Review of Allied Health Education: 5

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Review of ALLIED HEALTH EDUCATION: 5

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Health care in the United States is changing. Any observer of our health care scene cannot fail to be impressed by both the enormity and the rate of change evident throughout the entire system. The root cause of this rapid and vast metamorphosis is multifactorial, but a few of these factors are obviously of major significance.

First, the national demography is changing. Our population is aging, and with longevity comes a need for more care of a chronic nature.

Second, a technological boom has swept across our nation. Each day brings new advances and techniques in improving health care that dazzle and delight us and also have implications for change and cost.

A burgeoning interest in diet, fitness, and self-care has seemingly kindled itself among our citizenry and is burning brightly. This brings with it immense potential for preventing illness rather than curing it, as well as obvious implications for new directions in care.

But of all the factors involved in our changing scene the one that seems to have led the rest is the need to contain the costs of health care. Unfettered, these costs are predicted to reach a trillion dollars a year by the turn of the century. Health care presently consumes well over 10 percent of our Gross National Product. Those involved in paying for this find it intolerable and have begun to seek ways to control the escalation.

This has brought about a number of trials in changing methods of health care delivery as well as in reimbursement for such care. Although it is still too early to be prophetic about direction, there clearly are some signposts.

How health care will be organized and delivered in the future will have significant impact upon the institutions that prepare health care
professionals. Of special concern are the effects upon those in the allied health professions and their changing places of employment as well as their opportunities for employment in new settings.

The hazards of predicting the future in health care may rapidly date some of the essays in this volume. We believe, however, that the contributions made in presenting these thoughtful reviews now far outweigh the question of their longevity. Moreover, these are issues that require prompt consideration and solution irrespective of the disarray and uncertainty now present on the health care scene.

Mase, in his essay, deals with the problems of caring for an aging population and describes how our nation can ill afford to waste the precious commodity of human resources.

Cordes and Wright discuss the continuing problems of rural health care and remind us that this considerable minority must be served in any changing system.

Robinson discusses the significant contributions individuals can make in keeping themselves healthy and fit. Although data are still limited with respect to the impact of health promotion on morbidity and mortality, some positive evidences are beginning to appear. This movement is destined to continue and grow significantly.

Abrams and Collins provide a detailed review of the impact of prospective payment on hospitals, their populations, and services rendered. Allied health educators must recognize and adapt to these or face the peril of preparing professionals for the past rather than the future.

Additional impacts on academic institutions preparing allied health professionals are dealt with in three other essays.

Dickey reviews the active area of accreditation and its numerous problems crying out for solution. His experience and statesmanship lend much weight to his words.

Computers, of course, are the newest technology; properly employed, they will be of significant help to students and educators. Phelps discusses this area thoroughly in his essay on computer applications to the classroom.

Finally, King describes a rational method for articulating lower-division preparation with upper-division or advanced-degree programs. The approach is both feasible and equitable.

Obviously not all the issues in allied health education are ad-
dressed in this volume; however, we trust that as in the past this addition to our series will prove useful and valuable.

Joseph Hamburg
Darrel Mase
Warren Perry
PROSPECTIVE PAYMENT:
ITS IMPACT ON ACADEMIC HEALTH CENTERS
AND ALLIED HEALTH EDUCATION

Lawrence Abrams and Joseph J. Collins

Today we stand at the threshold of a new and critical era in the financing and delivery of health care in America. The foundations upon which our existing spectrum of health care delivery services have been developed are being dramatically altered and reshaped. The impact of these changes will undoubtedly be felt throughout the health care community for they will necessitate new and innovative methods of maintaining continued levels of care, developing new programs, and fostering continued growth and vitality.

Health care education, especially in the areas of allied health and other nonphysician training programs, undoubtedly will also feel the effects of these changes. Ties that have long evolved between health profession education and clinical practice, and that have been one of the educational processes' greatest strengths, may in the wake of new perceptions and priorities need to be rededicated and reaffirmed.

The thrust of today's restraints on health care costs, while not directed specifically toward education, will force hospitals and health care delivery providers to reassess their educational objectives and establish new priorities. Activities not critical or essential to the primary mission of delivering health care services will come under greater scrutiny. These must prove to contribute in a tangible and meaningful sense to the operational strengths of the provider.

Historically, national health care policy and financing have been major forces in shaping our health care system. Clearly the socioeconomic and political priorities of the 1960s and 1970s were focused on
more government involvement in the financing of medical services, medical education, and equal access to medical care.

Academic health centers (AHCs) have played a major role in this national commitment to health care by expanding and accelerating clinical and biomedical research, increasing the number of medical and allied health educational programs, increasing enrollments in existing programs, drastically improving the quality of patient care, and providing a disproportionate amount of health care for the nation’s poor. However, this national commitment to health care has placed enormous pressure on federal and state budgets during the past two decades. As health care costs increased from less than 0.5 percent of the Gross National Product in 1964 to 10 percent in 1981, Congress had a clear and certain mandate to establish cost-containing reforms.

While there has been much talk in the past decade of curtailing the rising costs of health care, no real action was taken until the U.S. Department of Health and Human Services projected that the Health Insurance Trust Fund would be depleted by the year 1990. The initial reaction of the Reagan administration was to propose ceilings on levels of hospital reimbursement. These ceilings had originally been included as part of the 1982 Tax Equity and Fiscal Responsibility Act (TEFRA). Congress went one step further, however, by requiring the executive branch to adopt a more permanent solution to the alarming state of health care cost escalation.

While reimbursement limits were discussed as a possible solution, an alternative plan suggested by Health and Human Services Secretary Richard S. Schweiker involved the prospective determination of fixed levels of payment for various illnesses. This concept, originally developed by health care economists at Yale University, had been implemented in New Jersey during the late seventies but had received mixed reviews from the health care community and people of that state.

The hospital industry, however, preferred prospective payment over reimbursement limits because the former could provide adequate funding to any hospital capable of operating efficiently and effectively. Ceilings on reimbursement limits, on the other hand, would tie the hands of health care administrators and frustrate their ability to manage their individual operations effectively. Surprisingly, the bill providing for prospective payment, adopting these bold new concepts, was passed by Congress and became law in only four months.

President Reagan signed PL 98-21, the 1983 social security amend-
PROSPECTIVE PAYMENT

ments, on April 20, 1983. Title VI of this act requires that the Medicare payment system be revised from one of retrospective determination of reasonable cost to one based on predefined prospective payment. Under the provisions of this act, health care providers are to receive payment for services based on the nature of a patient's illness rather than on the level of costs incurred or services rendered.

Final regulations establishing the specific details of the prospective payment provisions were published in the January 3, 1984, issue of the Federal Register. While these rules are currently directed only toward payment made by Medicare for hospital in-patient services, they are expected to lead off a series of changes in health care funding. These will pave the way for other new directions in the public and private financing of many health care delivery services.

Philosophically, prospective payment is a complete reversal and total repudiation of past practice. Previously hospitals treating patients covered under the Medicare program—essentially those over age sixty-five—had been paid for their services by the Social Security Administration on the basis of the per diem cost incurred in providing these services. Hospitals were virtually assured payment for all costs incurred, so long as these costs could be considered prudent and reasonable. While specific ceilings, restrictions, and limitations had been included in Medicare regulations, discretion as to the nature of expenditure and the level of care was essentially left with the physician and clinical provider. Few incentives existed to discourage the intensity of care and few restrictions applied to delineate the parameters of what would constitute reasonable cost. Hospitals thus were free to function without great concern for the recapture of costs, including educational costs, incurred in the course of operations.

In the new scenario, Medicare payment is predicated on a fixed rate based largely on the final determination of a patient's illness. Patient illnesses are categorized into twenty-three major diagnostic categories, which are further divided into 470 diagnosis-related groups (DRGs). Payment levels have been established for each of these individual DRG categories; hospital payment is predicated on this fixed predetermined level.

While this direction attempts to establish uniform patterns of payment for similar services, it is recognized that anomalies will continue to exist among individual patients and individual institutions.

To allow for extreme variations in the treatment of patients, addi-
tional payment increments are made for atypical cases in the form of what are known as clinical or cost outliers. These allowances attempt to provide a safety net for dealing with selected severe or extreme cases.

Similarly, not all health care institutions are alike, and certain costs are specific to the nature of their activities. Under the provisions of the new program, costs incurred for professional education programs owned and operated by a hospital, and allowances for the indirect costs attributable to physicians' educational programs, are to be paid as a supplement to DRG rates. Capital-related costs, which vary among institutions according to the nature, age, and technical complexity of their plants and equipment, are, for the interim, also funded as a separate payment allowance.

A payment scheme based on fixed, predetermined prices for given types (if not levels) of service forces health care providers to make decisions in the light of their financial consequences. No longer can providers make only qualitative judgments without also addressing the quantitative impact of such decisions.

While in some sense the movement to a fixed payment level brings health care services into a more marketlike and competitive setting, it must be recognized that the demand for these services is most often not discretionary. Price levels for health care services are determined primarily by the paying party. In addition, despite attempts to group illnesses and consequent treatments into neatly defined categories, the complexity, severity, and prognosis of individual cases will remain variables that can never be truly quantified.

This review examines the impact the new prospective payment system, which is based on diagnosis-related groups (DRG), might have on organized allied health units within academic health centers (AHCs). Its implications for allied health education programs also are considered.

**Academic Health Centers**

The Association of Academic Health Centers (AAHC) defines *academic health center* as an academic unit comprised of a medical school or school of osteopathy, one or more affiliated hospitals, and at least one additional health professional program. Perhaps more than any other type of health provider organization, the AHC represents a valuable national
health resource by virtue of its unique threefold mission: the provision of patient care, the education of health professionals, and the development of new technologies through clinical and biomedical research.

The growth and development of 126 academic health centers in this country and their subsequent contributions to the overall quality of the health care system were greatly influenced by four federal initiatives: the National Institutes of Health (NIH), the Health Professions Education Acts, the Veterans Administration, and entitlements under Medicare/Medicaid. The academic health centers were able to grow and flourish under these programs through research funding, educational scholarships, construction and rehabilitation financing, and reimbursements for cost of care for elderly and indigent patients.

During the past two decades, the government had been willing to commit larger portions of its resources to assure access to health care and to finance medical services. The resultant surge of demand for health care led government to encourage the training of more physicians and allied health professionals. In 1965–1966, the contribution of the federal government to the financial support of medical schools reached a peak of 54 percent of total operating revenues, and the number of enrolled medical students in the nine-year period between 1970–1979 increased 112 percent over the previous decade. When one considers the influence federal health care policy has had on the development of AHCs in the past two decades and the financial dependence it has created, it is clear that AHCs will be especially vulnerable to any restructuring of the federal funding base.

The retrospective cost-based reimbursement system, under which the Medicare program has operated, proved to be a mechanism with a built-in "inflationary spiral." It made adjustments for rising cost factors (i.e., rising number of admissions, new medical technology, expanded insurance benefit coverage, extra services, rising wages, and general inflation) resulting in health care costs that exceeded the cost of living index for every year since its enactment. While the general inflation rate for the eleven-year period 1971–1982 was 238 percent, health care costs for that same period rose approximately 387 percent. The $322 billion in health costs for 1982 exceeded defense outlays by almost $150 billion for that year.

Congress, in hopes of controlling costs and developing a more rational approach to the allocation of medical services, had introduced
a number of elements to the retroactive reimbursement system. Many of those approaches, however, were criticized as adding to the regulatory burden of the health care system and actually increasing costs.\textsuperscript{7} Approximately ten demonstration projects were funded by the federal government testing different prospective methods. The urgency created by the potential bankruptcy of the Social Security trust funds pressed Congress to implement the DRG system of prospective payment because it appeared to be the most reliable means to accomplish cost containment and possibly even cost reduction.\textsuperscript{8}

Spurred by the purported savings to both the Medicare and Medicaid programs with recent health care legislation, Congress is expected to continue its aggressive action to further reduce spending throughout the health care market. If the prospective payment system is successful in controlling costs, its adaptation to other federal health programs and private insurance health plans will be inevitable. The impact of the prospective payment system, which will provide incentives for decreased length of stay (LOS), will be reflected in patient care and in the organization and administration of health care centers.

Much of the literature regarding the Prospective Payment System (PPS)-Diagnosis Related Groups (DRG) has focused on four major aspects: the potential of PPS to contain costs; the effect various measures to contain costs and reduce LOS will have on the quality of care; the equity of the system in terms of access to health care, as well as the equitability for provider organizations; and the practicality of the system for administrators and managers, which will ultimately affect the operational development of the provider organization. These aspects of the PPS are interrelated and the status of one will affect the function of all.

A major criticism leveled at the prospective payment system is that the inherent competitive pricing that results will place inequitable economic pressures on academic health centers. This is extremely important when one considers that the overall stability of the education programs organized by an AHC is reflected in the economic vitality of its teaching hospital. Patient care revenues constitute a significant portion of the revenues needed to sustain these all-important professional programs. It is ironic that the functions that make AHCs so valuable to the health care system in the country—quality patient care, teaching and research—are what put them at a disadvantage under a price-competitive system.
In a study conducted by the Yale-New Haven Hospital in collaboration with the Commission on Hospitals and Health Care, per diem costs and expenditures per admission for various types of hospitals were compared; average total expenditures under either costing method were highest in primary teaching hospitals. In part this may be due to the fact that AHCs care for a disproportionate number of medically needy individuals who require expensive specialized care and a disproportionate number of indigent patients. Levitan reported that teaching hospitals represented only 18 percent of the nation’s hospital beds but incurred 47 percent of all deductions for charity care and 35 percent of those for bad debt.

A major criticism of DRGs is that patient categorization by such groups does not account for the seriousness of the patient’s illness. Therefore, the reimbursement for specific DRG categories does not reflect the actual cost of care for that patient. This is beneficial when expenses for care are below the reimbursement rate for a specific DRG category, but detrimental when a hospital’s legitimate expenses exceed the reimbursement rate.

In a study that controlled for severity of condition, Horn found that well-run university hospitals are not significantly more expensive than community teaching or nonteaching hospitals. If these findings are confirmed, the direct education costs for which Medicare is paying are actually the “legitimate costs” of providing care for patients who would otherwise prove cost-ineffective for other hospitals. In a system that encourages hospitals to break out various elements of care to improve cost effectiveness and efficiency, it is important that measures be taken to separate the true costs of patient care from the true costs of teaching and research. This is particularly important when consideration is given to reimbursing hospitals for teaching costs through mechanisms other than Medicare.

The PPS system also may be expected to affect the research function of teaching hospitals because of their apparent short-run cost ineffectiveness. New technologies will have to be weighed against the immediate cost effectiveness to the hospital. It is expected that new programs will be harder to add in future years after base prices have been set. However, while PPS may restrict some technological developments, it may also encourage AHCs to more reasonably implement sometimes costly and often duplicative technological innovations.

To the extent AHCs continue to carry the burden of caring for the
health care needs of the poor and those requiring specialized care, and to the extent these costs reflect the teaching function, their viability in the competitive health market is questionable. "Patient care activities are an integral part of the educational process in all fields of health profession education," suggests the AAHC.14 Any reduction in patient care revenues will have an effect on resources available for educational purposes and the distribution of financial support in allied health divisions within academic health centers. Programs and curricula will necessarily be influenced by the manner in which funding activities are decided on and carried out. A strong partnership between researchers, university administrators, and the teaching hospital administrator will be needed to solve this problem and to allocate resources for new clinical research projects.15

One strategy to increase funds for the teaching and research missions of AHCs might be to increase faculty practice plans on a fee-for-service basis. Based on reported data to the Association of American Medical Colleges, Ebert and Brown concluded, "It is very likely that income derived from the private practice of medicine by full-time clinical faculty is now the single largest source of funding for the nation's medical schools."16 This may well be the case for all future education programs in the health professions.

Economic incentives that are affecting organizational developments in other hospitals are also at work for AHCs. Innovations in administration and cooperation by staff members are critically important if AHCs are to continue the contributions they have made to the development of the health care system.

"In an optimistic view," says Lash, "the medical center might become less bureaucratic and more able to compete in new and expanding health service markets. Newly developed revenues would subsidize these centers' educational, research, and indigent care activities. Additionally, the introduction of an entrepreneurial spirit could lead to improved productivity and could enhance participation in clinical practice by faculty."17

**Integration of Education and Service**

As the federal government entered the field of health care financing for the first time in a meaningful way in the mid 1960s, the profile of the
health care delivery system had been well defined. Education was a critical part of that profile, especially in the areas of nursing and allied health. While the federal intent had not been to fund education per se, the institutionalization of health-related training in hospitals and other clinical facilities had, by tradition and evolution, been well established. Carving these aspects out of the health delivery system would have been difficult, if not impossible at that point, and also would have been seriously counterproductive since ultimately it would have impaired the ability of health care providers to operate effectively. The principle of funding educational costs as an integral element of hospital reimbursement had been expressly included in Medicare regulations governing allowable recoverable cost. While it may not have been the intention of those who designed the Medicare program to fund education, educational activities were common practice among many health care providers. As a consequence, continued educational support was essential. This interrelationship grew out of the traditions prevailing prior to the introduction of federal and state support programs.

While the changes taking place today may have a more immediate impact on the operation of clinical areas, the effect on education may be more subtle; the general health care community might not feel it until the critical needs of clinical practice are no longer being adequately met by the professional development of properly trained and qualified health care personnel.

**Prospective Payment Law**

Section 1886 of the 1982 Tax Equity and Fiscal Responsibility Act (PL 97-248), enacted and signed by the president on September 3, 1982, contained two provisions that mandate limits to Medicare reimbursement for all inpatient hospital services.

As an interim measure, TEFRA provisions (Section 1886A) required the extension of hospital routine service cost limitations (Section 223 limitations) to total operating costs for all inpatient hospital services. Previously these limits had been applicable only to general in-patient operating costs and not to the cost of ancillary services or other hospital charges. In effect, this regulation established a ceiling on the amounts to be paid by Medicare on a per admission or per discharge basis. For the first time, payment mechanisms would be predicated on the case
mix of Medicare patients treated by a hospital. The law also mandated a three-year limitation on payment for any costs which were not covered under the limits of Section 223.

Section 1886(A)(4) of the TEFRA legislation, as amended, excludes costs of direct medical education of approved educational programs from the definition of inpatient operating costs. Payment for these costs, therefore, will not be included in the DRG prospective payment but will be addressed and funded separately. As a consequence, reimbursement for direct medical education costs will continue on a reasonable cost basis in accordance with regulations previously published in Section 405.421 of the Health Insurance Manual. Approved educational activities are defined by Section 405.421 as formally organized or planned programs of study, usually engaged in by providers, in order to enhance the quality of care in an institution. Those programs may include nursing schools and allied health programs such as radiologic technology, physical therapy, etc.

Section 101(B)(3) of TEFRA required that the secretary of Health and Human Services develop, in consultation with the Senate Finance Committee and House of Representatives Ways and Means Committee, a legislative proposal for Medicare payment on a prospective basis. This in turn resulted in PL 98-21, the 1983 social security amendments, which formally provided for Medicare payment for hospital in-patient services under a prospective payment system for specific illnesses as defined by their diagnosis related group.

Medicare participating hospitals have a phase-in period in which to adjust their administrative and clinical practices to comply with the new prospective reimbursement system. As of October 1, 1984, 25 percent of all Medicare-eligible hospital discharges are reimbursed according to DRGs and will increase 25 percent per year until October 1, 1987, at which time 100 percent of Medicare discharges will be reimbursed according to DRGs.

Under the prospective payment law, it is required that costs incurred in direct health professions education generate from programs operated by the provider. This precludes payment for programs conducted jointly with local colleges and universities.

The position of the U.S. Department of Health and Human Services Health Care Financing Administration (HCFA) is that for costs to be reimbursable as direct medical education (including nursing and
allied health) costs and paid for above and beyond the amounts paid through the DRG prospective payment process, the medical education programs in question must be operated directly by the provider of medicare services. Costs incurred in clinical settings for students of another institution, such as a college or university, while recognized as being necessary and unavoidable, are nevertheless not to be construed as direct educational costs subject to separate reimbursement. The HCFA interpretation is that Congress had not intended to fund college programs when it provided for a pass through of costs for approved health profession education programs. As a consequence, the prevailing regulations under Section 405.421(D)(6) are being revised to stipulate that costs of clinical training for students enrolled in programs other than hospital-based programs are normal operating costs, and thus not eligible for additional reasonable cost reimbursement.

While this interpretation is subject to challenge in the courts, as it is in contradiction to existing practice, it is consistent with the spirit of the new approach to health care cost containment. Previously, costs incurred for joint educational activities for nursing and allied health programs had been viewed as allowable reimbursable costs. This principle has been upheld several times in litigation in federal district courts and has been put into practice in many hospitals.

Other educational costs that are recognized as normal operating costs but that nevertheless are expressly being excluded from the provisions of Section 405.421 for additional reimbursement are

1. orientation and on-the-job training costs
2. graduate or undergraduate education costs for employees
3. travel and registration costs for educational seminars and workshops
4. maintenance of a medical library
5. training of a patient or patient’s family in use of medical appliances
6. other activities that do not involve the actual operation of an approved educational program.

While the Medicare program will continue to fund direct costs of health profession education that are incurred in hospital-based programs on a cost reimbursement basis, the new laws have taken a more oblique approach to the funding of indirect costs.

