 1; Jobst pressure cuff, 1; functional training, 1; back exercise, 0.

She also reported that "most of the assistants were located in Minnesota (19), the next greatest number were in North Carolina (10), followed by Washington (6), Oregon (5), Florida (4), and Wisconsin and California (1 each). Most of these institutions were acute, general hospitals (20). Others were rehabilitation centers (5), acute and extended care facilities (2), acute and rehabilitation institutions (2), private practices (2), acute, rehabilitation, and extended care facility combined (1), extended care facility (1) and convalescent hospital (1). The greatest number of assistants working in an institution was four; the least was one. The assistants treated an average of twenty patients per day."13

It is too early to evaluate the total effect of the physical therapist assistants on physical therapy practice and basic education. But their existence has clearly made basic physical therapy educators aware that they must take a new look at the whole continuum of physical therapy education. And they will have to answer the questions: Does basic education allow for upward educational mobility for the assistant? Should it? Because of the
education and functions of the physical therapist assistant, does basic education need to continue to offer some of the procedure and skill classes that have traditionally been a part of basic education?

Additional questions are asked by the basic physical therapy educators when they consider the short period they have to prepare students for competencies of an ever-increasing range. The realization by some that it is impossible in a basic program to prepare students in depth in all areas of practice has given rise to graduate programs.

In 1974, sixteen programs offered master of science degrees for those students who had already graduated from basic physical therapy educational programs. These master's programs are usually designed to increase the student's competencies in administration, teaching, and/or a clinical area of expertise.

In addition to these advanced educational programs, physical therapists continue to pursue professional and graduate study through other recognized degree programs such as M.D., Ph.D., Ed.D., and M.Ed. programs. In a 1974 survey of 4,000 randomly selected physical therapists, 1,353 usable responses indicated interest in graduate education. Of these usable responses, 44 plus percent (597 individuals) indicated a desire to pursue graduate education at a master's degree level, 9 plus percent (127 individuals) at a doctoral level, and 36 plus percent (489 individuals) at a nondegree level. The other respondents (10 plus percent) indicated an interest in graduate education with no specific level designated.

Many physical therapy educators have assumed that advanced degrees are the logical progression on the continuum of physical therapy education, that, indeed, specialized knowledge and skill should be obtained after basic professional education through continuing education or graduate education. However, not everyone agrees. Some would suggest that specialization be incorporated into basic professional education. Others think that some physical therapy learning experiences in the basic curriculum are not necessary for all students and have instituted professional electives within the curriculum. Still others would suggest that serious consideration be given to providing all basic education in physical therapy at the graduate level.
As physical therapy education moves into the 1980s it will be preparing practitioners for the 21st century. The future of education and practice are inextricably intertwined, and will probably be determined by two sources. One will be internal, from the profession itself: practitioners, educators, and the profession's leadership will project a role they see for the future of physical therapy. The other determinant will be external and will represent patient needs and developments in society and in the health care system. The interaction and reaction of these internal and external sources will identify the role of physical therapy service in the twenty-first century. They will also influence the educational programs needed to prepare individuals to provide these services.

When others have looked to the future, they have projected an expanded and multifaceted role for the physical therapist. They have seen a lessening of the traditional role of the clinician in a hospital and an increasing number of extended care facilities, nursing homes, community health centers, home visiting agencies, and self-employed physical therapy practitioners competing with the hospitals for the services of the physical therapist. They have seen the functions of teaching, consultation, supervision, and research performed by some physical therapists today as the responsibilities of all physical therapists in the future. This will be necessary as physical therapists are called upon even more to make primary assessments; to initiate treatment programs; to teach patients, families, and colleagues; to advise others as to the adequate delivery of physical therapy services.

Within this expanded concept, physical therapy educational programs have evolved that will produce professionals who can function capably and independently and have the basic preparation to qualify them for advanced study and thus for both personal and professional growth.

Education for physical therapy practice has been built on a strong foundation. If today's questions can be faced with the same wisdom and resourcefulness that have been evident up to now, we can look to the future of physical therapy education with optimism.
NOTES


Since Medicare came into legal being a decade ago, many educators, planners, public policy-makers, and even practitioners have looked impatiently on the turbulent health care scene for progress in developing programs for professional teamwork in everyday medical care. They have been disappointed. When the Medicare legislation was passed in 1965, and for some time thereafter, Department of Health, Education and Welfare plans for meeting an inevitable growth of demand for services were based on a greatly enhanced use of professional teams and professional auxiliaries. As of 1975, nothing like the anticipated progress had occurred.

This failure suggests unrealistic expectations, planning, and rhetoric: the logic of professional teamwork is perhaps less compelling in practice than in theory. However, I suspect the prime reason for failure is a breakdown in the "cybernetic process," or the feedback loop between teamwork learned in the process of professional education and the teamwork of practice.

It is my thesis that the feedback breakdown was caused primarily by certain built-in defenses both in the institutions of education and in patient care services. These were defenses against change—any change—and they were buttressed by habitual patterns of carrying out essential work and by the way the institutions themselves are organized.

It is my further thesis that, because of events which have already taken place and of forces now operating, these institutional defenses, in both the education and patient care spheres, are inevitably going to be modified at a much faster rate in the
immediate future than they were in the recent past. If this is true, education for teamwork and practice of teamwork among health workers will accelerate.