Payment allowances for indirect costs will continue above and
beyond the level of prospective payment based on patient DRGs, but only for costs attributable to approved graduate medical education programs. In effect, no direct or specific allowance will be awarded for the indirect costs of undergraduate education or training programs. Overhead costs, assumed to be attributable to these areas, are intended to be imputed in the general payment levels provided under DRG allowances.

Unlike former practice, which allowed reimbursement of indirect medical education costs on the basis of an actual determination of true costs incurred, the future levels of reimbursement for indirect costs will be based on a formula defined by regulation.

Academic health centers need to organize and become active in articulating the unique role they play in our health care system. They must demonstrate the need for support for the special medical care they provide to the disproportionate numbers of poor and medically needy they serve. One aspect of teaching hospitals that could reduce their chances for a healthy future is that they seem to lack the broad political base deemed necessary at the local level. According to Carl J. Schramm of Johns Hopkins Center Hospital, it is such a political base that gives the greater advantage to community and nonprofit hospitals. This need not be the case, he says: “The medical elite who worry over the fate of the teaching hospitals may, in fact, constitute a political liability.”

Through more political awareness and activity on the part of AHCs in bringing pressure to bear on federal and state policy decisions concerning health issues, the system of prospective payment can be modified to the mutual benefit of the health care system.

While the size of teaching hospitals may be seen as a disadvantage because of their relatively inflexible organizational structure, such size may actually be an advantage. Although teaching hospitals are traditionally more expensive operations, the incentives for cost containment and efficiency created by PPS may encourage academic health centers to use their broad scope to achieve significant economies of scale.

The full ramifications of prospective payment on health care providers are still unknown. The literature is scant with respect to the impact on any given allied health profession. Yet the predictions and speculations that this new reimbursement system will have in general, as well as the changes that already have occurred, allow one to draw conclusions as to the manner in which allied health professions will be affected.
For the first time in the history of western medicine, medical and clinical decisions and interventions will directly affect and be responsible for the financial solvency of the hospital. These financial considerations will force the health care professional to assess his or her contribution to the clinical care of the patient. The hospital no longer will be operating under reimbursement incentives that financially reward unnecessary treatments or tests, excessively long lengths of stay, and avoidable complications.

These fundamental and revolutionary developments in the health care industry encourage the provider to extend care that is more efficient. Health professions that are traditionally thought of as service-oriented are now forced to jump into the competitive world. A new breed of health care professionals, who can provide quality care, faster turnaround time, and lower prices, will be needed to compete in the marketplace. It is an exciting and challenging time in which each allied health profession has the opportunity to define its nature and scope, to demonstrate its productivity, and to ensure its place in the health care delivery team.

The new prospective payment system provides the challenge to introduce innovative and creative approaches to patient care, to enhance professionalism, and to foster autonomy. Although problems in the system are apparent, many professionals welcome the changes. Traditionally task-oriented health care professionals are attempting to optimize the impact of the new regulations with respect to their effect on the patient, the system and the health care professions.

Although the new reimbursement structure is presently limited to payment for Medicare in-patient care, the extent of these regulations will probably expand substantially in the future. Already plans are being made to bring out-patient services, rehabilitation hospitals, home health care, and other present exemptions into the system. As the impact of prospective payment is being evaluated, other third-party payers are developing similar reimbursement plans; an all-payers system may soon be a very real possibility. Blue Cross and Blue Shield of Pennsylvania have already installed a prospective payment system which demands a preadmission certification for all elective hospital admissions.
Allied Health Planning Considerations

Allied health professions would be ill-advised to confine their planning to the Medicare in-patient. It is necessary to look beyond the short run and begin to envision a total restructuring of each profession’s role in the health care delivery system. With careful planning it will be possible to survive prospective payment, and to achieve progress under this reimbursement system. What are the new implications, incentives, and constraints in the new system? What new repertoire of strategies can each allied health group acquire to optimize its place in health care, and how will these new roles ultimately affect allied health education, research, and technology?

Many of the implications, strategies, and impacts are common to the allied health professions. It might be advantageous, then, to speak in general terms germane to allied health groups as a whole, while noting special considerations, exceptions, and examples.

Each profession will find it necessary first to identify those factors that reduce productivity and then, as a cooperative effort, find effective solutions. In a recent quality assurance seminar, occupational therapists identified common productivity limitations, most of which are not unique to occupational therapy. Problems include scheduling, documentation, patient transportation and clerical duties, and reduction of interruptions.

Hospitals are under a great deal of pressure to decrease in-patient $LOS$. Reduced length of stay will provide for reductions in incremental costs and allow for a greater number of admissions to awaiting patients. This results in a broader distribution of those fixed costs indigenous to the operation of the facility that are not incremental to the volume of patient care.

The entire allied health staff can play a potentially valuable role in minimizing patient $LOS$ by multidisciplinary cooperation. Timeliness and coordination of various department activities is critical.

Clinical laboratory testing and radiologic procedures, when done quickly and efficiently, accelerate the determination of the patient’s diagnosis and treatment. A patient who waits over the weekend for diagnostic testing because the radiology department is closed consumes valuable resources. Some laboratory work, such as microbiology testing, has severe time limitations. Physicians may order such testing
in order to provide adequate documentation. Sometimes laboratory work is requested before clinical requirements are compiled; yet the testing procedures are costly. Delays, or the ignorance of a patient’s work-up, could be construed as inadequate care or administrative mismanagement.

In order to minimize LOS it is necessary to begin treatment as soon as possible. For ancillary services that presently are legally dependent on a physician referral, e.g., occupational and physical therapy, this means obtaining an early referral from the physician. Respiratory therapy also is finding itself without the traditional standing order. Records can be checked to ascertain which physicians are not referring to the appropriate health care professionals. Some hospitals have opted for a carte blanche referral system for social workers in order to expedite discharge planning. In a selected case, moving from a closed referral system to an open one increased social work 18 percent. Physical therapists who are striving to obtain evaluation without physician referral, as well as occupational therapists who are striving to obtain Medicare reimbursement independent of the need to offer occupational therapy only when physical or speech therapy has also been prescribed, may find prospective payment affecting their movements.

Length of stay is highly dependent on good, multifaceted discharge planning. Optimally, a multidisciplinary team begins to plan for discharge from the time of admission. With computer assistance, a continuum of communication can be achieved throughout the patient’s hospitalization. There is some question as to which health care professional should be the primary discharge coordinator. Lines of responsibility need to be clearly delineated to ensure there is a minimum of overlapping or missing services. A survey of twenty New Jersey hospitals showed that 25 percent had increased social workers, clerical help, or discharge planners in order to help in discharge planning. Often this responsibility falls to the nursing staff, which may already be overworked or understaffed.

Relationships must be established between the hospital and the community to ensure that the transition of discharge is smooth. In some cases community resources must be developed. It is imperative that the patient have a suitable and visible place to go upon discharge or LOS will be affected adversely. Knowledge of community resources and alternative health service facilities is critical for development of
referral arrangements. Hospitals may contract with nursing homes to guarantee availability of beds or may undergo corporate reorganization in order to acquire and manage nursing homes, short-stay units, or medically related lodging facilities. It is speculated that by 1990, 90 percent of hospitals will have auxiliary services and professional activities encompassed within their corporate structure. Vertical integration in health care services will be an accepted and widely prevailing phenomenon.

Extended care facilities that aid in early discharge will find themselves dealing with more acutely sick clients than in the past. Particularly nurses, but also other health professionals, may find it necessary to provide in-service training for their community counterparts with respect to the care of the less stable client. Patients may be discharged to their homes or to extended care facilities on respirators, pump tube feedings, dialysis and other twenty-four-hour care needs. Respiratory therapy performed in the home is presently not reimbursed by third-party payers. The push to discharge early may encourage a change in such a reimbursement policy.

Hospital-based professionals may find themselves directly extending care within the hospital's newly acquired alternative treatment centers. Both for the community and the hospital-based professional, the scope and nature of care will be enlarged. This may demand that some professionals update and broaden their skills.

Lengths of stay can also be lengthened by unnecessary iatrogenic complications. Now not only quality of care but financial incentives as well prompt each allied health professional to more closely monitor and avoid complicating the patient's status. Administration will certainly look unfavorably at a patient's slipping and breaking a hip while in physical therapy or X-ray, developing a postoperative wound infection, receiving the wrong medications or ventilator inhalant, or being treated incorrectly due to inaccurate or confused laboratory data. Departments may even be charged directly or in other ways punished for profligate, inefficient, or unsafe performance.

As there will be reliance on costly routine laboratory testing and radiologic procedures to determine a patient's status, those professionals that come into direct contact with the patient must become more sophisticated in their ability to evaluate and assess the patient's illness. Subtle signs and symptoms of dysfunction and deficits, when spotted,
can assist in determining appropriate interventions and preventing or minimizing complications. Formal education and continuing education must address the need to evaluate and assess the patient efficiently and effectively. Evaluation is a tool that cannot reflect anything but excellence.

Evaluations must also be specific in identifying deficits that keep the patient hospitalized and others that can be addressed after discharge. A profession should focus its resources on those DRGs on which it can best alter LOS; treatment should be prioritized and deemphasized for those DRGs for which a measurable impact is questionable. In order to decrease LOS, nursing and respiratory therapy will attempt to stabilize the patient; physical and occupational therapies will attempt to increase the functional status of the patient; audiology and speech pathology may have less of an impact.

Each allied health profession, by careful data collection, should be in a position to make sound judgments as to the role it can and should play for any given patient or DRG. Ancillary services such as clinical laboratory, radiology, occupational therapy, physical therapy, respiratory therapy, and speech pathology no longer will generate revenue from Medicare apart from the DRG payment. The physician will need to be advised when he overutilizes ancillary services inappropriately or underutilizes ancillary services when they are appropriate and could decrease LOS.

Hospitals can only make valid decisions based on valid information; hospitals can only make timely decisions based on quickly available information. This need for immediate and reliable data has led to increased computerization within the hospital setting. Hospital computer programs must be modified to collect cost data per DRG, to identify areas of cost overruns, and to identify utilization patterns. Data from services provided by ancillary personnel must be integrated into this management system. It is crucial that each allied health profession determine and ensure that all costs are well defined. A cost accounting system which identifies the various elements of cost is essential for comparing the effectiveness of DRG reimbursement. If a service cannot demonstrate that it is cost effective, it can expect to be eliminated or greatly reduced.

Probably the greatest example of unknown costs are those of nursing. Traditionally nursing costs have been included in the very high per
diem professional service rate that comprises 35-50 percent of hospital charges. This anonymity of nursing has retarded the growth of nursing as a profession and as a revenue center by viewing nursing salaries as a costly expenditure and encouraging nursing to perform non-nursing tasks and duties. Research indicates that 38 percent of the resources allocated to hospital nursing departments were involved in non-nursing activities. As cost accounting is improved, nurse staffing patterns can be based on acuity of care with a mix of nursing staff that substitutes less expensive, less skilled labor for more expensive, more skilled labor. It will be possible as well to identify those DRGs that utilize more nursing resources. This is superior to the traditional professional service charge that bears little relationship to consumption of nursing resources.

Nursing has begun already to develop and improve patient classifications. Although these classifications were originally used to determine staffing patterns, they have assisted in determining the relative intensity measures (RIMs), or the minutes of nursing care, administered to a given DRG. This standard cost method gives nursing a handle on the actual cost of providing nursing care. It establishes a more equitable charge for services since the intensity of nursing care varies by the acuity of a given DRG; however, it neglects to consider planning or evaluation time. Already, research has shown that Medicare patients require 10 percent more nursing resources per day and 40 percent more nursing resources per hospitalization than other patients. Such information is crucial in planning and DRG rate setting.

The actual cost of nursing is an area in need of further research and clarification. As nursing costs are tracked and nursing has the opportunity to increase its accountability, the profession should experience more autonomy, control, and power. Nursing will be able to expand its professional identity and demonstrate its contribution to the patient’s well-being.

Other allied health professions also suffer from this nonspecific billing policy. Occupational, physical, and speech therapies may be cost coded as “rehabilitation.” Occupational therapy in some instances may even be billed as “physical therapy.” Until each department can document its contribution to patient care by being reimbursed directly, its identity is jeopardized.

Each allied health profession should request that its budget be
identified as a separate service in the cost accounting system. Each department must take responsibility for its own documentation and should ensure that the documentation is compatible with computer systems and that all ancillary services are differentiated.

Only when cost accounting systems are accurate and specific can determinations be made whether variances are attributed to low productivity, high utilization, unrealistic DRG rate setting, etc. Attention then can be focused on the source of the problem. Productive departments can be recognized and nonproductive areas can be modified.

Hospitals increasingly will be encouraging their staff to increase productivity. Employees must be brought into the planning and decision-making arena. Staff nurses, when placed on purchasing committees, were found to be more cost conscious than nursing supervisors. In-service staff education is the first step in team building; health professionals must understand the broader scope of prospective payment before they can determine the manner in which they can cut costs and increase productivity. Administration can do its part by providing diagnostic profiles, LOS norms, treatment schedules, and feedback on utilization in order for providers of services to recognize areas in which improvements can be made. Participatory management invites and challenges employees to generate cost-reducing suggestions. In turn, department heads can use these same strategies with their staffs to maximize individual department cost-savings by identifying methods unique to the department.

Productivity is also contingent on effective technology and treatment approaches. Allied health professions must identify efficient treatment procedures, test procedures, and devices that have the potential to reduce LOS. Costly laboratory reagents and assays are being closely and critically monitored. Any expenditure, test, or program that cannot fully recover its cost through DRG reimbursement schedules may be phased out or discontinued. The burden of such justification may fall into the realm of the allied health researcher.

Laboratory screening has been identified as a major factor in health care costs. It is felt screening may not be justified and may not give sufficient medical information for the dollar. Laboratory screening involves administering a battery of biochemical tests on blood and urine for identification of occult disease. This high-volume, “low cost” screening accounts for approximately 20 percent of the estimated $27
billion laboratory expenses that were projected to be paid in 1982.\textsuperscript{35} Screening for these low-prevalence disease entities usually yields few clinically positive cases.

As research funds dry up there may be a moratorium on new technology and treatment procedures. Any new technology, be it laboratory instrumentation, exotic diagnostic testing, or advanced clinical procedures, will need to soundly justify whether it affects one DRG, several, or all of them; other questions will be: what is the cost-saving or cost add-on; how does it affect staffing patterns; and what is its affect on LOS?

The Health Industry Manufacturers Association is closely looking at these implications in the development of new technologies. Manufacturers and developers of health care equipment are hesitant to invest capital and research monies into technology that may not be recognized by ProPac (the Prospective Payment Assessment Commission) as contributing to an increase in a given DRG rate setting. What further puts the lid on technologic development is the fact that ProPac can retroactively change its support of DRG rate increases as late as 1986.\textsuperscript{36} Yet is is too early to make any solid predictions as to the manner in which industry will guarantee its piece of the budgetary pie in this time of forced cost containment in the health industry.

Technological advances have a paramount influence on the role of clinical laboratory personnel. More sophisticated technology and highly automated assays have increased production but have also decreased the need for highly trained medical technologists to perform as bench workers. Less-trained personnel, i.e., the medical laboratory technician, have been substituted to perform most day-to-day testing.\textsuperscript{37} Low-volume, labor-intensive tests will be little tolerated on an in-house basis. However, hospitals must weigh the capital investment necessary to purchase high-volume, quick-turnaround, low labor-intensive technologies, particularly if it may not be a pass-through item, with the savings in labor and LOS.

Other technological advances include new kits and small instruments and analyzers designed for testing in the physician's office. As well, there is a proliferation of home testing and monitoring devices such as blood glucose monitors and pregnancy test kits. Frost and Sullivan predict a doubling of the home market by 1985 to $9 billion and by 1990 to $16 billion as people attempt to bypass the physician
and laboratory. These technological advances will further decrease the need for clinical laboratory staff. Highly trained laboratory professionals may need to look to managerial positions. Such positions may be available, especially as expertise is needed to manage hospital laboratory resources in this highly competitive market.

A change or new mix of staffing personnel can be a cost savings for other departments as well. Small hospitals may find that they need professionals trained as generalists to treat a variety of different DRG categories; large hospitals may find that they need more highly trained specialists to treat those DRG categories for which the hospital offers specialized services. It may be wise as well to utilize in part certified occupational therapy assistants, physical therapy assistants, and licensed practical nurses, instead of their more highly trained, and thus more costly, counterparts. Aides and volunteers can also relieve the health care professionals from routine duties. Quality assurance and good supervision, however, cannot be jeopardized by such a personnel mix.

Educational programs will need to better train allied health professionals as supervisors and managers. As well, education may recognize the need to initiate or increase programs that train assistants, technicians, or associate-degree personnel.

Not only multiple level curricula but also curricula that provide a combined degree option may better prepare the student for the job market. A health professional with a combined degree in medical technology and cytotechnology or in physical therapy or occupational therapy could fill a broader role and therefore use fewer resources. These multidiscipline technologists and therapists would be particularly helpful in a small or rural hospital that cannot justify a large staff and has limited need for any given health care professional.

Productivity may be increased by considering other staffing patterns, such as flex scheduling. Part-time personnel working at peak hours can often treat more patients per work hour than full-time personnel. Such an arrangement may appeal to health care professionals, many of whom are young, married women with family responsibilities.

Productivity also can be enhanced by extending, or in some cases reducing, hours. Traditionally, such therapies as physical, occupational, and speech have provided services on a Monday through Friday,
8:00 A.M. to 5:00 P.M. basis. In the effort to reduce LOS, these services may in the future be provided in the evenings and over the weekend. Other services such as medical technology have been provided around the clock to meet the stat need. Hospitals are considering such coverage financially disadvantageous; staff who wait for the emergency case to present itself are using precious resources. Laboratory activities may be drastically curtailed.\textsuperscript{41} Other solutions are to increase ambulatory testing which is not subject to PPS, to develop contractual arrangements with reference labs, or to centralize and share testing procedures by coordinating with nearby hospitals.\textsuperscript{42} The net effect may not be necessarily a large reduction in the number of tests performed, but rather a reduction in hospital clinical laboratory staff as the tests are performed in a more time-effective manner.\textsuperscript{43} Already reference labs anticipate 10-25 percent more volume as a direct result of prospective payment.\textsuperscript{44} Clinical laboratory personnel are finding job opportunities in these and other outside labs.

Of concern to hospitals is the fact that some of these outside labs are formed and owned by physicians, i.e., limited partnership laboratories. The physician partners generate a large volume of testing, which they refer back into their own laboratory. Fantastic profits are made and other laboratories, including the hospital laboratory, are destroyed. In 1982 there were 1,978 such laboratories in operation.\textsuperscript{45}

In order to reduce costs, hospitals may be looking now to nonphysician laboratory practitioners to serve as clinical laboratory directors. Under retroactive pricing, pathologists were in a sense permitted concessionary rights to the hospital labs from which they received an income from every patient for every test performed.\textsuperscript{46} With prospective payment, Medicare will no longer pay for professional services that did not require a physician to render them under Part B coverage. Instead these services are paid to the hospital as part of the DRG setting. This has multiple outcomes for the clinical laboratory professionals. In the positive vein, medical technicians now have more autonomy and a greater opportunity to direct their labs; without the pathologist, however, fewer referrals for testing will be generated and staff needs will be decreased.

Policy-making and on-going operational decisions will be made less and less by departments and more by hospital financial officers. Allied health care professionals must not only continue to do a good job but
they must demonstrate and prove their worth by proactive strategies. One such strategy is to increase the visibility of the department. This can be done by a variety of ways. Decentralizing the treatment area is an effective way not only to improve productivity by minimizing transportation and space restrictions but also to assure greater visibility of one’s activities on a hospitalwide basis. Financial officers and referring physicians also can be invited to observe treatment and attend departmental meetings. New programs and cost-saving strategies developed by the department can be announced in hospital newsletters or reports.

Of primary importance is to secure a place for the DRG head on hospitalwide committees that determine financial support. Allied health professionals must learn the language and intent of administration; they must be good at problem-solving; and they must become more vocal and active in convincing policymakers of their financial worth. Research and in-house efficiency studies must give them the tools to document and substantiate their contributions to improved patient functioning and cost containment; and education must give them the administrative and communicative skills to voice their worth.

At least while prospective payment is limited to in-patient services, hospitals will strive to capture the out-patient market. Departments may be asked to develop or expand ambulatory services or staff hospital-owned home agencies. There may be some question of turf as case managers decide which allied health groups should expand in order to best service the out-patient population. Overlapping and duplication of services can be costly. Allied health professionals should be prepared to document and demonstrate the manner in which they can provide continuity of care from the in-patient to the out-patient environment. Some allied health professionals—e.g., licensed nurse practitioners, physical therapists, occupational therapists, and speech pathologists—may find this expanded realm of the hospital into the community an encroachment into their private practice and private contractual opportunities. Allied health professionals in the private sector can minimize these affects by consulting with hospitals early and offering to serve the discharged population by means of contractual arrangements before the hospital becomes established in these new markets.

It is crucial that each allied health profession define the market and establish itself in the marketplace. Particularly now, physicians are increasingly looking to new sources of revenue as their numbers in-
crease. Physicians may feel threatened by the licensed nurse practitioner who provides some of the same ambulatory care; or physicians may attempt to profit from other services, such as physical therapy, by owning such practices. More than ever, allied health professionals must work to assure that legislation reflects and protects their private practitioners and that the autonomy for which they are educationally prepared is guaranteed. The upheaval of prospective payment and the need to contain costs can be the impetus to accomplish some of these long-awaited and long-worked-for goals.