But for a frustrating decade, it was tough going in this particular area of the health field from which much was expected. Among the reasons for this were the following:

1) Because no authentic division of labor had been institutionalized in the daily transactions of patient care there was no way professional teamwork could be effectively taught to students. In both the "universe of professional education"—the colleges, universities, and professional schools—and in the "universe of professional practice"—the hospitals, medical offices, and group practices—substantial blocks existed to thwart developing this teamwork so that the cycle of reciprocal influence between education and practice had no chance to operate.

2) With good reason, many experienced administrators of academic health science centers were a little cynical about the phrase "allied health professions." They found educational programs designed for the discipline strong on maintaining separation, weak in promoting alliance, more intent on preserving individual professional identities than on developing a matrix of human services and social and biological sciences. Allied health professions were particularly critical of the medical profession itself. Both in the daily work of serving the sick and the community and in the daily work of education in the university, the alliance was somewhat one-sided. At least the sense of being part of an alliance with the other professions was not fully shared by the medical profession or by the faculties of the medical schools. Indeed, it was the medical profession's stiff-backed insistence on keeping the term "medical profession" for itself alone that brought into use the term "health professions" as the umbrella category applicable to all. Incidentally, this shift in language turned out to be an effective circumvention of the medical profession's attempt at elitism. It resulted in medicine having a sibling role as just one of the health professions, no longer enjoying a solitary splendor as the medical profession. The change of designation to "health professions" also altered the meaning of "allied" in "allied medical professions." That "allied" had once meant "supplemental to medicine"; now
"allied health professions" implied a number of professions associated with one another in a common matrix, the medical profession among them.

3) Medical education continued to reflect a satellite concept of professional relationships rather than the hoped for concept of unity among basically similar professions. The professions continued to consider themselves as freestanding disciplines, functioning independently. To bolster that idea, emphasis was placed on elite standards of scholarship and university or academic identity for each profession. The resulting "profession-centered" concept of health services, developed in the colleges, was difficult to overcome in practice. For example, the beginning medical resident, taking on new responsibilities in a complex hospital milieu, might be quite unaware that the ultimate benefit, or harm, accruing to his hospital patients was probably at least as dependent on the quality of service given by all the other workers as on that by the doctors. By the time he realized this, it was often too late for him to accept fully a quite new concept of allied health practice and to adapt to it.

4) Despite the fact that professional practice and professional education were inseparable, tensions between them remained. In the academic view of things there is, for example, a tendency to regard science as the basic reality and practical clinical application as derivative, even relatively trivial. On the other hand, the practitioner is likely to view practice as the basic reality, science and research as supportive, perhaps derivative. Neither side is fully conscious of how it is influenced by, and intertwined with, the other. Practice may see education as dilettante and officious; education may perceive practice as bastardizing the scientific discipline or exploiting it commercially. In an earlier time, education and practice usually occurred in a rather rigid sequence: a period of learning followed by a lifetime of practice. In that circumstance the reciprocal influence between practice and education took place across a generation. Now graduation from school is an admission ticket to a lifetime of learning; the reciprocal influences as between practice and education are continuous transactions; the feedback loop is a reality. More than ever, the vocational and scientific phases are intertwined and influence one another.
5) Medical school faculties in this country had lost the capacity to define what medical students must learn—this despite the presence of practitioners, anchored in the realities of professional practice, on the teaching staffs. Their influence had not been strong enough to assure the relevance of medical education, and clearly the influence of the wider society was required.

In the health sciences, teachers were also, to some degree, practitioners and hence brought the perspectives and skills of practice into the educational process. However, if the teacher was not a bona fide practitioner, an essential reciprocal influence between practice and education was lacking.

The medical faculty's functions may be defined briefly as follows: first, to determine what must be learned, what the professional functions and necessary skills are; second, to instruct and assist the student to learn, that is, to educate; third, to assess what has been learned; and fourth, to certify when a satisfactory level of knowledge and skill has been reached. Most fundamental is the determination of what is to be learned. If, as has happened in the past twenty-five years, the faculty loses its capacity to make this determination, or loses sight of what the most vital professional functions are, society steps in and, by means of incentives or penalties, redirects the process. This is what happened in respect to family practice and primary care in every western country around the middle of this century.

The complaint made by Adam Smith, and repeated by George Bernard Shaw, that every profession is a conspiracy against the public was certainly directed against the inward-looking professional quite as much as against misuse of power and privilege.

If progress has been slow in achieving effective professional teamwork in medical care and personal health services, forces now at work for change are likely to prove more successful.

Until very recently, in the universe of patient care, almost no incentives served to stimulate change from traditional and orthodox practices. Indeed, inefficiencies and waste were actually rewarded through "cost plus" kinds of remuneration for hospitals and unrelated fees for the physician. It was unfortunate that just when complexity in medicine was increasing with ever more refined and subdivided specialties, with divisions of pro-
fessional labor resulting, when old orthodoxies were correspondingly beginning to loosen up, and when the stage was being set for an allied approach by the health professions in patient care, massive amounts of money channeled through third-party payment mechanisms came into the system. These funds tended to sustain old patterns of work, the fixed relationships among professions, and the established institutional organizations. In consequence, physicians lacked incentives to delegate to others since they were paid for direct performance of services themselves. Moreover, the cost-plus feature of remuneration did nothing to encourage hospitals to develop more efficient and effective use of professional workers. A cynic might say that under those patterns of payment to doctors and hospitals there was little to gain, and much to lose, by improving efficiency and broadening work patterns.