Educational curricula need to better address the realities of the health care delivery system and the manner in which government policy affects the scope and nature of practice. Students need to learn the skills necessary to act as change agents in the political, social, and legislative arenas.

By careful needs assessment studies, new markets for allied health professionals can be identified. An innovative concept is that of preferred provider organizations (PPOs). For a guaranteed volume of patients, PPOs provide service at a financial discount. Those buying such service may be hospitals, industry, or third-party payers. Although primarily developed by and for physicians to provide them with patients in areas of low physician-patient ratios, such a structure could prove desirable to allied health professionals as well. It would be wise for such professionals to introduce their services to existing PPOs or to develop their own organizations.

A market for PPOs, contractual services, or hospital-based professionals may be prevention or wellness programs. Health care is increasingly moving from a hospital and illness model to a community and wellness model. Industry and third-party payers are recognizing that it costs less to keep their employees and subscribers well than to rehabilitate them. Allied health care professionals can offer needed and sought-after fitness programs based on a holistic approach.

Hospitals can capitalize on this philosophy in a variety of ways. Self-care units in which the patient and/or family perform many of the services normally provided by nursing have, in one instance, decreased costs 30 percent. Shared care units have been suggested by Lewis D. Bluemle, Jr., president of Thomas Jefferson University, in which patients in multibed wards perform food service and housekeeping for those patients who cannot function in this capacity. Self-care cannot
only contain costs by reducing staffing needs but can hasten discharge by preparing the patient for the independent home environment.

Health care professionals must stress to administrations the soundness of patient education, psychological support, and counseling. Patients must be encouraged and supported in their attempt to take self-responsibility and make their own decisions. The educational curriculum can support this philosophy by teaching its students to relinquish control and by giving them skills as patient educators and counselors.

The question of ethics and access must be confronted by allied health professionals. Some hospitals will attempt to minimize the number of DRGs admitted that are considered losers, i.e., “skimming”; other attempts will be made to require subsidization from patients not under the prospective payment system, i.e., “cost-shifting”; and still other attempts will be made to inflate patients to DRG classifications that have higher rate settings, i.e., “creeping.” Such policies may be in conflict with the ethics of health care professionals. As one nurse concluded, “Health care professionals who put the institution’s financial interest above the best interests of the patient have sold their ethics to the highest DRG.”

Probably the groups most directly affected by the policies of skimming, cost-shifting, and creeping are the emergency medical technicians and medical record personnel. Emergency technicians may find hospital doors closed to certain types of patients. The question of access may be one with which the technician must deal on an emergency life-and-death basis. They may also face the challenge created by premature discharge policies that demand that less than stable patients be transferred to skilled nursing home facilities.

Medical record personnel, i.e., registered record administrators and accredited record technicians, will face the awesome responsibility of integrating the medical and financial records. Along with the enhanced stature and salary that may accompany this role will come the ethical responsibility of maintaining accurate data, monitoring utilization, and suggesting acceptable ways to increase productivity. Manipulating data for reimbursement purposes will be a real temptation.

Education for medical record personnel must better prepare them to move into the role of DRG coordinator. In order to implement DRGs, such a coordinator needs a background in finance, medical records, patient accounts, data processing, utilization review, quality assurance,
public relations, admitting, nursing, ancillary services, social services, and medical services. If medical records personnel do not meet this expanded role, educational programs already existing in hospital administration may more appropriately train the future DRG coordinators.

**Impact on Education**

How will these changes in financing affect education? Today the majority of health profession education takes place in college-based programs. Other avenues of training are hospitals, military programs, and vocational or technical schools. While the college classroom plays a vital part in the educational training of allied health personnel, the availability of suitable clinical facilities and practice opportunities is essential to the educational process. Hospitals, meanwhile, are dependent on college-based programs to recruit, retain, and properly prepare a continued stream of highly trained personnel to staff their facilities and maintain their operations. This role of health care providers in education is widely recognized.

The educational elements in the health care process have evolved as an arm of the health care delivery system and will not be immune to the impact of today's new direction. Where clinical practice ends and education begins is often not easy to distinguish. With heavy emphasis on the actualization of theory, practice and education are not only complementary, they are often synonymous. This sets health professions education apart from most other educational models and demands an entirely unique perspective in dealing with many of the broader issues of both administrative control, cost allocation, and underlying funding.

The integration of education into health care settings, which has evolved over decades, will continue. While cost reimbursement may have helped to support education in health care settings, many health care providers may have become heavily dependent upon services provided by their students. Costs of education have become indistinguishable in many ways from the costs of providing health delivery services.

Current plans under the Prospective Payment System call for a continuation of the reimbursement of the direct costs of health profes-
sion education with the indirect costs being included in the costs incorporated into the DRG funding rate. Providers will continue to receive reimbursement for those costs reflected as direct educational costs. While funds will be paid in the DRG rate for indirect costs, no direct dollar for dollar recapture will be awarded for educational costs included in general operating overhead other than that provided for physician intern and resident training.

Clinical research is another area that may experience cutbacks unless it leads directly to increased productivity and/or reduced LOS. Research conducted by allied health professionals at educational institutions will attempt to support the clinical stability of their respective professions by addressing those DRGs on which an impact can be made and documented.

Educational curricula in general must attempt to produce health care professionals who possess improved (1) assessment and evaluative skills, (2) knowledge base (broader or more specialized depending on need and profession), (3) managerial and supervisory capabilities, (4) marketing and public relations know how, (5) awareness of political and legislative ramifications, (6) business and financial sense, (7) computer literacy and skills, (8) creativity and problem-solving abilities, (9) leadership and ability to motivate, (10) counseling and educational abilities, (11) expertise in stress management, and (12) a sense of ethics and professionalism. The prospective payment system has indeed created a need for a new breed of allied health professionals.

In summary, each allied health profession must adopt proactive strategies to define the nature and scope of its practice; to establish its financial worth and uniqueness as a health care provider; and to guarantee quality assurance through novel approaches. For those who acknowledge that it is worth the effort, who are willing to make it work and who are prepared, success in implementing prospective pricing will be realized. Clinicians and administrators will meet this common task through cooperation, mutual respect, and understanding. The health care delivery system, the hospital, and individual professions all will benefit. Proactive strategies and long-run adaptations to change are far superior to reactive responses to symptomatic problems. The nature of health care delivery as it has been known is completely altered. One can passively be tossed in the storm of change or one can assume, as Machiavelli noted, that “there is nothing more difficult to
take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things.” Yet lead one must, or be lost by indecisiveness.

This brings a serious dilemma to those associated with operating and financing health care facilities and health education programs. Incentives and priorities will dictate much of the rational decision-making process in future planning and operating considerations. No longer will all the direct and indirect costs of allied health education be funded in full as they have in the past. Providers will be faced with difficult questions as they are forced to pick and choose among varying choices. They must look not just at the obvious but at the many subtle, intangible aspects of operating activities and educational programs. Does maintenance of these aspects significantly impinge on efficient and orderly operation? Is the time involved in training significantly compensated for by assistance provided by students or other benefits warranting such expenditures? Do the clinical aspects of the provider depend on the continued training and recruitment of allied health personnel?

**Conclusion**

What is now clear is that the funding practices of the past are being swept aside in favor of new philosophies and new attitudes. In the future there will be no direct dollar for dollar recapture of costs associated with health professions education, especially undergraduate medical education.

For allied health programs that have been dependent on hospital support, these new directions are onerous. Many that have relied heavily on hospital assistance will need to look in new directions to provide for that element of support being lost to new Medicare funding mechanisms.

Hospitals will continue to receive payment irrespective of cost. Ostensibly, this payment is intended to be sufficient to provide for ongoing operations. No doubt some institutions will fare better than others and many will profit from having payment generated unrelated to cost. Just as certainly, however, some health care providers will, for any number of reasons, find that they can no longer continue to support their activities with the new or diminished levels of payment. How they
direct their resources will be an internal matter governed by their individual priorities, their available funds, and their perceived necessities.

In evaluating the impact these philosophies will have, we must be candid and pragmatic. Change is here to stay; it is not just a bureaucratic adjustment in old rules; it represents a whole new perspective; it will not go away. New imperatives and new directions will be needed to adjust to these changes. Past concepts of operation may need to be abandoned. Institutions will require new thinking, strategic planning, and reappraisal of current postures. Personnel may have to undergo behavior modification as traditional assumptions and perceptions of assumed values and methods of operation evolve in a more cost-conscious and pragmatic environment. Management will need to be more participative and greater input and responsibility will need to come from staff personnel. Finally, there will be greater need for information at all levels. Cost information, until now the private domain of management and supervisors, will need to be available and disseminated to all of those whose actions will ultimately have an impact on the final success or failure of an operation.

New legislation may be required to fill the void left in the wake of both TEFRA and Prospective Payment. New modes of operation may be needed in allied health education to spread the supply of available tuition dollars over a wider base. Student-faculty ratios, traditionally low in relation to other educational programs, may need to be reexamined and redefined. Nonessential expenditures will need to be reevaluated.

On the revenue side, students ultimately will need to share in the responsibility for educational costs at a more equitable level. Where situations may have developed that have shifted much of the cost impact to the provider and ultimately to third-party payers such as Medicare, tuition levels may have to be raised to more properly reflect the cost of providing these services.

Prospective payment based on diagnosis-related groups is a dramatic departure from all that we have known during the past eighteen years. Their essence, much like retrospective cost reimbursement, is simple. They define a flat rate or value for treatment for any one of a number of illnesses. How that value is computed is fairly complex, and specific provisions have been incorporated for atypical situations, but
for the most part the payment level determined will be fixed and finite. If a hospital is to remain viable and stable, it must be able to operate within that price more times than not. There will be no incentive to increase freely the volume of service or to extend a patient's length of stay. All incentives in place will be directed at treating the patient as efficiently, as effectively, and as quickly as possible and discharging him so that other patients may be treated with the common resources available to the provider. The great struggle will not be with the quality of care; rather it will be with the balance between cost and quantity of care.

The past twenty years have seen unprecedented growth in all areas of health professions and health service distribution. The changes being felt today will not reclaim that growth, although they may serve to slow its pace. The need and the demand for health care services and allied health education will continue to grow as a reflection of the needs of our society. How that growth will occur, how successful we will be in meeting these demands, and how our educational community will react to these new challenges will depend on how vigorous and innovative the response will be from the health care community.

Glossary

All-Payers System: A prospective payment system used by all third-party payers. Such a system is intended to reduce the likelihood of cost-shifting.

Capital-Related Costs: Presently these costs are pass-through items and include depreciation expenses, taxes, leases and rentals, the cost of betterments and improvements, costs of minor equipment, insurance expense on depreciable assets, interest expense, the capital-related costs of related organizations, and a return on equity for investor-owned providers.

Case Mix: A way of defining a hospital's "product" or output by identifying clinically homogeneous groups of patients that utilize similar "bundles" of treatments, tests, and services. Case-mix is a methodology that is administratively useful for partitioning patient services and determining resource consumption and allocation.

Coefficient of Variation: A method of providing appropriate reimbursement to institutions with regard to DRGs that are not statistically stable. The coefficient of variation is an indicator of the variability of patient care costs for a given DRG around the standard value, the mean for all patients in the DRG.

Cost Center: A unit within an organization for which an account has been established to accumulate cost information.

Cost-Shifting: Presently PPS legislation affects only Medicare patients. The allocation of costs incurred to patients covered by other insurance plans results in cost-shifting.
DRG (Diagnosis Related Groups): A classification system based on 467 clinically coherent and homogeneous groups with respect to resource use. Each DRG has been assigned an appropriate weighting factor that reflects the estimated relative cost of hospital resources used. A DRG payment rate also depends on the hospital’s location, i.e., in which of the nation’s nine census divisions it is located and whether it is an urban or rural hospital.

DRG Creep: The assignment of a higher-paying DRG category to a final discharge diagnosis.

Direct Medical Education Expenses: Direct costs of approved educational programs operated directly by a hospital are pass-through items and will be paid on the basis of reasonable cost.

Discharge: The formal release of the patient without admission to another hospital paid under the PPS system. The discharge hospital receives the full DRG payment rate. Death of a patient while hospitalized is also considered for payment status as discharge.

Exemptions: As of 1984, psychiatric, comprehensive cancer, long-term care, children’s, alcohol/drug and rehabilitation hospitals are exempt. Hospitals located outside the contiguous forty-eight states (Hawaii, Alaska, Puerto Rico, and U.S. territories) and those in states with state-regulated prospective payment plans also are exempt. Adjustments are made for public hospitals, or others which serve a disproportionately large number of indigents, for sole community hospitals which are in isolated locations, and for teaching hospitals.

Grouper: A computer software program that assigns the appropriate DRG based on patient’s age, sex, principal diagnosis, secondary diagnoses, procedures performed, and discharge status.

HCFA (Health Care Financing Administration): The branch of the Social Security Administration that manages the development, interpretation, and implementation of Medicare regulations.

HMO (Health Maintenance Organization): A system which enrolls members on a prepaid basis. The subscriber is entitled to all the benefits offered by the HMO without any out-of-pocket expenses; however, he is limited to specific HMO providers.

Indirect Medical Education Expenses: Providers will be paid additional monies under the prospective payment system for indirect costs of medical education. This payment will be based on the ratio of full-time interns and residents to available hospital beds.

Itemized Tracking: Identifying specific costs by accumulating supply expenses and personnel hours, as opposed to accumulated charges (treatment charge or service fee). By tracking costs and monitoring supplies (via charge tickets, inventory sheets, computer cards, or sticker labels), the hospital can identify cost overruns and patients who exceed DRG reimbursement levels.

LOS (length of stay): The period or duration of a patient’s admittance to a hospital.

Losers: DRGs for which costs exceed the payment rates established.

MDC (major diagnostic categories): The 467 DRGs are contained in 23 MDCs. Each MDC either corresponds to a single organ system or a combination of an organ
system and a disease entity. Whether a medical or surgical intervention is performed provides further subdivisions of the MDCs.

MIS (management information systems): Computer systems are being developed and marketed to cope with the changing health care environment. Such systems are designed to assist in defining a hospital's case-mix, analyzing and comparing DRG reimbursement with the hospital's actual cost for treating a given DRG, evaluating and comparing treatment cost-effectiveness, planning and monitoring staffing patterns, and developing management and budgeting strategies. These systems must be flexible enough to adapt to yearly DRG updates and changes.

Outliers: Atypical cases that either have an extremely long length of stay (i.e., day outliers) or extraordinarily high costs (i.e., cost outliers) and whose use of resources significantly exceeds some measure of central tendency. Hospitals may appeal for additional payments for such cases if the costs are equal to or greater than a given multiple of the DRG rate or a given dollar criterion, whichever is greater.

Pass-Through Costs: Those costs that are excluded from the prospective payment rate and are still paid on a reasonable cost basis. As of 1984 these pass-through items include capital-related expenses, direct medical education costs, out-patient costs, costs for direct medical and surgical services of physicians in teaching hospitals, and kidney acquisitions costs.

PRO (Peer Review Organization): A quality assurance organization that replaced the Professional Standards Review Organization (PSRO) as of October 1, 1984, and that acts as an internal watchdog for the Medicare System. The PRO reviews claims and determines if treatments are medically necessary. Specifically, the PRO examines admission patterns, lengths of stay, transfers, services furnished in outlier cases, the validity of diagnostic information, and quality of services. All hospitals under the PPS must contract with a PRO or lose Medicare funding.

PPO (preferred provider organization): The system developed from the HMO but differs in that it is not an entity but rather an arrangement or negotiation between providers and buyers of services. Usually the providers are physicians or hospitals who agree to provide health care to subscribers for a negotiated fee, which usually includes a discount. The provider in return receives a larger volume of patients, which is desirable in hospitals with empty beds and areas with a large number of physicians. The subscriber is not committed to an enrollment plan and can choose other providers who are not part of the PPO at any time. Such a choice, however, incurs a copayment by the subscriber.

Principal Diagnosis: “The condition established after study to be chiefly responsible for causing the patient's admission to the Hospital” (Federal Register, September 1, 1983, p. 39761). This may not be the diagnosis requiring the most resources.

ProPac (Prospective Payment Assessment Commission): This fifteen-member commission, under the auspices of the congressional Office of Technology Assessment, was appointed to review the effects of new technologies and treatments on the PPS in order to recommend changes in DRG rates.

PPS (prospective payment system): A system designed to contain costs of hospitals and providers on a predetermined, fixed-fee basis. Payments to providers are estab-
lished in advance of delivery of service and are paid regardless of a hospital's costs or charges. Such fixed payment rates are computed annually and are not affected by actual costs.

RIMs (relative intensity measures): This method attempts to correlate the intensity of nursing care to the patient's medical condition. Consumption of nursing resources is defined in terms of minutes of nursing care administered to the patient. The method does not account for the time allocated for planning or evaluating care, and it portrays nursing as a task-oriented, nonthinking profession.

Retrospective Reimbursement: Final payment is determined by a third party for charges for services rendered based on cost incurred. Traditionally reimbursement has been calculated on an average per diem cost, including ancillary services (therapies, lab, or X-ray services.)

Revenue or Profit Center: An organizational unit within an organization for which an account has been established to accumulate revenues generated.

SCU (self-care unit): A hospital unit in which family and/or patients perform much of a patient’s care. Nursing personnel is minimal.

Skimming: A strategy by which a hospital attempts to refer patients/DRGs who are not profitable to another hospital.

TEFRA (Tax Equity and Fiscal Responsibility Act [Public Law 97-248]): Established in 1982, TEFRA included new limits on hospital costs for in-patients, established limits on a per case basis (rather than per diem), adjusted each hospital’s reimbursement limit to reflect its mix of cases and clinical problems, established an overall target rate of increase for each hospital’s growth in total costs per discharge, provided hospitals with a financial incentive payment when a hospital did not spend up to its limit, and mandated development of a legislative proposal for a prospective payment system for Medicare.

Transfer: The movement of the patient to another in-patient area of the same hospital; to a hospital paid under the PPS system; or to a hospital excluded from the PPS system because of a statewide Medicare waiver or one whose PPS system has not yet begun. A transferring hospital receives a per diem rate based on the average length of stay for the DRG, but not to exceed the full DRG rate.

Transition or Phase-In Period: There will be a three-year transition period for implementation of the national payment rate. This will occur by blending the hospital-specific rate (based on individual hospital costs) and the appropriate federal rate (based on national and regional cost.) This will allow the hospitals time to reorganize in order to accommodate the new system.

Winners: DRGs for which costs incurred are lower than the DRG payment rate.

Notes

3. Ebert and Brown, “Academic Health Centers.”
5. Talbott, “Prospective Payment and Psychiatry”; Schramm, “The Teaching Hospital.”
7. Widem, Pincus, Goldman, and Jencks, “Prospective Payment for Psychiatric Hospitalization.”
8. Talbott, “Prospective Payment and Psychiatry.”
17. Lash, “Impact of Financing Changes.”
18. Schramm, “The Teaching Hospital.”
27. Stonerock, “The Impact of DRGs.”
42. Foster, “Changes Affecting Laboratory Practices.”
43. Cohen, conversation.
46. Del Polito, “Prospective Payment.”
50. Ibid.

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The term *allied health* does not encompass a health specialty but a conglomerate of supportive health personnel. This conglomerate reflects not singularity but diversity. The number of occupations and professions included in the field of allied health determines the actual diversity. The term was coined by federal agencies in the late 1960s to describe a large segment of health care providers. On November 24, 1968, at the first annual meeting of the Association of Schools of Allied Health Professions, now the American Society of Allied Health Professions, I stated, as president, “In 1900 there was one supportive person for each physician. Today the ratio is 13 to 1. By 1975 the ratio will be 20-25 to 1. They represent approximately 200 health careers at this time. These are currently divided into approximately 40 occupational categories.” What those ratios are today would be difficult to determine.

There will be many new allied health careers that evolve as we control health costs, a control which is inevitable and long overdue. Allied health educators and health providers must understand the extent of the needs of the increasing elderly segment of our society, and personnel must be available to meet those needs. Allied health personnel must be prepared for the changing patterns of delivery of health services, as well as the rapidly changing attitudes toward programming for both wellness and illness and the issues of death and dying.

Projections by the U.S. Bureau of the Census indicate that in sixteen years the population of those over age sixty-five is expected to increase by 40 percent and by another 60 percent by 2025, just forty years from now. The number of those age eighty-five and older will increase even faster: projections show a 91-percent increase by the year 2000. With the increase in longevity, we are having difficulty with
verbiage; the latest designations are *young old*—sixty-five and over; *old*—seventy-five and over; and *old-old*—eighty-five and over. Butler states, “In 1900, average life expectancy was only forty-seven. Today it is seventy-four—an increase of a staggering twenty-seven years.” In 1950 approximately a half million people were eighty-five or older. By 2000 the Census Bureau estimates that number will reach 5,136,000, a 900 percent increase in fifty years. Much of this increase in life span in the United States is due to improved health care and better nutrition. It is essential that allied health care academic programs and current health providers be prepared for this rapidly growing population.