For example, pediatricians earned just as good or almost as good a living providing well-child care, and thus drawing on only a limited part of their training and skills, as they would have providing secondary and tertiary levels of care, which required the full application of their expensive and arduous education. An additional factor: the well-defended demarcation between remuneration for medical services and hospital services through Blue Cross and Blue Shield, both allocated under provider group direction, assured the continuation of cost-plus formulas and absence of pressures for efficiencies that would cut across precisely that boundary of fees that was restraining physicians from collaborating in teamwork with other professionals.

Internists could earn approximately as much providing continuing supervisory care for groups suffering from hypertension as by consulting on a broader range of illnesses. And, it should be noted, the hypertensives could have been cared for by persons with much less training.

We are probably coming to a circumstance where remuneration for all personal health services will increasingly be drawn from a common pool. The pooling of dollars is likely to occur not so much at the level of the individual hospital and its medical staff as regionally and nationally. It is now evident to all that, the funds available for personal health services being finite, controls of expenditures are already being imposed. This was,
after all, the real significance of the recent retroactive scaling down of benefits in Medicaid and, in certain states, Blue Cross. It appears quite unlikely that any substantially larger portion of the national product is going to be channeled into medical care and health services. Abuses of nursing home care under Medicaid, the extreme expense of certain palliative or marginally beneficial therapeutic procedures, the costs of such procedures as renal dialysis, and the generally high cost of dying, have played a part in this. The economic depression is also a significant factor.

In any event, several consequences appear not only inevitable but imminent:

1) Because dollars will be drawn from a common, limited pool, we may expect a sharper struggle than ever before between the various contenders for remuneration for services in medical and hospital care. This will presumably include not only contention between medical and surgical specialists, including family practice, in terms of the so-called relative value scale for services rendered, but also competition for services from the available resources: physicians, hospitals, nursing homes, and manufacturers and dispensers of drugs.

2) Possibly, even probably, hospitals will be forced into a new kind of competition. Heretofore, the striving has been for advanced equipment, technical capability, and bed capacity. The new competitive emphasis will presumably also include striving for efficiency and economy, giving the patient and community "more for the money." At the same time, the hospitals will be pressured by incentives and penalties to join together in complementary networks instead of continuing to compete overtly as individual institutions.

3) Public Law 93-641, setting up regional planning and disbursing agencies, seems to forecast competition for limited and finite resources by hospitals and their medical staffs, in part on the basis of their relative efficiency and effectiveness. We might expect such competition to bring about optimum use of demonstrated efficiencies in the division of labor.

Growing out of a somewhat different set of circumstances, but for essentially the same reasons that applied in the universe of
patient care, notably an absence of economic incentives or the presence of disincentives for efficiency, institutions of higher education also found no reason to develop an effective matrix of regional programs which would necessarily cross institutional boundaries and require close collaboration, if not an actual consortium. Instead, the career advancement of faculty members, the prestige of the institutions, the funding mechanisms of state and federal education agencies, and the usages of accreditation all acted to reinforce one another. In this situation too, the logic of matrix structure of educational programs, mutually interdependent and not at all naturally self-sufficient, was overruled in the past generation by the same forces that stalled progress in health care teamwork. The most important of these was a massive influx of dollars after World War II.

Here again change has come, however. All across the country, state boards or state councils of higher education (so-called "super boards") brought into being by legislative bodies to control the inordinate costs of higher education, are working to restrain excessive institutional ambitions judged to be inappropriate. Through their budgeting powers, they seek to control costs by eliminating duplication, de-emphasizing institutional boundaries, and cutting back territorial claims of departments and disciplines. Directly or indirectly these efforts are promoting collaborative programs and often the formation of regional consortia.

To understand the full force of this drive to regionalize education in the health sciences we need to recognize that medical education per se is being subjected to economic and social forces acting independently to bring about regionalization. (By regionalization of medical education is meant the identifying of a given academic medical center with a region or population and linking the center to the system of medical care and personal health services for the region.) This regionalization is occurring as part of the movement to link graduate and undergraduate education under university aegis and in an attempt to hold down soaring costs of medical education to state governments, third-party payers, and the federal government through National Institutes of Health (NIH), Medicaid, and Medicare. Regionalization may also help to control patient-care costs built into educational insti-
tutions. In fact, medical education appears to be increasingly characterized by a system of accreditation, which may in effect produce a chain of regional medical educational franchises. In such franchises we may expect that the number and kinds of residents to be trained will be determined and accredited partly on the basis of population served. Somewhat later, franchising will no doubt affect undergraduate education.

Is this regionalization of higher education, particularly in the health sciences, along with franchising, actually taking place? In my judgment there is little doubt of it. Our system of education and that of patient care and health services are being brought together at a time when both are changing. These changes are taking place in consequence of the passing of the charity system of care and also of recognition that the system of personal health care, regionally, fails to sustain or renew itself without the presence of educational programs for medicine and the health sciences, by way of academic medical centers or academic medical networks.

As one consequence administration and staffing of university health science centers are changing to reflect accountability for care of patients as well as student education. For example, the Joint Commission on Accreditation of Hospitals has indicated that it is inappropriate for the governing board of a university hospital not to be representative of, or to reflect, the community of patients it serves. Hence, it is probably not appropriate that the board of regents of a university serve as the governing board of a university hospital. These trends are occasionally reinforced by community pressure or legislative mandate. Moreover the development of a formal medical staff organization responsible to the hospital board for care of patients, parallel to the faculty which is responsible to the university board for education of students, is furthered by requirements of utilization review and Professional Standards Review Organizations (PSROs).

Another consequence of regionalization is that colleges of medicine, which could still be described with reasonable accuracy as medical schools in the 1920s and 1930s, had become academic medical centers by the 1940s and 1950s. In turn, they evolved into university health science centers of the 1960s. Now these centers are required to conduct educational and patient
care programs on a regional basis. In the 1970s they have become regional academic networks. The situation is presently quite fluid from the standpoint of academic organization and administration in the health field.

It is in this context that we must view the probable effects of the pressures from the "super boards" of higher education for a regional matrix of higher education, which renders less important the boundaries of individual institutions, programs, or disciplines. It is apparent that the currents affecting these two universes—health services and higher education in the health sciences—are moving them in the same direction toward a matrix mode of functioning in which departmental, or professional, identities may have less to do with "who does what."

Further changes, subtle but substantial, can be expected when financial pressures force personal health services or higher education into more of a matrix mode of functioning. We may then expect that the staked-out boundaries of professional function, or divisions of labor, will be blurred and less determinant of who should provide what bit of the mosaic of personal health services or what piece of the education composite. Without anticipating the millennium, it seems reasonable to expect that allied health professions will one day achieve a considerable alliance in both educational and practice phases.

My own view is that today's educators in all the health professions will best serve their students by confidently preparing them to work in such a matrix, and, further, by promulgating the concept of teamwork; traditional emphasis on academic and professional identity of individual disciplines and professional schools is fast going out of style.
Health services administration is concerned with the organizational and financial requirements to provide effective personal health services: the organizational modalities in which the services are provided, the financial structures necessary to sustain them and their efficiency and effectiveness.

The provision of personal health services serves as the focal point. It refers to the ways by which health services, usually provided on a one-to-one basis, are made available to the population in a variety of organizational settings. Personal health services are effective when they are appropriate, of high quality, and accessible at the lowest possible cost.

In recent years the nation's health care concerns, as expressed in public policy and investment, have accelerated at a rate which exceeds almost every other major section of economic and social activity. A review of recent federal legislation in health care, state government policy initiatives in health care, and the many developments in the private sector substantiates this growth. As investment and concern have evolved, the profession of health services administration has simultaneously emerged to provide leadership and management of the resources which are increasingly committed to improve the health status of the population. A variety of organizations is now being managed by health services administrators. These organizations may be categorized with specific examples as follows:
Primary health care organizations. Ambulatory clinics in hospitals, group practice clinics, neighborhood health centers, community mental health centers.

Secondary health care organizations. Community hospitals, university teaching hospitals.

Extended health care organizations. Skilled nursing facilities, long-term psychiatric hospitals, chronic disease hospitals, rehabilitation institutes.

Prepayment agencies and organizations and other financial intermediaries. Voluntary health insurance plans (including Blue Cross, Blue Shield, Health Maintenance Organizations), commercial insurance plans, public programs (including Medicare, Medicaid).

Planning and regulatory agencies. Community and state health planning organizations, state health departments, federal agencies.

Health services administrators contribute a unique expertise to the personal health care delivery systems, the organization and financing of which is clearly one of the most complex networks in our society. The recognition of the importance of this management position, and the special mix of skills and knowledge involved, underlies the recent emergence of the profession of health services administration. It is a primary example of a problem-centered profession created to fill a high-priority social role, for which training solely within traditional disciplines and settings is no longer sufficient.

The environment within which the health services administrator applies management and health skills may be characterized as pluralistic and complex, with the various components and subcomponents of the personal health services systems interacting in multiple ways. Its characteristics and trends have been summarized as follows:

1) For all its size and extensive technological base, with lengthy training for health care professionals, and with substantial financial and physical resources, the national health care system remains a fragmented organizational structure, pluralistic and voluntary, with individual physicians, clinics, and hospitals serving individual consumers on a fee-for-service basis.

2) While the system will probably remain pluralistic and volun-
tary, all signs point to a growth in comprehensive local health care organizations, such as community group practice plans, to provide services to members. Such plans, which are experiencing rapid growth in enrollment, generally offer some prepayment features for office visits and hospital care. Their central characteristic is the use of physicians.

3) Local health care organizations will probably increase in size and in the number and variety of medical services offered. One major deficiency of the present system is the diversity of function and ownership: the hospital is primarily concerned with acute cases, the nursing home cares for lengthy cases, and the physician, as a private entrepreneur, supplies ambulatory and preventive care. It is anticipated that comprehensive care in the future will include more preventive care.

4) Larger and more comprehensive organizations will probably accept greater responsibility to their members and to the government. A lack of medical accountability is a second major deficiency of the present system, though one difficult to correct. But despite any difficulties that may arise in converting theoretical accountability to programmed responsibility, or in establishing standards in health care, it is expected that governmental and other public control will increase: the system will become increasingly political.