From the day we are conceived we begin to age. It is the one biological process common to all. However, now is a very good time in history to grow old. Medical and social advances over the past century have contributed to the dramatic increase in longevity noted earlier. In 1900, 4 percent of the population was over age sixty-five; today the figure is 11.7 percent (26 million). This expanding population shift is rapidly adding to the number of geriatricians and gerontologists needed. These two categories are often confused. *Geriatrics* is the medical specialty that explores and treats medical diseases and conditions of old age. *Gerontology* examines specific changes in the elderly, as well as social issues. Gerontology is interdisciplinary; allied health professions as well as many others contribute to the welfare of the elderly through health care services as well as through teaching and research. Gerontologists strive primarily to assist with the quality of life in later years. Patterns of aging differ and reflect individual lifestyles and philosophies. We used to think of aging as a disease. Today we cannot forestall death indefinitely, but we can do much to enjoy good health and prolong life. Smoking, drinking, drugs, exercise (both physical and mental), and environment affect the aging process as well as the quality of life in old age.

Health and, to a relative degree, longevity are not accidents. To be attained satisfactorily, they demand reasonable attention and work. Living is a science. Too few recognize this fact; too many abuse their bodies. The attitude that access to health care is one of the rights of man has led many people to believe every individual has a right to be healthy. Every one of us desires to live long yet not be old, but aging is inseparable from life. Life should be appraised on the level of attributes—what qualities a person has—rather than by the crude quan-
tity measurement of the calendar. Our society does not accord age the credit it is due. A recent survey pointed out that 64 percent of the world's great achievements have been accomplished by those who had already passed their sixtieth birthday. There is ample evidence that age has little to do with initiative, determination, daring, and accomplishment. One of the real problems of our aging population is retaining in a stream of economic productivity and scientific discovery those men and women whose wealth of knowledge, wisdom, and constructive work can continue to contribute to the welfare of society.

Young people need to learn how to grow old. Time may be more valuable for the elderly for they have less of it. There is no season of life for which preparation is more necessary; there is no preparation that can be more rewarding. One thing remains irrevocably fixed—our allotment of time at age sixty-five is just what it was at age fifteen—twenty-four hours a day. It behooves us to use every twenty-four hours in accordance with the wisdom we pick up along the way.

Neugarten states, "Ours is an aging society, not only because medical and social advances over the past century have produced a dramatic increase in longevity, but also because low birth rates have produced a rising ratio of older to younger people." She adds, "The long period of adulthood in which people remain intellectually vigorous has been lengthening and in this sense we are creating a 20th century version of the fountain of youth." We need to be more concerned with how to add life to years than how to add years to life. The elderly should not be grouped by age. The older people get, the more unlike one another they become. Lifestyles and individual philosophies toward aging have much to do with growing old. When a sixteen-year-old loses his keys, no one gets very excited; when an elderly person does, it is judged as a sign of being very old.

The wants of life also differ at various stages of the journey. Young people want employment, knowledge, power, family, honor, and fame. Each has spiritual wants, aesthetic wants, and civil wants. Each works toward making these wishes realities and, insofar as one succeeds, each enters old age without ferment, serene of thought and behavior. However, youth is not a wholly happy time, for one is to live with a rabble of passions. In later life the excitements wane and the ardors cool. We must seek for those years physical health and comfort, affection, recognition, a chance to express interests, and emotional security.
According to Alex Comfort, "There are two kinds of aging. One is biological, and expresses itself in such changes as the graying of hair, decline in eye-focusing power and the loss of top-register hearing. The most serious of these changes is the increased liability to, and the lack of, recuperative power from illness of various kinds, which shows itself as the rising force of mortality, and makes a man seventy-five years old about forty-one times more likely to die during that year of his life than a man of twenty. The mechanism of this loss of vigor is not yet fully understood, but is under investigation and the rate of loss, like any other biological rate, can almost certainly be artificially slowed. Science is on the verge of attempting this slowing in humans. The science devoted to experimental gerontology is likely to be the area of some of the greatest advances in medicine by the year 2000." Comfort contends "A high proportion of the mental and attitudinal changes seen in 'old' people are not biological effects of aging."³

Comfort says an old person needs the same four things that were always needed: dignity, money, proper medical services, and useful work. However, society is not structured to provide these for the elderly. Those not yet age sixty-five must prepare for their destiny. Society does not open the door for the elderly. They must take the initiative and prepare for retirement, which can be the best years of their lives.

Skinner and Vaughn contend that the physiological process of aging is inevitable, but within its limits we act and feel young or old because of what is happening to us and what, as a result, we do. They quote Justice Oliver Wendell Holmes: "To be seventy years young is sometimes far more cheerful and hopeful than to be forty years old." They say old age should be approached as "not something to be feared, but as a problem to be solved."⁴

Not only can aging be pleasant, challenging, and satisfying, but when one considers the alternative, aging is indeed desirable. Except for those few who suffer severe mental and physical deterioration, we who continue to grow, to change, to adapt, and to prepare for retirement can generally escape the devastation of the physical and mental infirmity of old age. To understand and communicate effectively with elderly patients, health personnel must understand the basis for their behavior and attitudes, just as one must with children or with those of any age or ethnic group. Old age has its problems, but the distorted image of old age may be the biggest problem of all. The old are different: they have lived past age sixty-five.
According to Bernice Moore, aging gracefully demands the intentional avoidance of what she refers to as the "devastating F's. I is the first letter in inward turning, self centeredness. I is the beginning of isolation or moving out of the mainstream of life. I is the initial step in the loss of interest in others. I starts indifference which shows up in lack of concern for others and for self, in appearance, grooming, dress, alertness, attention to name only a few of the ravages of indifference." These devastating F's were more easily satisfied in bygone years. In a patriarchal society the old fit into the picture almost perfectly. They were able to perform necessary services: spinning, sewing, tending the flock or herd, and fashioning utensils and tools. Their hands retained their cunning to the end; their skill and counsel helped in the struggle of the family and the tribe for the good things in life. However, the change from an agricultural to an industrial economy and now to a technological one indicates that times have changed. Trained aptitudes of one's youth often end up on the shelf of the skills of the aged. The solution is to develop new skills for later years.

One of the most difficult things is to keep the mind from slowly growing closed in the face of everyday and dramatic happenings. Mental rigidity and stagnation are not the faded conditions of old age. Alfred North Whitehead said that he would like to make some advanced education compulsory and to maintain the process of education to the age of ninety. It is necessary that our educational programs include education for older people as well as for younger. Adult education can attune itself not just to filling gaps in education but to opening the opportunities for self-expression and self-realization, which will help the aging steer through the shifting currents of changing times.

Successful aging involves participation, delight in fun and play, doing things for others, continuous learning, and productivity in employment or as a volunteer. It is not so important what the elderly do after retirement, but that they do something to challenge the mind.

Retirement is not always filled with happiness, as is so commonly anticipated. For many it may precipitate a life crisis that requires major and difficult adjustments in thinking and living patterns. Many of the problems that may rob retirement of its anticipated pleasure result from a lack of preparation and planning for the time when a job no longer structures one's day and determines who one is and how one feels
about oneself. Work supplies many basic psychological needs; when a person retires, suddenly those needs are no longer met. While a worker, one has a sense of belonging to the producing segment of society. Work provides an identity and a source of human contact with peers and fellow workers. Work defines one's goals and gives one a sense of accomplishment and affirmation. The proof of this is the stigma that unemployment carries at any age.

Retirement is one of the curses to continuing good health. If we keep the mind challenged and treat the body well, we may enjoy good health for many years, especially if we pick our parents carefully. Our society is one of the few in the world that places a premium on retirement. Retirees sell their homes in the North and move to the South to fish and play golf. Many soon discover that a steady diet of golf and fishing is not the solution to happiness and good health.

At ages forty-five or fifty both men and women should begin to explore new careers and look for new challenges for the time of their retirement. Retirement deserves the same attention at preparing for a career. The important thing is not that we work for money, but that we work for pride, satisfaction, and pleasure. The elderly should seek to control their own destinies while keeping the mind challenged. Forty-five or fifty may be the proper time to start a hobby that could develop into a little business. Those who retire to a sofa to watch television find both their body and mind atrophying, and they may soon become withdrawn and depressed. It is important for the future retiree to plan a variety of activities: indoor and outdoor, mental and physical, social and individual, with the young and old, to maintain a sense of well-being and good health.

People forget things at age seventy, but so do they at thirty, at forty, and at five. Comfort contends, "Memory, sexuality, activity, capacity for relationships and zest should normally last as long as you do. When they do not, it is for the same causes as in earlier years, namely illness." Yes, sometimes indifference is a cause. The way to keep more of the elderly healthy and out of nursing homes and hospitals is to help them stay busy and happy. This is the way to lower our annual health bill from $200 billion to a much lower figure and to lower insurance rates in the process. This is also the way to avoid hospital bills of over $1,000 a day for extended periods of time. Older workers have less absenteeism than younger workers. They have fewer accidents on the job. They are
more satisfied with their jobs and no less efficient. Young workers report more stress and show higher rates of admission to psychiatric facilities and use of psychotropic drugs. Only about 10 percent of the elderly are confined in any serious way. Even fewer require unusual attention. Only one over-sixty-five person in twenty-five lives in an institution. Yet, it is on the basis of the behavior of this 10 percent of those over sixty-five that we judge the other 90 percent.

Youth is a heap of beginnings; age is a handful of achievements, but age gives us no time to dote or dream. Life is still a great adventure, a fine show. The trick is to look at it and play in it at the same time.

**Nursing Homes and Alternatives**

At any one time only 4-5 percent of those over age sixty-five are in a nursing home. However, it is estimated that 35-45 percent will spend some time in one. Claudia Cluff states that the U.S. Office of Management and Budget "estimates that 10-20 percent of skilled nursing home placements and 20-40 percent of all intermediate nursing home placements are inappropriate, usually because the patients do not need care at the level they are receiving. The cost of personal health for those sixty-five and older is 3.4 times greater than the cost for those under sixty-five years of age. Between 1980 and 1985, the elderly long term care components of Medicare and Medicaid alone are expected to double from 5 to 9.4 billion." Currently, approximately one-fourth of the very old are in nursing homes and other long-term care facilities. If projections hold and we continue to serve the needs of this population in nursing homes as we now do, we will have 600 thousand more patients in sixteen years. With less than 6,000 more days before the year 2000, we would need 100 new beds daily. The health costs for those eighty-five and older would leap to $8 billion to $10 billion by 1990. This group includes only about one-third of those currently in nursing homes.

With the present and anticipated costs and space needs of nursing homes, it is essential to look for alternatives. Nursing home beds should and must be protected for those elderly who need such care. Extension of home health care, communal living, and related programming would be less expensive. The elderly prefer to live independently and to stay near friends, family, loved ones, their possessions, and their pattern of life. Decisions about nursing home placement should not be made
when it becomes essential, but rather earlier so that individuals may make their desires known to family, health providers, and friends. We must help the elderly maintain their dignity and autonomy until death. This philosophy will decrease health costs. Nursing home placement too often is placement for passage into death. Nursing homes, if not primarily for profit, could provide a community living setting by providing residents with skills and the opportunity to help others in the nursing home. Allied health personnel should support this development. At present, because of Medicare, Medicaid, and other insurance, many patients are being sent to settings that may not be conducive to a meaningful way of life and may not be in the best interest of the individual. There are many alternatives that are more meaningful and humane for those who do not need and will not profit by the nursing home environment.

In the past few years, home health care has exploded into a multi-billion-dollar business. Home health care is an alternative to hospital and nursing home care. It might be referred to as intermittent care. Both the patient and the family take the responsibility for seeing that medical instructions are carried out. Home health agencies assist the family in determining what is needed to be done by family and what by home visits of health providers. Costs are generally much less than hospital or nursing home costs. It is encouraging to see home care services returning. James Jernigan, a geriatrician at the University of Florida College of Medicine, reports that “impaired elderly needing home care services range from 25 to 40 percent and in black families 90 percent." He continues, “Housecalls are indicated for the homebound elderly for four general reasons: (1) better medical results for many acute and chronic problems, (2) patient and family satisfaction, (3) lower costs, (4) for consultation as a member of a health team.”

The most important advantage is that the subject is at home. Home health care is receiving more consideration as the Older American Act and Title II of Social Security support such efforts. These services offer “health screening, homemaking (light housekeeping and meal preparation), chore service (heavy-duty household work), mental health, and legal services. Most of these services are free, while others have a nominal fee set on a sliding scale.”

Home health care is becoming a new frontier in medicine and will become big business in the near future. It is estimated that it will
increase from $5.3 billion in 1981 to $16.3 billion in 1990.\textsuperscript{10} It will be more than this if third-party payments are increased for this service. It is now estimated that the cost is one-fourth to one-third of what a hospital would charge for similar services. This trend will institute an age-old tradition with revival of the house call and caring for self and family members at home. Cost is not the only advantage. Recovery becomes more difficult when patients are away from home in the hospital, a nursing home, or some other institution. Home health care provides a way for many to stay out of nursing homes. To be sure, the family is not what it was fifty years ago, but neighbors, friends, churches, and voluntary agencies will play important roles.

Nonmedical services provided by home health care services can be as valuable as therapy in keeping the individual out of an institution. Through education, home care services also can prevent complications from illness. Teaching family members and patients how to care for themselves is one of the primary roles. However, home health care is not for everyone. O’Connell states, “Home health care is intermittent care, not continuous. Patients with major medical or psychiatric problems clearly do not belong at home. Very sick patients with unstable conditions require inpatient care in a hospital or nursing home.”\textsuperscript{11}

Different organizations provide a variety of services; therefore, shopping is desirable. A home health care agency can help in determining types of services needed and other matters to be considered. It is essential to get all questions answered before contracting for services. More and more health insurance plans are offering out-patient care. Costs relate to services needed and the locale. The higher the skill level, the more the cost. For physical therapists, occupational therapists, and licensed specialists, the costs will run $50 to $90 per visit while home health aides, nursing aides, or licensed practical nurses will run $5 to $16 per hour.\textsuperscript{12} The basic services of home health care agencies are provided by homemakers, home health aides, and nurses. Some examples of care now in the home include chemotherapy for cancer patients, dialysis for kidney diseases, cardiac monitoring, and hyperalimentation for nutritive and digestive conditions.

Those now in allied health and those preparing for health careers should be aware of home health care developments. New allied health careers and alterations in present ones will create employment opportunities in home health care. We will see a demand for allied health
personnel, especially for those with credentials in two or more specialty areas, in such settings. Cost will continue to be the primary concern in the delivery of health care and third-party payments for alternate and new programming will become prevalent.

Another alternative is group living. This may be likened to the congregate housing that is often done for the handicapped. Here, a residential complex has made adaptations to fit the needs of those to live in such a setting. There is often a security guard and a physician and/or nurse on call. Another growing pattern is communal living, where a group of elderly people live together, share work experiences, and with careful selection become a comfortable and happy family. Similar housing alternatives are experiencing rapid growth in the United States and have been utilized in other countries for many years.

Adult day care centers were instituted in the United States fifteen to twenty years ago as an offshoot of programming for the mentally and emotionally impaired. Elderly adults attend the center for part or all of the day. Most centers have crafts and social activities. Some offer breakfast and lunch and even hairdressers and financial counseling. Such centers also may be found in nursing homes, hospitals, and other settings. For many elderly a period of time in such a center seems to make the transition to a nursing home, when that becomes necessary, much more acceptable and comfortable.

A nursing home may be the only recourse for those who cannot be cared for in alternate settings, but generally it should be a last-resort placement. While the family often sees such a placement as a fine solution, the one being placed in a nursing home sees it as being turned away from friends and family. Loneliness and despair most often prevail. If a nursing home is the only solution, then care and time in counseling and gaining acceptance by the individual and family are essential.

There are countries where the standard of living of the old is much lower than in the United States but where the involvement of society and the worth of the elderly are much greater. There is a high correlation between prolonged isolation and low morale with all of us, but these factors are especially devastating to the elderly. This seems so sad when one realizes that the condition is often reversible through the simple therapy of friendly visiting programs and other social involvement that gets the one with problems back into the mainstream of life.
Peer counseling for teenagers has proved very effective through public schools and community sponsorship. Peer counseling for the elderly was developed in 1974 at the Leonard Davis School of Gerontology, University of California. Individuals ranging in age from fifty-five to eighty-one with interest in helping others of that age group and older took a two-month course on aging, depression management, suicide, human sexuality, and memory dysfunction. The volunteer counselors were carefully screened to listen and give the patient and family a chance to talk. The workers were trained in crisis intervention, cross-cultural counseling, and the use of community resources. Peer counseling does work and is very effective. It assists the elder member in trouble, and it prevents isolation and withdrawal.

As I have written before, “Wellness needs to be sponsored and supported, as well as programs for illness. Being well and promoting health begins with the self and is an option for all, irrespective of disease, disability, or age. For many, being ill elicits a series of unconscious reactions. We react to the threat of disease with fear of future disability. We spend much of our time worrying about things which will not happen, and the worry itself can make us ill and lead to depression and other ailments. Such fear motivates us to become patients. We have two choices: to stress illness or wellness. The one we stress, whatever our disease or condition, will take us further down that pathway. Wellness begets wellness. It is a continuing self-fulfilling process without an end point. It is a positive force that has no bounds. It demands a challenged mind, pleasure and satisfaction with one’s daily activities and sharing with others.”

Schwayer says many more of us can live to be 100 and enjoy good health, but not unless we change some of our bad habits: “A sedentary way of life, overeating, smoking, excessive drinking, lack of exercise, a hectic pace, perhaps ambition—all of these are killing you.” Factors that affect people’s life expectancy are heredity, health, education, occupation, lifestyle, personality, and concern for others.

Hospices

The role of the hospice is well stated in a recent book, *The Hospice Alternative*. In the preface the author states, “This is a book about living fully, loving, caring, creating, and adventuring. It focuses on the
human problems of death and the extraordinary capacity of ordinary persons to face— with sensitivity, integrity, and dignity—their own deaths or the deaths of those they care about. This book emerged from an effort to understand the human costs that are the dark side of today’s care oriented, technological medical culture, and from direct, everyday experience of the modern hospice as a humane and compassionate form of terminal care. The hospice approach creates a context where it is possible for one to live while dying. In such a context, intimacy with death heightens one’s potential for discovering the meaning of life.”

In Great Britain hospices have been an integral part of the health care system for some time, with over 800 hospice programs funded by the National Health Service and donations. Great Britain has developed many hospices in the past ten to fifteen years, the best known being St. Christopher’s Hospice. A complete hospice program provides both in-patient and home care, a bereavement program, and community and in-service education for those involved in terminal care.

The hospice concept is relatively new in the United States but is growing rapidly and was recently supported by the prestigious New England Journal of Medicine. The term hospice derives from a medieval word for a shelter for travelers on difficult journeys. Hospice relates to the care and treatment of the terminally ill and to relieving the individual, the family, and other loved ones of emotional and physical suffering. It is a physician-directed program.

Many physicians find it extremely difficult to declare a patient terminally ill, and this is understandable. Physicians, until quite recently, have been trained to keep patients alive and to consider anything else as an admission of failure. More and more physicians are beginning to realize that where a cure is impossible, the best treatment for patients and families is to make the patients as comfortable as possible and to ease them into a peaceful death. The central issue is care versus cure; because dying patients cannot be cured, it seems only logical that they be cared for compassionately. The hospice program is many things in various parts of this country and of the world. It can be carried out as a home care program, a separate freestanding facility, a department of a general acute care hospital, or a multidisciplinary team of care givers that serve the patients wherever they may be housed, in general acute-care hospitals or as a separate facility attached to or separate from the hospital.
Acute-care hospitals are not well suited to meet the physical and emotional needs of the dying. They are geared to cure patients and to provide efficient rather than individually optimized care. Hospices, however, treat physical, emotional, and mental symptoms rather than disease. After the pain of the patient is assessed, a hospice team next may consider options of non-drug palliative therapies, non-narcotic analgesics and, as a last resort, narcotic analgesics. In contrast to medical goals, a major aim of a hospice program is to help patients live out their lives as comfortably and as meaningfully as possible.

The National Hospice Organization, organized in 1978 in a document, “Hospice Principles and Standards,” defined the hospice program: “Hospice is a coordinated program of palliative and supportive care (physical, psychological, social, and spiritual) for dying persons and their families which is provided by an interdisciplinary team of professionals and volunteers under a central administration. This care is available twenty-four hours a day, seven days a week. Admission is on the basis of patient and family need. Hospice care continues into bereavement.” In the same context, the philosophy of hospice care was stated: “Dying is a normal process whether or not resulting from disease. Hospice exists to affirm ‘life’—by providing support and care for those in the last phases of incurable disease so that they can live as fully and comfortably as possible. Hospice promotes the formation of caring communities that are sensitive to the needs of patients and their families at this time in their lives so that they may be free to obtain that degree of mental and spiritual preparation for death that is satisfactory to them.”

Obviously, patients and family should have the privilege of refusing hospice care. The hospice advocate contends that the infant shows us our origins, and the hospice patient our destinies. Although from early childhood we know someday we will die, we avoid discussing and preparing for the inevitable. We do not enjoy the possibility of omnipotence. Hospice experience suggests that to be human is to take responsibility for each other and to allow ourselves to be helped.

The variety of hospice care programs, though at times creating problems, has truly become one of its strengths. This diversity has encouraged innovation that is not possible with a standardized format. The focus is upon life and living rather than death and dying. Hospice care is truly a return to old values. Much of its rapid growth and success
can be attributed to the commitment of workers and the appreciation and enthusiasm of family members.