5) In response to increased governmental control, the larger and more comprehensive units will probably come to resemble the system presently typified by Kaiser-Permanente. It appears to be generally agreed that many features of the Kaiser-Permanente program, which include prepayment by members, group practice by physicians, integration of comprehensive medical services of the clinics and hospitals, and operation at multiple locations, will be representative of many health maintenance organizations (HMOs) in the future.

6) The change to larger, more comprehensive, more responsible local health care organizations probably will be slow. Despite grants from the Department of Health, Education and Welfare for the planning and development of HMOs, and despite proposals now before Congress supporting both local HMOs and some form of national health insurance, little fundamental revamping of the present health care system is expected.¹

Approximately 4 million individuals are involved in providing health services to the American public, a number rapidly expanding. Many estimates suggest that the health industry may become the nation's largest employer within a short time. Almost
$110 billion, or close to 8 percent of the gross national product, is spent for health care. Thus, in terms of people and money, the magnitude and importance of the system is readily apparent. Within this system, the significance of the health service administrators' role is also apparent, though perhaps not well understood. Recently, the Commission on Education for Health Administration, sponsored by the W. K. Kellogg Foundation, defined the health administration process: "Health administration is planning, organizing, directing, controlling, coordinating, and evaluating the resources and procedures by which needs and demands for health and medical care and a healthful environment are fulfilled, by the provision of specific services to individual clients, organizations, and communities." 2

This is a sweeping definition of the total mission of managing all health-related services. In practice, two mainstreams of education and practice are clearly discernible: a) the practice of public health administration, concerned with preventive and environmental services for the total community, and b) health services administration, or the administration of personal health services.

The commission also observed that "responsibilities and functions involved in this process vary from one health or medical care organization to another." 3 Regardless of the setting for the provision of services, the health services administrator confronts a complex set of components which make up the personal health services system and which directly affect the process of administration. These are the components:

1) Users: the total population and special population subgroups requiring personal health services.
2) Providers: physicians, nurses, dentists, and auxiliary medical personnel working within organizational settings.
3) Institutional and organizational providers: hospitals, clinics, skilled nursing facilities, and other locations where individual providers function.
4) External agencies: various financing and regulatory agencies, both public and private, which serve to bring users and providers together. 4

Regardless of organizational affiliates, the health services administrator must be knowledgeable about these components
and their constant interaction. There is wide recognition among
these organizations that professional health services administra-
tion is vital to their effectiveness in fulfilling responsibilities to
the individual and the community. The need for public health
administrators and health services administrators to be well
oriented to each other is also understood.

A recent report from the House of Representatives observed:

Studies presented to the Committee indicate that the number of
qualified public health and health administration personnel must be
significantly increased. It simply does not make sense to the Commit-
tee for the Federal government to foster programs that will require
substantial numbers of health planners, public health personnel,
environmental engineers, health maintenance organization adminis-
trators, nursing home administrators and other health management
personnel without insuring that financial resources are available to
provide for the competent training of such personnel.

The proposed Health Manpower Act of 1975 authorizes
institutional support for "graduate programs in health admin-
istration, hospital administration and health planning," recog-
nizing that such labels generally describe equivalent programs.
Although passage of this proposal is uncertain, it reaffirms public
policy in regard to recognition of the field of health services
administration.

Educational Requirements for
Health Services Administration

Educational requirements for health services administrators
must be framed by the current and projected demands on
personal health services organizations. In this context, the Com-
misson on Education for Health Administration looks to the
future:

Increased and improved organizational and administrative activity
within the health and medical care system is essential. The impor-
tance of administrative activity in all of these efforts must be ex-
plained and stressed throughout the health and medical care system
and for the larger public, and should be given direct and concerted
attention in education for health administration.
1) Strengthened state and areawide planning, regulation, and organization involving all types of health and medical care institutions, agencies and programs.

2) Increased emphasis on promotion and maintenance of health, for humanitarian, social and economic reasons.

3) Promotion of equity and quality objectives as well as efficiency in the delivery of all health and medical care services.

4) Promotion of public accountability, and of responsibility, and of responsiveness to the health and medical care needs of all members of the community by all health and medical care organizations and individuals working through them.

5) Concerted and continuing research into a variety of aspects of health and medical care planning, organization, and administration.

6) Establishment and implementation of effective social policy for health and medical care, developed from the broadest possible base of participation, and having as a long-range objective a clear statement of goals and priorities for action at national, state, and local levels.7

These broad areas of activity for health services administrators represent a considerable change from the definition of hospital administration activity in the 1950s and 1960s. In brief, "Pressures are growing for application of health administration expertise in newly-legislated agencies and programs and in established settings which are undertaking new sorts of activity. . . . Emphasis will need to be placed on preparation for those areas of activity in the health and medical care systems which need increased and improved organization and administration; on preparation for leadership; and on preparation for carrying on the process of health administration in a variety of settings."8

Relatively few administrators today have the requisite knowledge and background to meet the pressures and demands in the future. The commission has estimated that:

1) Fewer than 25 percent of the executive-level positions in health administration are currently filled by graduates of health administration programs (professional health administrators);

2) A fairly large but unknown percentage of the remainder of these positions is filled by people with other professional training (administrative health professionals) who have reached positions of
administrative responsibility by virtue of success in their various professional specialties; and

3) Distribution of professional health administrators is very uneven, with most of them found in large urban hospitals and public health agencies. The fields of nursing home administration, ambulatory care administration, and voluntary agency administration have not been directly influenced by those with professional training in health administration. But the fact that each of the institutions, agencies and programs in the system is being run by someone leads the commission to feel strongly that considerable attention must be paid to making suitable educational opportunities available to all of those already in the field, as well as to those preparing for initial entry into the field.9

One of the most significant statements on the role of the professionally educated and trained administrator and, indirectly, on the role of educators in health services administration, is presented in the Report of the Task Force on Organization of Community Health Services of the National Commission on Community Health Services, entitled “Health Administration and Organizations in the Decades Ahead.” The Task Force report concludes: “Lack of knowledge about and understanding of organization and management on the part of professional health workers, especially among those who rise to positions involving policy determination, is a major impediment to the internal effectiveness of individual health agencies and seriously limits their capacity to respond adequately and appropriately to community health needs.”10

The point was reiterated by the distinguished Princeton policy analyst Anne R. Somers, with particular emphasis upon administration in large-scale delivery organizations of the future:

The *sine qua non* of effective community health services in institutional management. Individual idealism and dedication on the part of the individual physicians, administrators, trustees, nurses, and other professionals, important as they are, are not enough in this day of specialization, massive technology, and massive costs. Neither is it enough simply to pass new laws, appropriate new money, or even establish a franchise system. None of these factors can be meaningful unless, and until, translated into organized—that is, institutionalized—patient care. This is a job for management—the management
of that institution designated to assume and to carry out responsibility for providing comprehensive care to the community.\textsuperscript{11}

The need to improve the effectiveness of personal health services organization, and the utilization of health resources through the development of education for the profession of health services administration, has repeatedly been emphasized in independent assessments. We have cited three public commission reports: those of the Commission on University Education in Hospital Administration (1954), the National Commission on Community Health Services (1967) and the Commission on Education for Health Administration (1974). In addition, several foundations have made major commitments to develop education for the field. These include the Rockefeller Foundation, the W. K. Kellogg Foundation, the Rosenwald Foundation, the Johnson Foundation, Robert Wood Johnson, and the Duke Endowment.

The knowledge and skill areas which have been identified as essential to health services administration practice, and which provide a foundation for the profession, include the epidemiology and mechanisms for organization of health and medical care as well as management processes, including organizations theory and specific administrative skills along with the behavioral sciences and their application to problems of organization and management in the delivery of human services to both individuals and communities.\textsuperscript{12}

In addition to these areas, the Commission on Education for Health Administration has also observed that, in order that the process of health administration be carried out:

1) Health administrators must acquire and demonstrate competence that ranks them as peers of the providers of direct services and enables them to be supported by others in the system, by government, and by the public;

2) Administrative concern for fiscal matters and efficient use of resources must be balanced by concern for promotion and maintenance of health, equitable access to and high quality of services, and public accountability in all aspects of administrative performance;

3) There must be impetus and strong support from policymakers and the public for achieving balance between pressures for fiscal
accountability and accountabilities for the character and quality of the services provided; and

4) Relationships between health administration and other human services administration in welfare agencies, legal agencies and primary and secondary education must be recognized and strengthened.\textsuperscript{13}

The content of education to satisfy these objectives is provided by university-based programs in health administration, rather than by traditional locations for management training and some traditional health settings. The knowledge base and skills for health administration are unique: students require access to the variety of university and community resources which may best be provided by an educational program with specific identification with health care and the value system which underlies the provision of health services.

The need for trained health services administrators with this special educational base has been documented by several sources. Anne R. Somers observed in 1972:

If you should ask me what single health occupation is in the most crucial short supply today in New Jersey, I would say unequivocally, administrative and planning personnel. I don’t mean relatively low level administrative occupations such as [are found in the] “ancillary administrative” category. I mean men and women capable of organizing and running an HMO, a neighborhood health center, a family planning clinic, an assistant administrator or personnel director at a hospital, or capable of filling any number of relatively high level administrative, planning, and fiscal jobs in the growing number of public and private agencies in the State concerned with health care.\textsuperscript{14}

A special conference on education for health services administration conducted at the University of Michigan in 1972 concluded: “The provision of health services through organized systems appears not to be seriously impeded by inadequacy of numbers of types of providers, inadequacy of facilities, or the nation’s ability to afford such services. A shortage of qualified top management could pose a serious problem, particularly in the short run. In the long run we must develop more managers. It will be to the nation’s advantage to educate them appropriately and expeditiously.”\textsuperscript{15}

A policy document on HMOs by the Institute of Medicine of
the National Academy of Sciences concluded: "The organization and management of an HMO involves many management skills that are not widely available in the health field. A capable manager must be able to deal with problems of internal management, legal difficulties, marketing problems, and actuarial and financial forecasting. The committee believes that the shortage of personnel with the managerial skills necessary to plan and develop an HMO is one of the most serious obstacles now preventing a fair market test of the HMO concept." 16

In summary, the educational requirements for health services administration have been documented by studies of the current and projected demands on personal health services organizations, and by other analyses which identify a unique and significant knowledge base which should be mastered by health services administrators. These requirements are met by the graduate programs served by the Commission on Education for Health Administration.