Benjamin Franklin once wrote, "In this world nothing is certain but death and taxes." While death is a certainty, it is seldom easy to accept. Death in a hospice program, whether at home or in a hospice facility, can be a peaceful and even welcome way to end one's days. The hospice provides a caring staff for the terminally ill and their families and an environment in which to die, not one of actively prolonging life or accelerating death. The hospice is not a place; it is a concept of care where dying patients have assistance with specialized physical, emotional, social, and spiritual needs.

It should be understood by those attempting to establish a hospice that funds are very limited and much volunteer work is essential, but that there is a new humaneness to success. Koff writes, "Hospice has in fact become the teacher of these values: (1) The basic regard for the recipient of care, (2) acceptance of death as a natural part of living, (3) consideration of the entire family unit as the patient, (4) sustaining the patient at home for as long as possible, (5) helping the patient assume control over his own life, (6) teaching the patient self-care, (7) reduction or removal of pain and other distressing symptoms, (8) total, not fragmented, care, (9) comprehensive provision of services by an interdisciplinary team, and (10) continuity of services after death. Hospice should only be developed if there is a conviction that hospice care will improve the quality of living for the person who is dying, that the ideals of hospice are in consonance with the values of the sponsoring group, and that there are sufficient persons prepared to assure that idealism will become part of the functional program."17

Volunteers are the key people in most hospices. The physician and the nurse are busy and do not have the time to provide all of the person's needs. Volunteers do much to control costs. The person to whom the patient and family frequently confide their deepest concerns is the volunteer, who is seen as the one person who has time and understanding. The volunteer has often been through the experience. For home care programs the ratio of about twelve volunteers to each professional is suggested. Nurses, social workers, and volunteers are the primary members of the team directed by the physician. Legal counsel is important—an attorney can be very helpful in drafting necessary documents to guarantee that the patient's dependents will be sensibly
provided for. Financial worries should be resolved before death. The social worker is also a key person, especially when the individual has returned home.

**Death and Dying**

*Dignity at death* is a term difficult to define, for it encompasses a group of feelings, a sense that what is happening is appropriate—that death is a natural part of life. It is almost easier to define what death is not rather than what it is. It is not being hooked up to a respirator and being kept alive artificially.

Death control, like birth control, is a matter of human dignity. We can make a distinction, at least a tentative one, between clinical death (the appearance of death signs upon physical examination), biological death (the cessation of cellular activity), and social death (that point at which a dying person is treated essentially as a corpse though still clinically and biologically alive—not an uncommon phenomenon). The right to die with dignity should be recognized as a basic human right. The right to die seems to me as sacred as the right to live. How and when death takes place is of great concern, not only to the dying person and his family, but to all those who have helped—physicians, nurses, allied health workers, attorneys, theologians, and others. Because euthanasia is illegal and is considered by many to be immoral, some terminally ill patients turn to their only other option of peaceful death: suicide. However, in most instances they are not in the position to do this even though that is what they would desire.

In the last few years we have seen many more families using hospices; still, many do not understand their role. The hospice is the most logical procedure for compassionate caring and elimination of pain and suffering and for the care of the terminally ill patient. Hospices are becoming better accepted for many different reasons. One is the “cure at any cost syndrome” that prevails in acute care hospitals; another is the rebellion against hospital regulations that tend to keep patients and families apart in times of crisis; and a third is rebellion against certain of society’s attitudes about death that prevent the provision of the best care to the dying.

The dying person is a very lonely individual. Today the family has been dismantled and uncles, aunts, and other relatives and friends do
not live in the area. Death is seen as a destroyer of our way of life—"the right to life, liberty, and the pursuit of happiness." This leads to hostility toward death by much of our society.

Thomas Leicht in 1978 stated, "Physicians in the past have been taught to investigate, diagnose, and cure people of their illness and to extend life." He advocates a fifth important item, which is to improve the quality of life of patients. This can be done, he says, "by redirecting the emphasis of treatment from the disease process to symptoms that the disease causes in the person." Emphasis is on the person, the person's life. Koff developed "The Seven Fears of Dying": (1) fear of the process of dying with concern for severe pain and body image; (2) fear of loss of control; (3) fear of loss of one's loved ones; (4) fear generated by nonverbal communication as patients react to their illness, our actions, and our words; (5) fear of isolation; (6) fear of the unknown and expectations regarding physical suffering and one's faith system in respect to life after death; (7) fear one's life will have been meaningless.18

**Living Will**

The concept of the living will was first promulgated in the United States in 1938 by the Euthanasia Education Council, which in 1967 became the Society for the Right to Die and is now called Concern for Dying. Nearly fifty years ago the society began to realize that individuals could be kept alive by artificial and mechanical means for many years even though meaningful life was gone. Now this need for living wills has been extended with the development of many new technological developments to sustain and support life: dialysis, intravenous feeding, and mechanical respiration and circulation, to name only a few. This is only the beginning, and we will see many more such efforts and developments to keep alive those who have no reason or desire to live.

Because the general policy by most people in the United States is to avoid the subject of death, a living will helps the individual to have personal wishes and desires honored. A mentally competent individual simply makes known the wish that, when no longer capable of participating in one's own care and clearly dying, nothing heroic or life-sustaining should be done to continue one's existence. From my perspective this is the only humane way to face death. Would any of us
rather live—perhaps for years—in a vegetative state rather than to die with dignity?

Upon placement in a nursing home many patients do not have the mental and physical strength and competency required to prepare a living will. Nearly all who enter with that competency and remain in nursing homes for years lose it. Individuals and families should face the certainty of death and establish living wills while healthy. Staffs of nursing home, hospitals, and other care facilities should not have to be a part of making such a decision. Think how much better the lives of health care providers would be if all who entered their doors for placement had living wills. We are facing unreasonable costs and questionable care procedures by nursing homes and various other care centers as well as by the physicians, nurses, and the host of other health personnel who serve those with terminal illnesses. Finally, the federal, state, and local governments and nearly all members of society are becoming concerned about health costs. Patients' rights have increasingly become the subject of legislation and court action; they will become more so until such rights are accepted and respected by loved ones, physicians, and others who care for them.

In a recent book, *Looking Forward*, Bert Kruger Smith states, "Many who are kept alive on machines, both old and young, are beyond the reach of human touch and feeling (or so we believe from what we are able to observe). The thought of a machine world, with thousands upon thousands of devices pumping 'life' into still-dying individuals whose brains are 'dead,' is as terrifying in a singular way as a thought of nuclear devastation." 19

A recent publication of Concern for Dying reported that the Advisory Council of Social Security has endorsed the concept of living wills. The chairman of the council has stressed that "the Council fully recognizes that this may be a controversial recommendation, but that people who are terminally ill have a right to have their Living Wills honored to prevent unnecessary heroic measures being taken in the terminal days of life." An advisory panel on Medicare also noted to the council that "11 percent of Medicare spending occurs in the last forty days of a patient's life and that the last year of life accounts for 25 percent of all Medicare spending." 20

When the Florida state legislature passed a statute recognizing the living will on May 29, 1984, Florida became the twenty-first state to
THE LIVING WILL REGISTRY

In 1983, Concern for Dying instituted the Living Will Registry, a computerized file system where you may keep an up-to-date copy of your Living Will in our New York office.

What are the benefits of joining the Living Will Registry?

• CONCERN's staff will ensure that your form is filled out correctly, assign you a Registry Number and maintain a copy of your Living Will.

• CONCERN's staff will be able to refer to your personal document, explain procedures and options, and provide you with the latest case law or state legislation should you, your proxy or anyone else acting on your behalf need counseling or legal guidance in implementing your Living Will.

• You will receive a permanent, credit card size plastic mini-will with your Registry number imprinted on it. The mini-will, which contains your address, CONCERN's address and a short version of the Living Will, indicates that you have already filled out a full-sized, witnessed Living Will document.

How do you join the Living Will Registry?

• Review your Living Will, making sure it is up-to-date and contains any specific provisions that you want added.

• Mail a copy of your original, signed and witnessed document along with a check for $25.00 to:
   The Living Will Registry
   Concern for Dying
   250 West 57th Street, Room 831
   New York, New York 10107

The one-time Registry enrollment fee will cover the costs of processing and maintaining your Living Will and of issuing your new plastic mini-will.

• If you have any address changes or wish to add or delete special provisions that you have included in your Living Will, please write to the Registry so that we can keep your file up to date.

TO MAKE BEST USE OF YOUR LIVING WILL

You may wish to add specific statements to the Living Will in the space provided for that purpose above your signature. Possible additional provisions are:

1. "Measures of artificial life-support in the face of impending death that I specifically refuse are:
   a) Electrical or mechanical resuscitation of my heart when it has stopped beating.
   b) Nasogastric tube feeding when I am paralyzed or unable to take nourishment by mouth.
   c) Mechanical respiration when I am no longer able to sustain my own breathing.
   d) ____________________________ ."

2. "I would like to live out my last days at home rather than in a hospital if it does not jeopardize the chance of my recovery to a meaningful and sentient life or does not impose an undue burden on my family."

3. "If any of my tissues are sound and would be of value as transplants to other people, I freely give my permission for such donation."

The optional Durable Power of Attorney feature allows you to name someone else to serve as your proxy in case you are unable to communicate your wishes. Should you choose to fill in this portion of the document, you must have your signature notarized.

If you choose more than one proxy for decision-making on your behalf, please give order of priority (1, 2, 3, etc.)

Space is provided at the bottom of the Living Will for notarization should you choose to have your Living Will witnessed by a Notary Public.

REMEMBER . . .

• Sign and date your Living Will. Your two witnesses, who should not be blood relatives or beneficiaries of your property will, should also sign in the spaces provided.

• Discuss your Living Will with your doctors; if they agree with you, give them copies of your signed Living Will document for them to add to your medical file.

• Give copies of your signed Living Will to anyone who may be making decisions for you if you are unable to make them yourself.

• Look over your Living Will once a year, redate it and initial the new date to make it clear that your wishes have not changed.

For additional Living Wills, or the appropriate document in those states which have passed Living Will legislation, use coupon on reverse side.

The Concern for Dying newsletter is a quarterly publication reporting the most recent developments in the field of death and dying. It contains announcements of upcoming educational conferences, workshops and symposia, as well as reviews of current literature. The Newsletter is sent to anyone who contributes $5.00 or more annually to CONCERN FOR DYING.

\[ \square \] I would like to receive the Newsletter.
\[ \square \] I would like to enroll in the Living Will Registry

Additional materials available to contributors:
\[ \square \] Questions and Answers About the Living Will
\[ \square \] Selected articles and case histories
\[ \square \] A bibliography
\[ \square \] Information on films

A mini-will, a condensed version of the Living Will which can be carried in a wallet in case of accident or emergency, will be sent upon receipt of a contribution.
My Living Will
To My Family, My Physician, My Lawyer
and All Others Whom It May Concern

Death is as much a reality as birth, growth, maturity and old age—it is the one certainty of life. If the time comes when I can no longer take part in decisions for my own future, let this statement stand as an expression of my wishes and directions, while I am still of sound mind.

If at such a time the situation should arise in which there is no reasonable expectation of my recovery from extreme physical or mental disability, I direct that I be allowed to die and not be kept alive by medications, artificial means or "heroic measures." I do, however, ask that medication be mercifully administered to me to alleviate suffering even though this may shorten my remaining life.

This statement is made after careful consideration and is in accordance with my strong convictions and beliefs. I want the wishes and directions here expressed carried out to the extent permitted by law. Insofar as they are not legally enforceable, I hope that those to whom this Will is addressed will regard themselves as morally bound by these provisions.

(Optional specific provisions to be made in this space — see other side)

Durable Power of Attorney (optional)

I hereby designate _____________ to serve as my attorney-in-fact for the purpose of making medical treatment decisions. This power of attorney shall remain effective in the event that I become incompetent or otherwise unable to make such decisions for myself.

Optional Notarization:

"Sworn and subscribed to before me this ___ day of ______, 19___"

Signed__________________________
Date_________________________
Witness_____________________
Witness_____________________

Notary Public
(seal)

Copies of this request have been given to ____________________________
___________________________

(Optional) My Living Will is registered with Concern for Dying (No. _____)
pass such legislation. "The Life Prolonging Procedure Act of Florida recognizes an adult’s advance declaration instructing that in the event of terminal illness or injury, medical procedures that would only prolong the dying process shall be withdrawn or withheld. The law protects any terminal patient, whether competent or incompetent."21

A copy of a living will (Figs. 1 and 2) is included to illustrate what the Concern for Dying council proposes. This organization distributes copies free of charge upon request. Other groups that have supported and distributed living wills include the Euthanasia Education Council, the American Hospital Association, and the Society for the Right to Die. A recent publication points out that even in states where no legislation has been passed to recognize living wills, they may still have some effect. No civil or criminal lawsuit against those who followed the directives of a living will has ever been successfully prosecuted.

Allied Health personnel must be prepared to relate with understanding and insight to the rapidly increasing population of the elderly. While practicing their specialty, allied health personnel can assist patients to better understand the process of aging, the desirability of keeping the mind challenged, and alternatives to health care for themselves and others. All of our citizenry need to confront the issue that death is inevitable and that preparation for dying is essential both for self and loved ones.

Allied health practitioners should prepare themselves and others for the changing patterns of delivery of health care. The next decade will be challenging and satisfying for allied health personnel who can adapt to the inevitable rapid changes in the delivery of health care. Allied health professionals will get much personal satisfaction from helping the elderly to maintain good health and from preparing themselves, their loved ones, and their patients for death and dying.

NOTES


11. Ibid., p. 37.

12. Ibid., p. 39.


17. Ibid., pp. 18-19.

18. Ibid., pp. 22-23.


HEALTH PROMOTION DISEASE PREVENTION
AND THE ROLE OF ALLIED HEALTH

*Thomas Robinson*

The human organism employs varying modes of reaction to crisis situations: adaptation, attack, or flight. Each, however, is reactive, as are the rescuers in Don Ardell's fable entitled "Upstream, Downstream." This clever allegory vividly describes how the valiant people of Downstream reacted to save swimmers who found themselves in trouble. Although the community downstream adapted mechanisms to rescue and resuscitate those saved from drowning, its reactionary approach becomes painfully unsatisfactory when we shift our frame of reference by asking, What is happening Upstream? Why are all of the swimmers in trouble? Couldn't the Upstream community prevent the unending flow of victims?

Our traditional health care system is the downstream community. Health science education in general and allied health education in particular have trained the downstream workers—those who man the lifeboats, resuscitate the unconscious swimmers, and rehabilitate the wracked bodies of the survivors. Health care and the care system's focus have been reactive, concentrating on the treatment and rehabilitative band of the illness-wellness spectrum. When we shift our perspective to include prevention, there is a new proactive opportunity for health care and health sciences education. Different questions are asked. What kinds of preventive staff should be upstream? What should they be doing to prevent swimmers from drowning? In what setting should they work? How should they be trained?

Allied health educators have begun, as have others in the delivery and educational systems, to address these questions. The concept of health promotion disease prevention (HPDP) has finally been intro-
duced, and we are just now beginning to wrestle with the issues engendered by this change of perspective.

**HEALTH PROMOTION**

**DISEASE PREVENTION DEFINED**

Perception can be enhanced by the skill of the artist’s brush. A fine landscape can draw your eye to the distance in a painting that cerebrally we know is merely a two-dimensional plane. Moreover, what one person sees in a painting is not necessarily what another sees, as evidenced by the differing perceptions of cubist or surrealist art. Perception is a highly individual experience. So too are perceptions of the value of health promotion disease prevention. Some people equate it with health education, i.e., smoking awareness programs and venereal disease campaigns. Others view it as a program of self-responsibility complementing traditional care. Yet others see HPDP as a dangerous and radical figment of some 1960s dropout’s imagination. Because the extremes exist, it is important to define and delineate activity in a way that most reasonable people can understand and support.

A look at traditional public health serves to begin discussion of this concept. Primary, secondary, and tertiary prevention are familiar terms in public health and are an appropriate point of departure.

Primary prevention traditionally has sought to identify segments of the population in which there is susceptibility to disease or disability. Traditional public health measures and interventions fall into the category of health care delivery, e.g., fluoridation, vaccinations, sewage treatment, and clean water. The success of primary prevention has been called the “public health revolution” because it has done so much to improve measures of health; it has improved the quality of life and decreased mortality and morbidity in this country.

Secondary prevention is the notion that clinicians practice a certain type of care in detecting the early stages of disease and intervene through medication, surgery, and other activities to arrest the progress of the disease. The best example of this is hypertension screening and the establishment of a regimen of medication with clinician follow-up.

Tertiary prevention is intervention after the disease has progressed. Intervention at this level is aimed at limiting further degeneration and
disability. An example of tertiary prevention is the utilization of speech therapy, occupational therapy, and physical therapy for stroke patients.

It is in this tradition of identification and intervention that the following eclectic definition arises. Health promotion disease prevention is the infusion of pro-health values into one's life which allows, indeed demands, the individual to choose behaviors that decrease risk factors for death and disability.

Herein lies the concept of personal identification of risk for disease and personal intervention. Identification intervention, however, is more ethereal in the case of HPDP than in traditional primary prevention. It is realized only through a myriad of life decisions and concomitant behaviors. It is usually identified as a listing of sample behaviors that is quickly labeled by people as HPDP; for example, smoking cessation or exercise. Although a wide variety of things are labeled HPDP, they are but illustrative of the concept; HPDP is a way of life.

Historically there are several different but related movements, all representative of prevention and all related to the above definition. They can be labeled as

• Wholistic health care
• Holistic medicine
• Wellness
• Health promotion disease prevention

Wholistic Health Care. The term who/ism was first used by General Jan Christian Smuts, prime minister of South Africa, in 1926. Smuts theorized that nature tended to bring things together to make whole organisms, and that the delivering factors in nature and in evolution are whole and not their constituent parts. Wholistic health in this context refers to the integration of mind, body, and spirit for the attainment of whole health.

Wholism spelled with w has been used primarily by church-based wholistic health centers. It probably is best defined as the integration of social, psychological, spiritual, and environmental factors into the delivery of primary care medicine, with the physician as the focus. The introduction of social-psychological concepts using multidisciplines in different settings is the difference between wholistic and conventional primary care. Typical of the genre is Grenger Westbrook's Wholistic Health Center in the Chicago area.
Holistic Medicine. Others prefer to spell holism with an h. Both words have the same origin and similar basic orientations, although implementation varies in emphasis.

Those who employ holism with h also follow the medical model that views the physician as team leader, but the spiritual aspect is deemphasized and generally is not included. Holistic practices are often viewed as alternative medicine because of the use of meditation and yoga, as well as a general deemphasis on medication. Holistic practice broadcasts counterculture signals and some holistic practitioners are viewed as being on the fringe in comparison to a wholistic practice, which is considered mainline by most physicians because it broadcasts traditional signals.

Wellness. The concept of wellness is rooted in the writings of John Travis and Don Ardell. Self-responsibility is the central tenet of the wellness movement. These kinds of programs are focused on the individual, with a drastically reduced role or even absence of a role for the physician. The term program is used consciously because wellness centers are programmatic in nature. A well person (as viewed by most people) comes to them to improve his or her level of wellness, i.e., to reduce his or her risk factors for disease. Clients enroll in a finite program of activity to realize very specific health goals. Activities in wellness programs revolve about nutritional awareness, physical activity, stress management, and environmental sensitivity. The health field component of “lifestyle,” as originally conceptualized in Canada, is emphasized through self-responsibility for promoting health through education and behavior modification.

One of the first identifiable wellness centers was Travis Wellness Center in Mill Valley, California.

Health Promotion Disease Prevention. Health promotion disease prevention, a collage of several developmental thrusts, is a term increasingly used and promoted by the federal establishment and the W.K. Kellogg Foundation.

Out of these various terms, i.e., preventive medicine, prospective medicine, wholistic and holistic medicine, may be distilled a notion of what it is that clinical practitioners of medicine and dentistry might do that would extend and complement their current modes of practice in relationship to prevention and the promotion of health. . . .

Clinical primary prevention includes elements of primary care that normally
receive only lip service. This mode of practice involves a broad concept of health and disease as well as a readiness to both detect and intervene with respect to certain risk factors that constitute precursors of disease. . . . A much wider range of interventions are included with this mode of practice, some of which involve health education and information dissemination rather than technological prescriptions or standard medical regimen. Clinical primary prevention may involve educational efforts to ‘promote’ positive health practices as well as explicit medical interventions (e.g., immunizations) that serve to ‘protect’ the health of the client.4

Service and educational programs have been developed across the country in HPDP for which new directions and staffing patterns continue to emerge and undergo adjustment. Some service delivery models are and will be all-inclusive in dealing with multiple aspects of health. Others will be more specific and limited, for example; dental health promotion, disease prevention; cardiovascular health promotion, disease prevention; and mental health promotion, disease prevention.

It should be pointed out that many programs entitled “health promotion disease prevention” have drifted from their wholistic roots. They are atomistic and pragmatic in their approach, often reflective of very specific disciplinary interests of the staff involved. Some programs focus on narrow intervention programs, such as nutrition only or exercise only. Others concentrate on health assessment with no relationship to program. Few close the circle by postprogram evaluation and feedback. Comprehensive, integrated programs of assessment, intervention, and evaluation are the ideal realization of the concept as eclectically defined here.