Educational programs for health services administration have emerged in the past five years from two principal sources: earlier graduate programs, which concentrated primarily on preparation of hospital administrators, and new university efforts. In the former, the titles have usually been changed from "Graduate Program in Hospital Administration" to "Graduate Program in Hospital and Health Services Administration"; in the latter, the title is usually "Graduate Program in Health Services Administration." The replacement of hospital administration with health services administration in the title of the graduate programs is intended to symbolize a recognition that the provision of personal health services occurs in a variety of organizational settings, all of which require professional administration. It also reflects the actual role of the programs, the graduates of which have moved into leadership positions in all these settings.

The types of organizations which have increasingly employed graduates, or have sought to employ them, include the following: acute care hospitals, extended care facilities, nursing homes, psychiatric hospitals, rehabilitation institutions, group practice plans, outpatient clinics, welfare departments, private insurance programs, Blue Cross and Blue Shield Plans, hospital facility
planning agencies, comprehensive health planning agencies, health departments, United States Public Health Service, health and hospital associations, graduate and undergraduate educational programs, and research institutes. The high demand among non-hospital-oriented organizations is evidence of recognition of the special qualifications and competence of individuals educated for administrative positions in health services organizations.

As a result of the trends cited above, major changes have been made in health administration education.

In terms of content, there has been a substantial increase in medical care organization, which is now well recognized as a distinct body of knowledge. Medical care organization includes the study of the various ways of delivering personal health services, with detailed analyses of the major components of such services and their interrelationships. It includes the art and science of quality assessment, now a fundamental contribution of the professional administrator to the delivery system.

There has also been a substantial increase in emphasis upon quantitative skills, primarily as an underpinning of quality and utilization control. Health law has been expanded because of the distinct legal and regulatory climate in which personal health services are provided. Similarly, the increasing complexity of financing health services has mandated an expansion in that area, again built around knowledge and skills which are uniquely utilized by the health services administrators.

These changes have led to a marked decrease in the number of students receiving the degree after nine months on campus and a year-long residency. The didactic period has been extended almost everywhere, with the residency reduced or eliminated. All programs require a minimum of two academic years. A few require 24 or 27 months to complete.

The health administration programs are organized in a variety of ways in heterogeneous administrative settings. Some are departments, others are programs, institutes, schools, or centers. They offer a variety of degrees. The recent report of the House noted: “Within the past several years, a considerable number of graduate programs in health and hospital administration have developed outside the more traditional settings of schools of
public health. These programs are based in a variety of settings: schools of allied health, schools of medicine, and graduate schools of business administration, management, public administration and public affairs. Many have developed as cooperative efforts between two or more schools within a university, reflecting the need to bring together disciplines such as health and management.\textsuperscript{17}

The diversity of titles, degrees, and settings is unusual. Despite pressures in an emerging profession to standardize approaches and labels, if only to reinforce identity, no setting or school within the traditional university structure may be described as, uniformly, the most appropriate base for a health administration program. The programs deal with a set of problems and draw upon a complex of disciplines which are relatively new as well as unique. Thus universities are encouraged to organize the appropriate resources around whatever setting lends itself most readily to accomplishing the objectives of the program.

While certain curriculum content is critical to the success of all programs, there are real and valid differences of opinion regarding other elements, some of which constitute core content for such degrees as the MPH, MBA, or MPA. These elements all contribute positively to the education of the administrator. Further, the result of the process is that senior health management includes qualified individuals who are the products of different kinds of degree tracks and experience while sharing common training in the topics most critical to their practice. This diversity is considered a major strength and contribution of the graduate programs. The Commission on Education for Health Administration has observed:

Education for health administration, planning, and policymaking is now being offered at several academic levels and in a variety of settings—graduate schools of public health, medicine, social work, allied health, business administration, and public administration; both public and private undergraduate colleges, and through continuing education, inservices, and other special programs.

This diversity should be encouraged to continue, to meet the diverse needs for cumulative education which arise in the many sorts of career patterns developing in health administration practice. Educa-
tional opportunities geared to future health and medical care needs must be provided for individuals now fulfilling administrative responsibilities and functions who have not had previous administrative education, for those educated in the past who now need updated knowledge, attitudes, and skills, and for those seeking preparation for entry into practice in either traditional or newly-developed organizations. 18

It is likely, therefore, that the universities will continue to offer educational preparation for health services administration in a variety of settings.

It is probable that the organization of the graduate program within universities will continue the present diversity of approach. The older programs were at first predominantly either in business schools or schools of public health. Later programs were organized in many other settings. The emphasis is now upon access to the total university, with the earlier programs becoming less dependent upon the schools in which they are based and the newer programs organized as focal points for the interest of many departments or schools.

Graduate programs are accredited by the Accrediting Commission on Graduate Education for Hospital Administration. On July 1, 1976, the organization will become the Accrediting Commission on Education for Health Services Administration, reflecting the evolution of the field described earlier. The commission was organized in 1968 and represents the American College of Hospital Administrators, Association of Mental Health Administrators, American Hospital Association, American Public Health Association, American Association for Comprehensive Health Planning, American College of Group Practice Administrators, and Association of University Programs in Health Administration.

The development of a substantial number of undergraduate programs is a recent phenomenon, although an undergraduate hospital administration program existed at Marquette University in the late 1920s. Almost forty have been launched in the last decade. There has, therefore, been a long-standing belief that a need existed for educational opportunities for other than master's candidates.
Several of the new programs owe their initiation to legislation to meet special needs. The first was the Partnership for Health Law 89-749, creating comprehensive health planning agencies. Although most of the support provided under the law went to graduate programs, two substantial undergraduate efforts (Meharry and Pennsylvania State) were started.