The Federal Role

The federal imperative has crystallized the future agenda by defining needs, problems, and recommendations in a systematic, wholistic manner; however, the health delivery system has not responded in like manner. The surgeon general in 1979 encapsulated the HPDP agenda in a compendium entitled Healthy People.5 This document cited the background success of public health professionals and health educators, all of whom have improved measures of health in the United States. It also identified several areas of prevention that have not been particularly well-addressed by our present and traditional response to health problems. Fifteen priority areas of prevention were identified and discussed as broad goals to be realized within the decade.
In 1980 the surgeon general published a follow-up paper entitled “Promoting Health Preventing Disease: Objectives for the Nation.” The fifteen priority areas previously cited in *Healthy People* were used to establish 226 objectives with very specific targets to be met by 1990. Each objective had a measurable standard and each was offered to contribute to improving the health of the well being of Americans.\(^6\)

The supplemental September-October 1983 issue of *Public Health Reports*, the official journal of the U.S. Public Health Service, provides PHS implementation plans for attaining national objectives. This plan embodies the steps that are presently being taken and will be taken by the federal establishment with state and local government, industry and labor, voluntary organizations, and citizens at large to achieve.\(^7\)

This document represents a third step in the federal progressive approach to HPDP. It is a major commitment and it cites a theme that cuts across government bureaucracy and reaches down to every citizen. The collectivity of activity of all shades and types can move society toward these objectives. If successful, it will be indeed a second public revolution, as suggested by the surgeon general.

**Programs of Health Promotion Disease Prevention**

Our knowledge base regarding preventability of disease drifts from documentable prevention to no known preventive strategy, with a great deal of partial knowledge in between each extreme. The report of the secretary of Health and Human Services in 1980 (PL 95-626, Health Service and Centers Amendments Act of 1978, Title IV, Section 404) provided the first prevention profile to Congress and addressed this problem: “The potential scope of disease prevention and health promotion is vast, the types of possible interventions extraordinarily varied, and the knowledge base uneven. Thus large generalizations about the future role of prevention in reducing premature death and avoidable disability are dangerous.”

Nevertheless, “Objectives for the Nation” has categorized the goals in HPDP as preventive services, health protection, and health promotion. There is adequate research in each of the 151 subcategories to shed light on the question of validity of preventive measures.

The preventive services objectives challenge health providers. The health protection sector of the report is the responsibility of the govern-
ment and industry. Responsibilities for health promotion strategies fall to the individuals. It is in the areas of preventive service (high blood pressure control, family planning, pregnancy and infant health, immunization, and sexually transmitted disease) and health promotion (smoking and health, misuse of alcohol and drugs, nutrition, physical fitness and exercise and control of stress, and violent behavior) that the health professions and the health care industry can best address these problems. Responsibility for health protection falls more appropriately to the legislative and regulatory areas of the government and to the voluntary self-regulation of the industrial community.

**Preventive Services**

*Hypertension.* The reason for most cases of hypertension is unknown. Although high blood pressure cannot be cured, effective treatments have been devised to bring hypertension under control. The primary mechanism is medication; however, excess salt and high stress levels are thought to aggravate hypertension. Salt reduction and biofeedback have been suggested in the control of high blood pressure.

*Family Planning.* Pregnancy can be prevented through self and effective contraception. Surgical sterilization, intrauterine devices, and oral contraceptives are the the most efficient contraceptive methods.

*Pregnancy and Infant Health.* Low birth weights, infant mortality, and developmental problems can be diminished with proper prenatal care. Problems related to pregnancy such as toxemia can be identified and through drugs can be alleviated. Organic or congenital defects also can be addressed with appropriate prenatal care. Another strategy is counseling regarding the ill effects of smoking, alcohol, and drugs during pregnancy. Nutritional supplements and improved diet during pregnancy also are credited with decreasing the incidence of low birth weights, and stillborns.

Infant screening for PKU (phenylketonuria) and congenital hypothyroidism can aid in the reduction of these congenital birth defects.

*Immunization.* The seven childhood diseases of tetanus, pertussis, diphtheria, polio, rubella, mumps, and measles all can be prevented through a continuous immunization program.

*Sexually Transmitted Disease.* We try to control these diseases, but there are no vaccines to prevent such infections. We rely upon screen-
HEALTH PROMOTION DISEASE PREVENTION

ing, health education, and antibiotic treatment. Genital herpes and AIDS (Acquired Immune Deficiency Syndrome) have no active treat­ment yet.

HEALTH PROTECTION

Toxic Agent Control. Toxic agents fall under several rubrics viz., radioactive, carcinogenic, teratogenic, or mutagenic. These agents cause a wide variety of diseases and disorders including cancer, infertility, and chronic degenerative diseases.

Strategies to combat the odious effects of toxic agents are education and information, technological advances, and legislative and regulatory measures.

Occupational Safety and Health. This is an area that is highly visible and controllable. Injury or diseases as a direct result of the workplace run the gamut from dangerous work situations caused by obvious hazards to more subtle physical threats from dust and fibers. Education and information, technological advances, and legislative and regulatory measures are also strategies to reduce occupational injuries.

Accident Prevention and Injury Control. Motor vehicle mishaps account for the largest segment of accidents in the United States, with falls, drownings, burns, gunshot wounds, and poisoning following in descending order. As in the other two subsets of the major category of health protection, injury prevention is best attained through education and information, improved technology for safety, and legislative and regulatory measures.

Fluoridation and Dental Health. Periodontal disease and dental caries are the two largest oral health problems in the United States. Both diseases are highly preventable. Fluoridation has been very effective on a community level in preventing tooth decay. Plaque, which also causes periodontal disease, also can be addressed through education and information.

Surveillance and Control of Infectious Diseases. The surgeon general of the Public Health Service considers the major infectious diseases to be influenza; pneumonia; and respiratory, gastrointestinal and genitourinary tract diseases. Some 300 thousand deaths per year can be attributed to these diseases. Strategies to attack these include improved technology such as new vaccines, improved water systems, and im-
proved systems for infection control, particularly in health care facilities. Other recommended service measures are the establishment of surveillance networks to ensure early detection and of an information dissemination system to inform states and localities concerning threats and new mechanisms of treatment or prevention.

Health Promotion

These topics are generally the most popular when addressed by service delivery and/or educational programs. They are the glamorous ones that get a lot of attention and provide rapid feedback to an individual in terms of health improvement and risk reduction.

Smoking and Health. “Smoking, the single most important preventable cause of death and disease, is associated with heart and blood vessel diseases, chronic bronchitis and emphysema, cancers of the lung, larynx, pharynx, oral cavity, esophagus, pancreas, and bladder, and with other problems such as respiratory infections and stomach ulcers.” Strategies to assist in smoking cessation are education and information techniques; service programs to support smokers in their attempts to quit; technological advances to develop cigarettes with less harmful agents; and legislation, regulatory activities, and economic incentives to promote tobacco abstinence.

Misuse of Alcohol and Drugs. The misuse of drugs and alcohol has social and physiological effects on individuals and their families. The abuse increases not only mortality and morbidity from the substance itself, but increases risk for injury and death from accidents, suicides, and violence. Prevention strategies include education and information programs; economic measures such as increased taxes on alcohol; legislative and regulatory measures, particularly in enforcement of laws for drunk driving; technological advances; and service programs such as support groups for abusers.

Nutrition. Excessive eating has been directly related to increased risk for such diseases as heart disease, hypertension, and diabetes. The most prevalent strategy is the establishment of support groups with appropriate education program to assist the obese in weight loss.

Physical Fitness and Exercise. The health payoff for exercise has not been documented, but the literature strongly suggests that cardiovascular health is improved with an active exercise program. Strat-
Strategies are similar to those in nutrition, which include education and informative and support programs in exercise and fitness. Economic incentives have been tried in some places and legislative action has improved facilities for the populace.

Control of Stress and Violent Behavior. Stress has been linked to respiratory and gastrointestinal illness, absenteeism, obesity, headaches, and general fatigue. Violence is another entirely different category and covers child and spouse abuse as well as suicide and homicide. Strategies again involve strong education and information campaigns; service programs, such as hotlines, stress management programs, and support groups; and, of course, legislative measures, including strengthening laws, limiting hand guns, and improving employment opportunities for youth.

A theme running throughout these fifteen objectives is of education and information and the establishment of support groups. Here allied health practitioners will emerge as the professionals to provide the expertise for the educational activities; will become the patient/client educators; and will plan, implement, and provide support groups to clients.

The cost of these illnesses, which can be prevented or postponed, are staggering. The literature addresses the costs of the pursuit of negative lifestyles that support the risk factors for these diseases. We do not have good information demonstrating the direct cost-effectiveness of HPDP activities in the fifteen areas, but we are intuitively drawn to these as solutions.

Acceptance of Health Promotion Disease Prevention

Why has HPDP developed and caught the nation’s attention and imagination? There are at least five reasons for popularization of the concept:

1. value shifts in American society
2. A recognition of the success of primary prevention and the first public health revolution
3. technology
4. recognition of limited resources for health care
5. societal acceptance of health promotion disease prevention
Value shifts have occurred in rapid order in the past thirty to forty years. Americans are better educated and better informed, and they have higher expectations of themselves and the society in which they live. They are more demanding of institutions and government. Information and news is at our fingertips and is used to shape individuals and society at greater levels of participation than ever before.

Americans have emerged from the hedonism of the 1960s with the accountability and self-responsibility of the 1980s. The consumer movement, the women’s movement, and a general skepticism of authority figures and institutions have led the focus on health.

The demographics of the war babies and postwar boomers continue to create a bulge in the system as it moves. Much like the mouse swallowed by the snake, this bulge inevitably moves through the system. This population does not seem to accept the aging process and it seeks ways to extend its youth. This group has shown that health and activity are not the domains of adolescents alone. If these judgments are not accepted, one needs only to examine the divorce rate, or even more symbolically to ponder on Joan Collins’ photo layout in Playboy.

A shift of population to the Sun Belt has also affected the value system related to physical and outdoor activity. There has been an irrevocable change in the roles and expectations of adults in our culture. There is a recognition that a shift in morbidity and mortality has occurred in this century. It has built an expectation that we can override the disease and aging process.

The first public health revolution was a success. Those infection killers of eighty years ago have all but disappeared, leaving the diseases of lifestyle in their place.

Influenza, pneumonia, diptheria, tuberculosis, and gastrointestinal infection were the leading cause of death in 1900. Today heart disease, cancer, cerebrovascular diseases, and accidents are the major killers of Americans. Heart disease and stroke account for 34 percent and 8 percent of all deaths respectively, together totaling 42 percent. Cancer is responsible for 22 percent of all deaths. The efforts of an army of professionals have paid off in the battle against infectious disease. Prevention through immunization and improved public health practices have made a very important contribution to the health of Americans. The scientific revolution through improved pharmaceutics, technology and techniques is also responsible for these advances. Because of our superb public health system, however, the proportion of
deaths from the major chronic diseases cited above has more than doubled.

We note today that only 10 percent of the usual indicators by which we measure health care can be affected by the health care system. Ninety percent are beyond the scope of the practitioner.9

Technology has effected our societal understanding of problems and solutions. The communications revolution that has moved from telephone to radio to television to interactive computers has made Americans more knowledgeable about what must be addressed and has provided the tools to solve many of those problems.

A few years ago the costs of health was a non-issue. In fact, national health insurance dominated the discussion. As the United States exceeds 10 percent of the Gross National Product for health the question at hand is how to get the most care for the least money. The obvious extrapolation is to conserve those finite dollars for treatment by preventing illness up front. Government and private industry, the payers for health, are intensely interested in limiting the costs of care.

Finally, HPDP has become legitimate because people know about it, buy into its value, believe it can continue to positively affect the mortality and morbidity rates, and believe it offers a remedy for escalating health care costs.

**The Allied Health Context**

Programs of health promotion disease prevention are in essence programs of primary prevention. It is clear that the array of activities in health promotion disease prevention programs are broad and the skills necessary to effectively deliver such a program are found in an array of different health practitioners.

Pellegrino was prophetic when he suggested not only the direction of primary prevention but also the manpower issues and requirements.

The objective of health maintenance should be to sustain, preserve, and support a person’s position in the health continuum. Maintenance, therefore, subsumes curative medicine and preventive medicine. . . . It included a wide variety of measures; specific disease immunizations, control of the quality of food, water, and air, control of chemical pollutants, noise abatement and changes in lifestyle, habits and values detrimental to health—smoking, irrational use of foods, drugs, alcohol and automobiles, as well as patterns of destructive personal and social behavior. . . .

We must look elsewhere than the physician for the manpower to mount a national
program of health maintenance and prevention. . . . the more effective a prevention measure becomes the less it requires the personal attention of the physician.\textsuperscript{10}

Pellegrino envisioned a new profession—"health counselor"—trained to effect a HPDP program. No new practice has emerged and probably one should not be established. What has emerged is the use of existing practitioners, viz. allied health professionals, nurses, and others who have expanded their roles. They have learned new skills and have established themselves in new settings.

The Kellogg Foundation sponsored a conference on Health Promotion Disease Prevention at the University of North Carolina at Chapel Hill in 1980. These conferees concluded that multidisciplinary activity is essential in the delivery of HPDP programs in medicine and dentistry. Health educators, nutritionists, physical therapists, and exercise physiologists were given as illustrations of professions well suited to participation. They noted that physicians and dentists have been slow in accepting and utilizing these kinds of professionals as consultants for their patients. Wholistic care implies a more egalitarian relationship among professionals rather than the traditional hierarchical one. Clinicians and educators must recognize and accommodate the changed professional roles of health promotion disease prevention.

\textbf{Education Leadership}

Allied health traditionally has followed the medical model in a curricula-didactic and clinical component. The data related to employment is overwhelmingly hospital (i.e., treatment) oriented.\textsuperscript{11} However, diagnosis-related groups, demographics, and the competitive thrust in health care delivery project us into a situation of deinstitutionalization of health care delivery; of a proliferation of long-term care; and of a mandate for HPDP. Already we see a shift of allied health personnel into office practices.\textsuperscript{12}

We are woefully wedded to the past. We must change to prepare our disciplines for appropriate roles in the newly emerging settings of which health promotion disease prevention will be a major activity. Allied health students are not generally prepared for anything but the hospital setting. This is already an anachronism.

Although change in the health care system comes simultaneously from all directions, it is the responsibility of those in the educational
institutions to aid in the development of models; to initiate the curricular infusion of knowledge and skills; and to seek out or establish appropriate clinical experiences for students.

This has occurred serendipitously in some institutions, but an initiative of the federal government has focused grant activity on curriculum development in allied health with an eye to establishing models to proliferate the expanded role of allied health in HPDP delivery.

The Division of Associated and Dental Health Professions, Bureau of Health Professions, Health Resources and Services Administration, has taken up the congressional and administration charge to infuse the grant and contracts program with HPDP activity.

In 1983 the Bureau of Health Professions awarded grants to allied health training centers for faculty training and development of new courses, materials, and training experiences; and to prepare allied health personnel for appropriate expanded roles in health promotion and disease prevention. These grants were intended to further the professional preparation of personnel in those allied health occupations that have a significant opportunity to apply relevant principles of health promotion and disease prevention to the fifteen priority areas indentified in “Objectives for the Nation.”

Four areas were cited as the scope of grant support:

1. **Faculty development.** Present faculty have not been particularly well prepared for HPDP by dint of their training and experience. The programs were expected to expand the faculty’s expertise in HPDP concepts.

2. **Basic professional student training.** Present curricula, both didactic and clinical, do not generally address HPDP. The grantees were expected to establish educational modules including lesson plans, publications, and audiovisual materials. The grantees were also supposed to establish related clinical experiences.

3. **Continuing education.** Practitioners, like faculty, have not been trained, nor have they had much experience in disciplinary-related concepts. The grantees were expected to develop workshops to train current practitioners in these areas.

4. **Consultative services.** Allied health faculty in other institutions, other health science faculty, and local, state and community people are untrained and inexperienced in the arena of HPDP. The grantees were expected to be a resource to these external groups.
In June of 1983, fifty-six competitive grant applications were reviewed for technical merit by an ad hoc committee of nonfederal consultants. Twenty proposals were approved and nine colleges and universities were funded. These educational institutions' programs represented a major thrust in the direction of integrating HPDP concepts in the curriculum of the allied health profession. They provide a stimulus to expand the traditional model of hospital/treatment bound didactic and clinical education.

The institutions granted funds to initiate programming were the University of Connecticut, Storrs; Western Michigan University, Kalamazoo; State University of New York at Stony Brook; University of Washington, Seattle; University of Texas Health Science Center at Dallas; Howard University, Washington, D.C.; San Jose State University, San Jose, California; Baylor College of Medicine, Houston, Texas; and the University of Texas School of Allied Health Sciences at Galveston.

These grant activities are relatively similar because of the nature of the objectives of the grant. A certain amount of standardization cuts across institutions—a weakness in the overall thrust of these efforts.

Another weakness in the program examined is that there is very little HPDP clinical experience in the models under development. In general these programs (1) develop an institutionally based faculty in terms of a sensitization to HPDP and relevant content areas, (2) develop materials to be used in didactic courses for students, and (3) use those materials in continuing education programs.

Each program, however, has specific goals and objectives. The expectations of each were presented in the institutions' grant proposals. The University of Connecticut emphasized in its plan the establishment of an advisory group to assist in faculty development, and curriculum revision within its institution in the areas of clinical dietetics, medical technology, medical cytogenetic technology, physical therapy, and cytotechnology. Externally, the school plans to present continuing education to practitioners in the region and provide a consultation service for institutions and the community. The extramural continuing education and consultation functions are slated to be housed in an "Academy for Health Promotion Disease Prevention." This school is committed to a reorientation in both its undergraduate and graduate programs to provide emphasis in HPDP.
The plan also called for maximal utilization of existing university resources. In addition, Connecticut sought to improve the personal health competencies of its students and faculty.

At the time this chapter was written, the University of Connecticut had accomplished several of its objectives. The staff has analyzed all of the graduate and undergraduate courses to determine the location and level of existing HPDP content. They have also examined their clinical sites to identify where a clinical exposure to HPDP was available.

In order to provide a better role model for students, a health behavior survey was administered to faculty and a follow-up series of appropriate seminars were provided. Additionally, three faculty retreats have been held dealing with nutrition, exercise, and cultivating healthy behavior. The University of Connecticut has developed these topics and integrated them into existing courses. The faculty have offered workshops for clinicians in nutrition, stress, fitness, and exercise. Finally, a newsletter entitled the *Journal of Health Promotion* has been started for the Connecticut constituency.

*Western Michigan University* emphasized in its plan the identification of generic HPDP concepts and the use of interdisciplinary strategies to develop faculty for implementation and integration into the curriculum. The disciplines targeted by Western Michigan were speech pathology and audiology, primary care physician assistant, medical technology, and occupational therapy.

The plan of action at this university was to identify and train a cadre of allied health faculty to integrate HPDP concepts within the courses of the various professions. The cadre want to assist their discipline counterparts in practicum and research activities. The school’s Center for Human Services was scheduled to produce videotapes and other educational material for external use.

This program was funded three months after the other grantees, but at the time this chapter was written, Western Michigan had made the following progress: To train faculty, the staff of the grant has conducted a summer round of seminars in two priority areas targeted for the grant: (1) family planning/pregnancy and infant health and (2) problems of the aging. The cadre of faculty represented the following programs: blind rehabilitation and morbidity, gerontology, wholistic health care, occupational therapy, physician assistants, social work, speech pathology/audiology, and the specialty program in alcohol and
drug abuse. Once trained, faculty members worked on integrating content in the two target areas into existing courses in their programs.

The staff of the grant has also developed three videotapes, entitled *Introduction to Health Promotion Disease Prevention, Family Planning/Pregnancy,* and *Infant Health and Aging.*

*The State University of New York at Stony Brook* emphasized in its plan the establishment of a resource center for health promotion and disease prevention in allied health. This center was to have an advisory board, a faculty task force, and a panel of content experts who would relate directly to the fifteen priority areas of the "Objectives for the Nation."

The resource center was charged with developing the faculty at Stony Brook and establishing an additional core course and electives in the curriculum. Curriculum modules in HPDP were to be planned and implemented in the resource center. Stony Brook also planned a clinical experience. The designated disciplines were physical therapy, medical technology, physician assistant, and respiratory therapy.

Externally, the resource center planned to offer continuing education courses for practitioners and to convene a national conference and to publish the proceedings. Finally, consultation support was to be provided by the research center.

The first area that was addressed at Stony Brook was faculty development. Using content consultants in all fifteen areas of the surgeon general's report, seminars in each area have been developed. These have been open to faculty and students in the Health Science Center. Each consultant has written a paper on the state of the art and has recommended directions for the future; these have been the basis for continuing education workshops.

Stony Brook has established an in-house resource room to house and catalog health promotion disease prevention materials, including books and video and audio tapes. They have also established two fellowships for allied health professionals who wish to teach in the health promotion disease prevention area. Stony Brook also has prepared a guidebook for allied health faculty development and has extended free access to their faculty, didactic and clinical, to health promotion disease prevention workshops.

The second area addressed at Stony Brook was basic student training at both undergraduate and graduate levels in multidisciplinary and monodisciplinary modules. There has been established an
elective graduate level course, and a health promotion disease prevention module has been integrated into the preexisting course entitled "An Introduction to Health Care." An elective-supervised project for undergraduates has been initiated, as has a graduate elective course in patient education. Curriculum modules for each discipline have been developed and integrated into each disciplines' curriculum with an eye to role delineation studies of each discipline.

The third area activity, continuing education, has been addressed by Stony Brook in a modular fashion. A continuing education course, "Health Promotion Disease Prevention: Shifting Gears in Health Care," has been offered with completion generating a first level of certification in HPDP. Ten of fifteen eventual modules have been developed, each one corresponding to the fifteen designated areas. After completion of five continuing education workshops, participation will be certified at Level 2; after ten, Level 3, and after all fifteen participants are certified as Expert.

Finally, Stony Brook has established a quarterly newsletter entitled "The Promoter" to disseminate HPDP activities on a national level.

The University of Washington designated three allied health disciplines: occupational therapy, physician assistant, and physical therapy. A faculty development program was planned to prepare faculty in these disciplines to provide an interdisciplinary educational experience for students. Washington planned to initiate workshops for other allied health faculty and also offer consultation with other health professional education schools and professional societies in the region.

As of the time this chapter was written, Washington has concentrated on faculty and curriculum development. The staff of the project has developed a conjoint course for physician assistants, occupation therapy, and physical therapy. This course is required for physician assistants but is optional for the other disciplines. Its focus is on primary prevention, i.e., nutritional topics, fitness, smoking, stress, and drug and alcohol abuse. The course emphasizes age-specific issues in each of the areas. Each student is required to do a project consisting of a visitation to a HPDP site and a report on the program.

The area of faculty development focused on occupational therapy faculty through a series of seminars on collateral topics in the conjoint course. The objective was to improve the faculty's understanding of these areas and their relationship to HPDP.
The University of Texas Health Sciences Center at Dallas emphasized in its plan the development of educational materials and the infusion of these materials with appropriate instructional strategies into the professional education of its students in dietetics, physician assistant, and physical therapy programs. The institution also planned to establish a program of faculty development and continuing education for its own and external faculty and practitioners.

Dallas expected to develop its own teaching faculty and training materials; train its students and practitioners in the community; disseminate its materials through its existing networks locally, statewide, and nationally, and to collaborate with other faculty, health agencies, and institutions.

At the time this chapter was written Dallas had completed its first year of operation. An instructional specialist and a content specialist, using the recommendations of faculty and outside consultants, have completed seven educational modules. These modules consist of the five preventive health service clusters as identified by the surgeon general: smoking, alcohol and drug abuse, nutrition, exercise, and stress and violence. Two new modules round out the cluster: "Cross Cultural Aspects of Health Promotion Disease Prevention" and "Health Policy Implications of Health Promotion Disease Prevention. The modules are monographs that include educational objectives, learning experiences (including a literature review, content material, epidemiological evidence and cost implications), a list of relevant media, and a test item bank.

Dallas also has completed a computer matching of the existing educational objectives in all of the courses offered in dietetics, physical therapy, and physician assistant with the surgeon general's "Objectives for the Nation" in order to identify the curricular targets for integration of the modules. A stand-alone one-, two-, or three-hour course has been designed to complement the material in the module.

In the remaining years of the grant, the modules will be integrated into the curriculum and the remaining ten priority areas in prevention and protection will be modularized and added the teaching program. Continuing education uses the materials developed and distributes them to the practitioner community.

Howard University, Washington, D.C., emphasized in its plan the development of a model health station in a selected District community where an interdisciplinary group of allied health faculty and students
develop and implement a health promotion program for pregnant women and high-risk infants.

Physical therapy, clinical nutrition, physician assistant, occupational therapy, and medical technology were the designated disciplines. The curriculum, didactic and clinical, was to be developed and coordinated by a new unit called The Health Promotion Education Center. This center was to have an external regional role as a resource to assist other institutions in curriculum planning and knowledge dissemination in HPDP.

At the time this chapter was written, Howard had completed orientation for its faculty. That faculty has accomplished a modification in the pre-professional curriculum to include HPDP concepts. In addition, a new course has been added with an emphasis on community health and epidemiology. This course has been offered to professional students and has involved presentations by HPDP experts. These sessions have been videotaped for future course interactions.

A unique aspect of Howard University's grant is its development of a clinical site for student affiliation. During the first year of the grant, faculty from physical therapy, clinical nutrition, occupational therapy, and physician assistant programs were introduced to a community clinic that focused on prenatal care and postpartum follow-up. Physician assistants participated in screenings and referrals. Clinical nutritionists established assessment and educational programs. Physical therapists offered exercise programs for prepartum conditioning. Occupational therapists offered prevocational assessment and referrals for training for employment. Once the roles were established, students were introduced for clinical education.

Howard has also focused on continuing education, in which its primary role is as a leader in HPDP workshops for other predominantly black institutions and faculty.

San Jose State University, in San Jose, California, established a plan to focus its HPDP project on increasing the knowledge of students, faculty, and practitioners in occupational therapy, nutrition, and health administration. This project in particular was to underscore professional's ability to deal with the health-related belief, attitudes, and behaviors of minority groups and to assist the professional in responding appropriately. In addition, project expectations were to involve active participation by target populations.

Three of the components of the scope of the grant were to address
(1) faculty development, (2) basic professional student training, and (3) consultative services. Participative learning to facilitate behavioral change was the cornerstone of the San Jose project.

At the time this chapter was written, basic areas had been addressed. The first was faculty development. The objective was to increase the awareness of the faculty to health-related values, perspectives, and behavior patterns of racial minorities, viz., Hispanics, Blacks, North Asians, and Southeast Asians. To do so they have developed and offered four workshops for all faculty, each emphasizing different aspects of this unique approach to preparing faculty and practitioners to deal with clients from different cultural backgrounds in a HPDP situation.

The second activity was student training. Faculty teams working weekly have affected curriculum change. A course, "Multi-Cultural Health Practices," has been implemented. It is an interdisciplinary course taught by three faculty, one from each of the designated disciplines. This address cultural differences and health beliefs, nutritional concepts, alcohol and drug abuse, stress, smoking, hypertension, and family planning.

The third objective was consultation. A team of faculty has designed an approach to reach the community, has provided consultation to community agencies, and has expanded a network of community collaboration.

The University of Texas School of Allied Health Sciences at Galveston targeted the four areas of faculty development, curriculum development, continuing education, and consultation in the following professions: radiologic therapy, physician assistant, health education, health service administration, occupational therapy, physical therapy, and respiratory therapy.

Galveston intended to address the issue of faculty development to prepare faculty and increase the knowledge of the issues in HPDP and skills required of practitioners. The program also planned to increase the opportunities for the students to develop HPDP skills within their curriculum. The program planned to look externally through consultation and training institutes for allied health practitioners and faculty.

At the time this chapter was written, the staff in Galveston had completed development sessions to improve the knowledge and skills of the faculty. They have offered a survey of their alumni and have
conducted five continuing education programs in HPDP based on the surveys. In the first year of the grant five of twelve modules for student learning have been developed. They are (1) introduction to HPDP, (2) intervention strategies and health promotion disease prevention programs, (3) nutrition, (4) exercise, and (5) stress.

Each module is a self-instructional package to be used as a supplement to existing courses. The modules include a preassessment tool, relevant content, suggested activities, and a postevaluation. Three courses have been developed for those disciplines cited in the plan. Courses are in place and are entitled "Health Promotion Program," "Health Education in Clinical Settings," and "Promoting Sexual Health."

Galveston has done something unique, for they have established a HPDP delivery program for college faculty, staff, and students. There are three phases:

Phase I—health assessment. Blood analysis, blood pressure, height/weight measurement, heart rates, skin fold, and flexibility evaluations are all a part of this assessment.

Phase II—program. This phases involves analysis of the data collected in Phase I, identification of individuals' priority areas, and implementation of an intervention program.

Phase III—follow-up.

Baylor University, Houston, Texas, established a plan for infusion of HPDP into the curriculum of four disciplines: dietetics, nurse midwifery, physician assistant, and dental hygiene. Baylor planned to (1) document the HPDP knowledge and skills of allied health faculty and practitioners; (2) conduct development activities to enhance faculty knowledge and skills; (3) develop appropriate curriculum materials for the four targeted disciplines; (4) devise clinical exercises to facilitate student mastery of appropriate clinical skills; (5) strengthen the clinical knowledge and skills of allied health practitioners; (6) evaluate all components of the project both formatively and summatively; and (7) disseminate the outcomes of the project to appropriate audiences.

At the time of writing, Baylor University has embarked on its program. An initial survey of clinicians was completed. The objectives of the survey were to determine the health habits of practitioners, HPDP attitudes of practitioners in their daily practice, and continuing education needs in HPDP.

The Baylor staff has also identified the specific needs for each of the
disciplines and have integrated them into already existing courses. To prepare faculty to teach the concepts, one faculty person from each discipline was chosen to attend eight seminars in HPDP topics taught by experts in the field. This core faculty has taught the basic faculty and has begun to offer continuing education workshops.

These nine programs offer a beginning; the rest of us must help to develop this so that our students are well prepared for the changing emphasis in the delivery system. The most recent federal activity to prod national change was a series of five workshops sponsored by the Bureau of Health Manpower. These workshops focused on voluntary/proprietary agencies, primary care practitioners, public health, and allied health. At each workshop the participants examined the fifteen areas of objectives and established an agenda to publish a companion piece recommending education methods. They have established 170 objectives, which have been distilled into sixty-one recommendations specifically related to ways to facilitate changes in education to emphasize HPDP. It is hoped these recommendations will eliminate barriers and enhance opportunities in the following categories:

- Accreditation, certification, and licensure
- Communication/information
- Continuing education
- Curriculum: philosophy, content, evaluation
- Faculty development
- Government role: federal and local
- The role of industry
- The role of institutions
- Research agendas
- Students

We must be prepared to take these recommendations when they are published and attempt to implement them. These recommendations will simplify a complex issue and will point to specific ways to continue to promote HPDP. The American Society of Allied Health Professions now has a HPDP interest section. Allied health education must expand its horizons and make appropriate curricular changes so that our graduates are prepared to practice in a multitude of clinical areas stretching across the wellness/illness continuum.

The challenge is to reassess the didactic content of our programs
and to integrate HPDP knowledge skills and attitudes. We must recognize that both didactic and clinical efforts are necessary in order for students to apply the theoretical content base. Moreover, HPDP cuts across the disciplines because it simply focuses on the client. This content is not medical technology, physical therapy, occupation therapy, etc. It is nutrition, exercise, motivation, self-care, etc. Because the client is a wholistic organism, typical monodisciplinary lecture and lab is not the appropriate methodology. Interdisciplinary education is the means to working wholistically. problem-solving, team care, educational methods, and group dynamics will prepare our students.

For allied health the challenge is exciting. Physical therapy, physician assistant, health administration, occupational therapy, nutrition, dental hygiene, medical technology, health education, and many other allied health professionals have a vital role to play. These professions will staff the upstream community with workers who will teach the swimmers how to swim, to avoid the rapids, and to survive the whirlpools. They will be a different kind of professional trained in treatment and rehabilitation, but also in educational skills and new content. They will work not only in upstream hospitals but also in clinics, group practices, freestanding wellness programs, and a host of other agencies and businesses.

Referring again to Don Ardell’s fable, Upstream can, if practitioners rise to the challenge, answer Downstream’s vexing question, why are so many swimmers in trouble and couldn’t Upstream prevent the flow of victims? Through health promotion disease prevention, Upstream can limit the number of troubled swimmers and prevent many from drowning in downstream waters.

Notes


Increasingly, "rural health" is being recognized as a distinct and important component of the larger health care arena. For example, in the past decade at least two national organizations have been established to deal with rural health: American Rural Health Association and the National Rural Health Care Association. Other organizations have developed subunits to focus on rural health issues; e.g., the American Hospital Association has established a Center for Small or Rural Hospitals.

Why a separate identity for rural health? This is a legitimate question, and the most basic answer is that the characteristics of rural America, and the implication they have for health care delivery, are poorly understood. The lack of understanding comes in two quite different forms. First, there are those who are simply oblivious to rural-urban differences. After all, isn't America a giant "melting pot" bound together with a network of interstate highways and many forms of mass communication? The second type of misunderstanding involves those who believe rural America is very different but who are entirely incorrect about the nature of these differences. For example, those who long for the peace and quiet they feel exists in rural America will be shocked to learn that the murder rate in rural areas is much higher than in small cities and suburbia.¹

This chapter describes some of the more important dimensions of rural American and its population. With this as general background, it then focuses on the health care needs in rural America. A section considers the resources—especially those of the allied health professions—that are important in meeting America’s rural health needs.
The following section focuses on ways to improve the quantity and quality of allied health personnel serving rural areas. The chapter concludes with comments about research needs and the diversity that exists within the rural sector.

RURAL AMERICA

Statistically speaking, rural America is defined (by the U.S. Bureau of Census) in terms of those people residing in places of less than 2,500 population and in the open country. By this definition about 27 percent of the population of the United States is rural. Another approach uses the terms metropolitan and nonmetropolitan and places all of the nation's counties into one of these two categories. The principal criterion for designating an area as metropolitan is the presence of a city of 50 thousand population or more. The counties in which such cities are located, and in some cases contiguous counties, are classified as metropolitan; all other counties are considered nonmetropolitan. In 1980, 28 percent of the nation's population was living in nonmetropolitan areas/counties. Note that with the metropolitan-nonmetropolitan dichotomy, metropolitan counties may contain rural people (according to the definition of the rurality noted earlier). Indeed, in 1980 approximately 30 percent of the rural population lived in metropolitan counties. This is an important observation in that these individuals, while rural on the basis of residential setting, often look to large cities for employment, recreation, and services.

In this chapter, the terms rural and urban are used more often than nonmetro and metro. However, the usage of rural/urban is in an eclectic sense and not tied to the official census definition. The terms nonmetro and metro are used only in reference to data that use this particular dichotomy.

Although rural-urban differences are apparent in a multitude of ways, the focus here is on three very general areas: population dynamics, economics, and population density. Before turning to these areas one common misconception should be noted. This misconception involves the equation of rurality with farming. While it is true that most farmers live and work in rural areas, it is not true that most rural people are farmers. Specifically, the rural nonfarm population outnumbers the rural farm population by about seven to one. Moreover, an ever-
increasing percentage of the income of farmers is being generated from off-farm earnings.\textsuperscript{6}

\textit{Population Dynamics}. Between 1970 and 1980 America's non-metropolitan population grew at a faster rate than did the metropolitan population, a situation that had not occurred since the first census in 1790. Specifically, the nonmetropolitan population grew by 15.4 percent, compared to 9.1 percent for the metropolitan population. In absolute terms, the nonmetropolitan population grew by 8.4 million, with about one-half of this growth due to net immigration from metropolitan areas. By contrast, during the 1960s nearly three million more people moved out of metropolitan areas than into them. Non-metropolitan growth was most rapid in the West and was slowest in the Great Plains and Corn Belt regions.\textsuperscript{7}

The reasons for this rural renaissance are not fully understood, but it appears that the urban-to-rural immigrants are quite different from the millions who have been part of the historic rural-to-urban migration stream. Rosenblatt and Moscovice note that "the new rural immigrants are not the economic opportunity seekers who went to the city looking for more lucrative jobs, education, or spouses. Rather, they are the better educated, older, and more affluent segment of the population, seeking a better quality of life in a rural area. One-half of these new households have a decreased family income as a result of their move."\textsuperscript{8}

The implications of the rural renaissance on health care are profound. First, more people mean more health care will be needed; and in many rural areas the amount of health care available is already inadequate. The U.S. Department of Housing and Urban Development argues that a population growth rate of 10 percent per year for a small community begins to strain the local service delivery systems; at a rate of greater than 15 percent these systems begin to break down.\textsuperscript{9} Although most rural communities are not growing that rapidly, a sizable number of the recent "boomtowns" in the West have experienced population growth of this magnitude.

Second, the type of health care needed probably changes. For example, much of the rural population growth is associated with urbanites retiring in rural areas. These people tend to be elderly, and the elderly have a different set of needs than does the rest of the population. The process of growth and change also may create a different set of health problems. Baldassare notes that "population growth has ad-
verse consequences for the community and the individual, because a life once characterized by intimate personal ties and likemindedness gives way to more formal and superficial relationships among people who have little in common with one another. This ‘loss of community’ and its consequences for personal life (e.g., alienation, suicide) has been a consistent theme that influenced much of the thinking about community growth.”

Baldassare also argues that “urban migrants may be demanding, in qualitative and quantitative terms, goods and services not typically found within rural communities. Dissatisfaction may occur when these urban expectations remain fulfilled, even though positive rural amenities are present.”

_Economics_. Income and employment levels in rural areas typically lag behind those of urban areas. In 1981, more than 14 percent of the nonmetropolitan population had incomes below the official poverty level. The comparable figure for the metropolitan population was about 11 percent.

One of the reasons for the higher incidence of poverty in nonmetropolitan areas is that these areas also have a much larger percent of their population that is elderly. In 1980, 13 percent of the nonmetropolitan population was at least sixty-five years of age, but only 10.7 percent of the metropolitan population was in the same age group.

With the exception of female-headed households, a majority of the poor in both rural and urban areas are employed. This means that wage rates and duration of employment are such that total earnings for the working poor are relatively low. In rural areas lower wage rates for the working poor probably are tied, in part, to a lower rate of formal education among the rural population.

Lower incomes and the greater incidence of poverty in rural areas have important implications for factors affecting health status and health care delivery. Examples include nutrition, housing, and transportation. In terms of nutrition, Purtle notes:

_Nutritional status is part of a vicious poverty cycle in that people without adequate nutrition are likely to become chronically ill, unable to work on a regular basis, and therefore unable to buy the food they need... Over-consumption of food, another form of malnourishment, [often involves] excess consumption of sugar, animal protein, fats, and alcohol [and frequently leads to] obesity. Although research data for rural areas is inadequate, the Ten-State Survey findings allow the inference that obesity is a significant problem in rural areas._
In the last decade, hard physical labor in rural areas has been reduced significantly by mechanization. It is likely that many rural people have reduced their total energy output without an equivalent reduction in energy intake. Big meals with an emphasis on dessert, potatoes, and meat are traditional in most rural areas of the United States.15

Housing is an important factor affecting both physical and mental health. While rural areas have higher rates of home ownership, the median value of this housing is lower than in urban areas, and a higher percentage of mobile homes is found in rural areas. Additionally, rural housing units are more likely to lack plumbing, a private bath, a complete kitchen, an adequate water supply, and a sewage disposal system, and they are more likely to have electrical and structural defects than urban units.16

The linkage between rurality, transportation, and health—especially in terms of access to health services—also must be noted. Automobile ownership in nonmetropolitan areas is high in that 87 percent of nonmetropolitan households own at least one automobile or truck, compared to 84.3 percent of all American households. Despite the high rate of automobile ownership, the nonmetropolitan population contains a disproportionately large share of the “transportation disadvantaged.”17 At least two factors contribute to this situation. First, those rural people without automobiles (typically the poor and/or the elderly) do not have the alternatives available to their urban counterparts. For example, fewer than 10 percent of communities under 2,500 population are served by taxi service;18 in terms of inter-community transportation alternatives, passenger rail service is available in very few rural communities, and intercity bus lines serve only 15 percent of towns and places of less than 2,500 population.19 Even families with an automobile have difficulty if the only vehicle is used by the principal wage earner to travel to and from work. It is estimated that as many as 20 million nonmetropolitan residents fall into this category.20

Finally, one aspect of rural poverty that is particularly problematic has to do with the nation’s major cash welfare program, Aid to Families with Dependent Children (AFDC). Typically, eligibility for AFDC also provides entitlement to Medicaid. The AFDC program is targeted toward single-parent families and, unlike the urban poor, most poor families in rural areas are two-parent households. This often makes poor families in rural areas ineligible for AFDC and for Medicaid as well.21
Population Density. Low population density is probably the single most important characteristic distinguishing rural from urban areas. It is this characteristic that often leads to intrinsic differences in the way in which health services are delivered. This is not the case with many of the other characteristics noted above. For example, the greater incidence of poverty in rural areas may affect the amount of services needed but it does not necessarily affect the mechanics for delivering services. In contrast, low population density often leads to entirely different models of health care delivery, including airborne ambulances, telecommunication linkages between remote outposts and secondary care centers, and satellite care centers staffed only with physician assistants and nurse practitioners.

Apart from its impact on the delivery mechanism, low population density may also affect health care needs. For example, Seiden suggests that certain social problems such as alcohol abuse and suicide flourish in rural areas because "great physical distances between people can make social networking and the formation of psychological support groups difficult to establish and maintain."22

Rural Health Needs

In terms of physical health status, a number of indicators are available that allow for rural-urban comparisons. One recent study at the state level found age-adjusted mortality rates to be higher in rural areas than in urban areas.23 Nationally, infant mortality has been consistently higher in nonmetropolitan areas than in metropolitan areas.24

Another indicator of health status is chronic conditions. Rosenblatt and Moscovice report that the prevalence of the following chronic conditions is higher for the rural population than for the urban: hypertension, coronary heart disease, ulcer of stomach and duodenum, hernia, hypertensive heart disease, gall bladder disease, and emphysema.25 Moreover, limitation of activity due to chronic conditions is more likely to occur among the nonmetropolitan than the metropolitan population (Table 1).