The second impetus in federal support was an effort to improve the educational standards of nursing home administrators, which provided state-level support for short courses and mandated state licensure. A number of institutions responded by offering short courses leading to broader degree programs at both the associate and baccalaureate levels.

The undergraduate programs continue the tradition of diversity characteristic of the graduate activities. There are diploma, associate, bachelors, and even second bachelors degree programs. The programs have a variety of administrative loci, faculty structures, student characteristics, and stated objectives. This pattern reflects both experimentation and a lack of consensus upon the needs to which the programs are addressed and how best to meet those needs. The continuing development of undergraduate programs is assured, however, and we look upon the many models as providing a broad basis for a significant contribution to the improvement of health services delivery.

One model of a diploma program is offered by New York City Community College. A twelve-course sequence (four required, eight elective) is required for the diploma but individual courses may be taken by anyone interested. The program is designed to prepare hospital employees to move into middle management. Faculty are drawn from the college and, to a significant degree, from the municipal hospital system. Students include many who have not completed high school, a number with bachelor's degrees and one with a Ph.D.

Northwood Institute (Midland, Michigan) offers an Associate Degree in Hospital Management through the school's Business Division. The program requires five academic quarters; a major written project and completion of a five-month work experience are expected of most students. The focus is on middle management positions with an emphasis upon the general hospital. A high school diploma is required for admission and the average
student age has been as high as twenty-one in some classes. The program has cooperating agreements with thirty hospitals in three states and draws heavily upon facilities nearby for faculty to teach the five required hospital management courses.

The program at Pennsylvania State University offers a bachelor's degree and is oriented to the full scope of personal and environmental health services. It is part of the College of Human Development's Division of Biological Health. There are six full-time faculty members and approximately thirty graduates a year. Degree requirements include 130 semester hours, three months of field work and an essay or research project. The program is closely related to a graduate program but both are independent administrative entities.

Oklahoma Baptist University's program in hospital administration offers a bachelor of science in hospital administration or a certificate. The program is designed for individuals holding positions of responsibility in hospitals. Instruction takes place in a hospital on Friday afternoon and evening and on Saturday morning. Applicants must possess a bachelor degree or 90 undergraduate semester hours. The program is offered in even-numbered years, and the students are usually in their mid-thirties. Eighty-five percent of the graduates receive degrees and most work within the state.

We have described a sample of the models of undergraduate programs in health administration. There are virtually no two programs alike and therefore no typical program. Furthermore, there has been no discernible convergence over time, although some consensus may be expected now that many of the programs are working together within AUPHA. The lack of consensus reflects very different perceptions of what the field needs and how those needs are best met.

Several programs were launched with the expectation that they would generate substantial governmental support. For some schools these programs are one element of an effort to open new markets or to enter the health field without an investment in laboratories or personnel qualified in medicine or other fields which are almost as expensive. The prognosis for survival of such programs is poor. There is little prospect for substantial federal support. The schools must compete with the graduate
programs for faculty while offering health school pay. Finally, these programs are not institutionalized, so that it is easy to cut them off when they fail to produce revenue or to become self-sufficient.

On the other side of the undergraduate equation are clear needs which the graduate programs have not met and will probably not address themselves to. Those undergraduate programs which focus clearly upon needs both obvious and unserved will survive if they are well integrated into the institution and realistic about finances. Several programs appear to have achieved some stability in this sense and will both survive and strongly influence future growth.

The most pressing need is for middle management in hospitals. Hospitals are the most complex element of the delivery system, the most expensive, and the repository of the greatest concentration of resources. As the graduate programs have become more oriented to leadership for the total system, an already serious lack of trained management for the hospital per se has become worse. There has been no appropriate source for department heads and functional specialists, although a single department in a large hospital may have a larger budget than most total hospitals or health centers in the country. Programs which focus upon such essentials as food service, security, personnel management, office management, and material management will find a ready market and easy placement for graduates.

The other clear need, for which there is an immediate market, is primary care facilities. These include neighborhood health centers, group practices, and clinics. The large health maintenance organizations need functional specialists at the bachelor's level, while senior management in large HMOs will require, at a minimum, a master's degree and some experience. The other units are growing in importance and their growth will depend in part upon available management. Thus a focus on the management of these organizations will ultimately improve their availability to the public.

We have attempted to define the scope of health services administration as a profession, trace its recent evolution, and describe the current pattern of education. It is an extraordi-
narily dynamic field which appears destined for substantial growth in the near future. There is growing recognition that the basic issues of health services—accessibility, cost, and quality—are increasingly management issues. The delivery system is growing more complex but is already undermanaged. Health services administration is a career which offers energetic, committed young people an opportunity to have substantial impact, to change things for the better. That will lead to substantial growth in undergraduate, graduate, and continuing education for health services administration.

Notes

2. Education for Health Services Administration, 1:15.
3. Education for Health Services Administration, 1:15.
4. Suggested by Education for Health Services Administration, 1:19.
7. Education for Health Services Administration, 1:14-15.
8. Education for Health Services Administration, 1:6.
9. Education for Health Services Administration, 1:43.
12. Education for Health Services Administration, 1:45.
13. Education for Health Services Administration, 1:14.
18. Education for Health Services Administration, 1:17.
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