Although chronic conditions appear to be more prevalent among the rural population, a different patterns exists for acute conditions (Table 1). The incidence of acute conditions is much lower in the nonmetropolitan population than in the metropolitan population. The incidence among the farm population is particularly low, although the
Table 1. Selected Indicators of Health Status by Place of Residence.

<table>
<thead>
<tr>
<th>Health status indicators</th>
<th>Metropolitan All</th>
<th>Metropolitan Nonmetropolitan</th>
<th>Outside Central cities</th>
<th>Outside Non-central cities</th>
<th>Non-farm</th>
<th>Farm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of persons with limited activity due to chronic condition(s), 1974</td>
<td>13.4</td>
<td>14.7</td>
<td>12.4</td>
<td>15.8</td>
<td>15.8</td>
<td>15.5</td>
</tr>
<tr>
<td>Incidence of acute conditions per 100 persons per year, 1977-1978</td>
<td>224.3</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>211.5</td>
<td>168.0</td>
</tr>
<tr>
<td>Restricted activity plus bed disability days per acute condition, 1977-1978</td>
<td>6.4</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>6.4</td>
<td>7.1</td>
</tr>
<tr>
<td>Disability days per person per year (age-sex adjusted), 1980</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted activity</td>
<td>19.1</td>
<td>21.1</td>
<td>17.7</td>
<td>19.0</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Bed disability</td>
<td>7.0</td>
<td>8.5</td>
<td>6.0</td>
<td>6.8</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Work loss</td>
<td>5.2</td>
<td>5.4</td>
<td>5.0</td>
<td>4.7</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Percent of persons assessing their health as either fair or poor, 1981</td>
<td>11.0</td>
<td>NA</td>
<td>NA</td>
<td>13.5</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

Source: National Health Survey of the U.S. Department of Health and Human Services, Publication Series 10, Documents 111, 132, 142, and 143; and Health: United States and Prevention Profile, 1983, Hyattsville, Maryland, DHHS Publication No. (PHS) 84-1232.

NA = not available.

The impact of each acute condition is a bit more severe for the farm population (as measured by restricted activity plus bed disability days per acute condition).

All three types of disability days (restricted activity, bed disability, and work loss days per year) are a bit lower for the nonmetropolitan population than for the metropolitan population (Table 1). However, it
is important to note that behavioral manifestations of illness and injury, such as days of bed disability, can be influenced by cultural mores. For example, Rosenblatt and Moscovice suggest that the lower bed disability in the nonmetropolitan population may be due to "... the propensity of rural dwellers to continue to work despite acute intercurrent illnesses or injuries."26

Table 1 also includes data on how individuals perceive their own health status. The percent of the nonmetro population that perceives personal health as either “fair” or “poor” is considerably higher than that of the metropolitan population.

Data on mental health status in rural areas is less adequate than the data on physical health. This lack of data has not prevented extensive speculation based largely on ideology and romanticism; as pointed out by Wagenfeld, the city has historically been juxtaposed against the country by arguing that “the [rural] pace of life was slower, man was in contact with the soil, he was not divorced from the fruits of his labor, and there was considerably less stress. In contrast, urban life [was characterized by] crowding, stress, environmental decay, and pernicious foreign elements.”27

Is it true that rural America is the stronghold of virtuous values and strong and stable people? Probably not. Wagenfeld has compiled virtually all of the studies/data available and concludes that “there appears to be a pervasive amount of evidence that the halcyon picture of country life is, if not manifestly incorrect, at least open to some serious challenges.”28 Among the evidence cited by Wagenfeld is (1) much higher selective service rejection rates for both psychosis and neurosis among rural recruits and (2) a study in the northeastern United States that found significantly higher suicide rates in rural areas.

In addition to broad-based measures of health status, it should be noted that specific types of health problems are largely confined to rural areas. For the most part such problems are tied to the agricultural, mining, and lumbering industries and include many zoonotic diseases and other ailments such as black lung.29

Finally, it should be noted that rural health needs—whether they be physical or mental—should not be considered in isolation, but instead, should be considered in conjunction with use of services. Greater rural needs are not a problem per se if additional services are available and accessible to meet these needs. This is unlikely to be the
case. In addition, at least three studies have examined needs in relation to use of services. One study by McCoy and Brown was confined to low-income elderly persons. They found that rural persons in this group had significantly poorer health than their urban counterparts but did not use medical services any more often. A study of mental health problems in rural Tennessee involved data on the need for care, as well as what people were doing in response to these needs. Unmet needs appeared extensive in that 12 percent of the population was found to be psychiatrically impaired, but only 4 percent had ever received help from local mental health services. A third study relied upon the “symptoms-response” ratio. This ratio reflects the difference between the number of visits to a physician in response to certain symptoms and the number of visits that a panel of physicians believes is appropriate for these same symptoms. Using national data, a significant level of unmet needs for services was found among various subpopulations, including rural persons living on farms.

RURAL HEALTH RESOURCES

Allied health personnel often work in tandem with other professionals, e.g., nurses, physicians, and dentists. In addition, many allied health occupations are tied to certain types of clinical services offered in the hospital setting, e.g., cardiopulmonary services. These linkages increase the value of data on the (1) number of nurses, physicians, dentists, pharmacists, and podiatrists per 100,000 population in both metro and nonmetro areas, and (2) proportion of hospitals in metro and nonmetro areas that offer selected services of particular interest to the allied health professions.

The following analysis emphasizes the relative disparity between metro and nonmetro areas. For example, suppose three-fourths of the hospitals in metro areas offer a particular service but only one-fourth of the nonmetro hospitals offer the same service. In this hypothesized case the relative disparity can be expressed by noting that only one-third as many nonmetro as metro hospitals offer the service.

The data used in the analysis are from the Area Resource File of the U.S. Department of Health and Human Services. The analysis includes all counties in the United States; the 1980 census designation is used to categorize counties as either metro or nonmetro.
Table 2. Geographic Distribution of Selected Health Professions, 1980

<table>
<thead>
<tr>
<th>Profession</th>
<th>Number per 100,000 population</th>
<th>Nonmetro</th>
<th>Metro</th>
<th>Nonmetro ratio as percent of Metro ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optometrists</td>
<td>10.9</td>
<td>10.8</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>Pharmacists</td>
<td>43.5</td>
<td>46.8</td>
<td></td>
<td>93</td>
</tr>
<tr>
<td>Registered nurses</td>
<td>396.1</td>
<td>623.7</td>
<td></td>
<td>64</td>
</tr>
<tr>
<td>Dentists</td>
<td>37.4</td>
<td>61.2</td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>Medical doctors in patient care</td>
<td>86.7</td>
<td>192.8</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Podiatrists</td>
<td>1.2</td>
<td>4.2</td>
<td></td>
<td>29</td>
</tr>
</tbody>
</table>

With the exception of pharmacists and optometrists, the ratios for health personnel listed in Table 2 are skewed rather dramatically in favor of metropolitan areas. For example, metropolitan areas have more than twice as many physicians per 100 thousand population as do nonmetropolitan areas. Ratios for nurses and dentists are not skewed to quite the same extent, but the disparity with podiatrists is even more pronounced.

Among these six professions, physicians have the most specialties and subspecialties. Because some of these specialties are tied more closely to the allied health profession than others, various physician specialties also were analyzed. Results are presented in Table 3. With the exception of general surgeons and radiologists, all the specialties listed are skewed more in favor of metro areas than is the total physician supply. The individual specialties have significant implications for various allied health professions. For example, the work of ophthalmic technicians and psychiatric social workers generally requires the presence/supervision of an ophthalmologist and psychiatrist, respectively. Because the geographic distribution of ophthalmologists is not as heavily skewed as that of psychiatrists, we could reasonably expect the same to be true for ophthalmic technicians relative to psychiatric social workers.

On the other hand, some allied health professions may be substitutes rather than complements to the medical specialties listed in Table 3. Probably the best example is the role of the nurse anesthetist.
### Table 3. Geographic Distribution of Selected Medical Specialists, 1979

<table>
<thead>
<tr>
<th>Type of specialist</th>
<th>Number per 100,000 population</th>
<th>Nonmetro</th>
<th>Metro</th>
<th>Nonmetro ratio as percent of metro ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>General surgeons</td>
<td>8.0</td>
<td>15.1</td>
<td></td>
<td>53</td>
</tr>
<tr>
<td>Radiologists</td>
<td>2.4</td>
<td>5.2</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>Urologists</td>
<td>1.6</td>
<td>3.6</td>
<td></td>
<td>44</td>
</tr>
<tr>
<td>Ophthalmologists</td>
<td>2.4</td>
<td>6.1</td>
<td></td>
<td>39</td>
</tr>
<tr>
<td>Pathologists</td>
<td>2.0</td>
<td>5.3</td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>Orthopedic surgeons</td>
<td>2.4</td>
<td>6.8</td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>Obstetricians-gynecologists</td>
<td>4.2</td>
<td>12.2</td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>Pediatricians</td>
<td>3.6</td>
<td>12.1</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Anesthesiologists</td>
<td>2.1</td>
<td>7.5</td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>Internists</td>
<td>7.8</td>
<td>30.8</td>
<td></td>
<td>25</td>
</tr>
<tr>
<td>Occupational medicine</td>
<td>.2</td>
<td>.9</td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>Psychiatrists</td>
<td>2.6</td>
<td>12.2</td>
<td></td>
<td>21</td>
</tr>
<tr>
<td>Gastroenterologists</td>
<td>.2</td>
<td>1.4</td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

Note: Active nonfederal MDs involved in direct patient care.

vis-à-vis the anesthesiologist. Nonmetro areas have only 28 percent as many anesthesiologists per 100 thousand as metro areas. Given this distribution, it can be hypothesized that the geographic distribution of nurse anesthetists is not nearly as skewed, and it may even favor the nonmetro areas.  

Many allied health professions also are linked closely to health care facilities, especially hospitals. Unlike the cases of physicians and many other health professionals, rural areas have a supply of hospital beds that is nearly proportional to its population. In 1980 the number of short-term general hospital beds per 1,000 population was 4.3 in
nonmetro areas and 4.8 in metro areas (calculations based on the Area Resource File). The rough metro-nonmetro equivalency is a far cry from the situation that existed forty years earlier. At that time the bed supply was heavily skewed in favor of metro areas, but the subsequent enactment of the Hospital Survey and Construction Act of 1946 (Hill-Burton) was largely responsible for closing the gap in bed supply. Although nonmetro areas have about as many beds in relation to population as do metro areas, the average nonmetro hospital is very dissimilar to the average metro hospital. The average size (in 1980) of short-term general hospitals in nonmetro areas was 85 beds. This compared to an average size of 259 beds in metro areas. Additionally, rural hospitals, in comparison to their urban counterparts, tend to have a lower occupancy rate, are less capitalized, have lower operating costs per bed, and are more likely to be owned by local governments. Rural hospitals also tend to treat somewhat more complex patients than do urban hospitals of similar size.

Table 4 includes data on specific services, many of which are of particular interest in certain allied health professions. Except for ambulance service and emergency departments, a larger proportion of metro than nonmetro hospitals provide the services listed. It appears that as the proportion of all hospitals providing a service decreases, the proportion of nonmetro hospitals providing that service, relative to the proportion of metro hospitals, also decreases. This indicates that sophisticated and specialized services are much less likely to be offered in rural hospitals than are basic hospital services. For example, one would expect the geographic distribution of dialysis technicians to be much more skewed in favor of metro areas than would be the case with respiratory therapists. This, of course, has implications for the allied health professions.

The geographic distribution of selected allied health professions listed—nurses aides/orderlies, licensed practical nurses, and physician assistants—are distributed in favor of nonmetropolitan areas. This distribution pattern for nurses aides/orderlies and licensed practical nurses is contrary to that for registered nurses (see Table 2). At least two explanations are possible. First, nurses aides/orderlies and licensed practical nurses may be delegated certain tasks in nonmetro areas that would be the sole domain of the registered nurse in metro areas. Second, the case mix in referral centers—most of which are
Table 4. Proportion of Nonmetro and Metro Short-Term General Hospitals Offering Selected Services, 1981

<table>
<thead>
<tr>
<th>Hospital service</th>
<th>Proportion of hospitals offering service</th>
<th>Proportion of nonmetro hospitals offering service in relation to proportion of metro hospitals offering service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulance services</td>
<td>.26</td>
<td>.17</td>
</tr>
<tr>
<td>Emergency department</td>
<td>.87</td>
<td>.86</td>
</tr>
<tr>
<td>General laboratory services</td>
<td>.89</td>
<td>.92</td>
</tr>
<tr>
<td>Anesthesia service</td>
<td>.82</td>
<td>.90</td>
</tr>
<tr>
<td>Respiratory therapy</td>
<td>.79</td>
<td>.89</td>
</tr>
<tr>
<td>Blood bank</td>
<td>.66</td>
<td>.76</td>
</tr>
<tr>
<td>Physical therapy</td>
<td>.72</td>
<td>.88</td>
</tr>
<tr>
<td>Social work department</td>
<td>.57</td>
<td>.84</td>
</tr>
<tr>
<td>Pulmonary function laboratory</td>
<td>.54</td>
<td>.82</td>
</tr>
<tr>
<td>Home care unit</td>
<td>.08</td>
<td>.14</td>
</tr>
<tr>
<td>Autopsy services</td>
<td>.43</td>
<td>.76</td>
</tr>
<tr>
<td>Histopathology laboratory</td>
<td>.44</td>
<td>.80</td>
</tr>
<tr>
<td>Alcohol/chemical dependency unit</td>
<td>.15</td>
<td>.29</td>
</tr>
<tr>
<td>Speech therapy services</td>
<td>.23</td>
<td>.53</td>
</tr>
<tr>
<td>Hospice service</td>
<td>.04</td>
<td>.10</td>
</tr>
<tr>
<td>Clinical psychiatric service</td>
<td>.12</td>
<td>.36</td>
</tr>
<tr>
<td>Recreational therapy</td>
<td>.10</td>
<td>.30</td>
</tr>
<tr>
<td>Hemodialysis (outpatient)</td>
<td>.04</td>
<td>.20</td>
</tr>
<tr>
<td>Hemodialysis (inpatient)</td>
<td>.06</td>
<td>.39</td>
</tr>
</tbody>
</table>
Table 5. Geographic Distribution of Selected Allied Health Professions, 1980

<table>
<thead>
<tr>
<th>Allied profession</th>
<th>Number per 100,000 population</th>
<th>Nonmetro</th>
<th>Metro</th>
<th>Nonmetro ratio as percent of metro ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse aides/orderlies/attendants</td>
<td>696.0</td>
<td>579.4</td>
<td></td>
<td>120</td>
</tr>
<tr>
<td>Licensed practical nurses</td>
<td>205.3</td>
<td>187.7</td>
<td></td>
<td>109</td>
</tr>
<tr>
<td>Physician assistants</td>
<td>3.3</td>
<td>3.1</td>
<td></td>
<td>106</td>
</tr>
<tr>
<td>Nurse practitioners</td>
<td>1.3</td>
<td>1.5</td>
<td></td>
<td>87</td>
</tr>
<tr>
<td>Dieticians</td>
<td>26.0</td>
<td>30.9</td>
<td></td>
<td>84</td>
</tr>
<tr>
<td>Speech therapists</td>
<td>14.4</td>
<td>19.5</td>
<td></td>
<td>74</td>
</tr>
<tr>
<td>Health aides, except nursing</td>
<td>99.9</td>
<td>138.5</td>
<td></td>
<td>72</td>
</tr>
<tr>
<td>Inhalation therapists</td>
<td>16.6</td>
<td>23.1</td>
<td></td>
<td>72</td>
</tr>
<tr>
<td>Dental assistants</td>
<td>53.2</td>
<td>75.2</td>
<td></td>
<td>71</td>
</tr>
<tr>
<td>Health record technicians</td>
<td>5.0</td>
<td>7.2</td>
<td></td>
<td>69</td>
</tr>
<tr>
<td>Radiologic technicians</td>
<td>31.0</td>
<td>46.3</td>
<td></td>
<td>67</td>
</tr>
<tr>
<td>Physical therapists</td>
<td>12.7</td>
<td>21.1</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Clinical laboratory technicians</td>
<td>68.9</td>
<td>120.5</td>
<td></td>
<td>57</td>
</tr>
<tr>
<td>Dental hygienists</td>
<td>12.3</td>
<td>23.1</td>
<td></td>
<td>53</td>
</tr>
<tr>
<td>Occupational therapists</td>
<td>3.5</td>
<td>9.3</td>
<td></td>
<td>38</td>
</tr>
</tbody>
</table>

urban-based—is likely to be more complex. This may require a greater complement of registered nurses than is needed in rural areas.

Two other observations can be made using the data in Table 5. First, physician assistants, unlike nurse practitioners, are more likely to locate in nonmetro areas. This finding is consistent with other studies.36 Second, in some cases the way in which rural health resources are combined may be quite different from what prevails in urban areas. For
example, in relation to population, nonmetro areas have 61 percent as many dentists (Table 2), 53 percent as many dental hygienists (Table 5), and 71 percent as many dental assistants (Table 5). This suggests that dentists in nonmetro areas make greater use of dental assistants than do their urban colleagues, but they make less use of dental hygienists.

**Improving Allied Health Resources in Rural Areas**

Rural America is indeed special, and its problems cannot be addressed from a traditional urban-based perspective. Yet, rural health suffers from an almost indelible urban health care bias. Prevailing attitudes argue that the model health care system is one that conforms to the urban, tertiary pattern, and that what is best for the urban population is also best for the rural population. However, those attuned to rural needs are quick to note that the rural health care system is more than just an urban system practiced with fewer resources and professionals. A comparison by Mott and Roemer of respiratory therapy departments applies also to the differences between rural and urban health systems: "Just as the pediatric patient cannot be medicated as a small adult, the rural community hospital respiratory therapy department must not be treated as just a small, large department. It has unique needs, functions, and problems."[37]

Because most allied health education programs are located in populated areas, the base of operation and practice has been predominately urban.[38] Students live, learn, and work in an urban environment. The educational program is based on the metropolitan model of high-volume care with very sophisticated support facilities, personnel, and equipment. Consultation is readily available from a number of specialists and from colleagues in a number of fields. The most recent literature and means to access it are generally available. Faculty in such programs instill in the students a sense that the urban medical setting is the very best and the one for which all should strive. The concept of quality of care begins to become enmeshed within the fabric of the urban institution. The student learns to equate quality of care with degree of urbanization of the particular health care situation.

High-quality care can certainly be available in the urban territory
centers, but it may be found just as well in the small rural hospital or other rural setting. The ruralness of the setting in itself has no direct effect on quality of care.\textsuperscript{39} In fact, were it not for manpower shortages and the lack of available professional continuing education, perhaps the best care would be available in the rural setting. Unfortunately, the mainstream of our health professional schools has a tradition that (perhaps subliminally) encourages its students to reject the rural and places the premium on the job in the urban, tertiary center.

Allied health in rural America has a special challenge for the future. Traditional methods have not solved what is perhaps the greatest health care problem facing the rural population of this country—the geographic maldistribution of health professionals. Rural areas suffer from critical shortages of professionals in many allied health fields. Educational institutions that offer allied health programs can do much to alleviate the shortages, as can the federal and state governments and their agencies.

\textit{Scholarships and Loans.} Programs such as the National Health Service Corps and specific loan and scholarship programs require students to practice in an underserved area for a predetermined period of time as a means of paying off debts. Some have substantial penalties for graduates who opt not to work in an underserved area. While this type of program is viewed as absolutely necessary as a minimum means to assuring some professional work in rural areas, it has its limitations. For example, some graduates have simply paid the penalty for not practicing in an underserved area and have gone their own way. Those who do fulfill their obligations often move immediately to a more urban area to find a "real" job. After all, it's not unreasonable that someone raised in Chicago or Boston may feel out of place and lost at, say, Jeff Davis Hospital in Hazelhurst, Georgia. Too many times the cultural shock of a completely new and different environment is too much for young practitioners. At the first opportunity they may pack their bags and head for more familiar ground.

\textit{The Educational Program.} Loan and scholarship efforts have been reasonably effective in meeting rural short-term needs, but much of the long-term solution lies with the educational institution. Long confirmed that the educational program can have a special influence on the willingness of nonphysicians to practice in underserved areas if the program includes strategies for placing them in such areas.\textsuperscript{40}
Rural-Targeted Programs. What strategies can be implemented in educational institutions to increase the number of graduating students who select rural practice sites? The most important initial step is to decide to target a particular educational program to meet rural needs. It could be a primary or even a secondary goal, but the decision must be made and supported by program staff and the school administration. After this decision is made, the program should include the following four strategies:

1. Recruit students who are residents of or were raised in a rural setting. Many studies of choice of practice settings by physicians and other health professionals have indicated that individuals reared in rural areas favor the rural practice site. For example, Heald et al. found that rural-reared physicians are three-times more likely to practice in a rural area than are urban-reared physicians. Phillips et al. found that 85 percent of the allied health graduates in the south Texas region returned to work in the area of previous residence. Because allied health personnel may be reluctant to change their location once established, the choice of the initial practice location is crucial.

2. Offer the educational program or as many parts of the program as feasible in a rural institution or setting. The location of the educational program appears to be a factor in the student's selection of a practice site. Studies show that location of residency training is associated with practice site selection (even more so than medical school location). Studies of the distribution of allied health professionals after graduation from urban-based programs indicate a very high percentage initially remaining in the metropolitan area. In fact, graduates from any program tend to live and work reasonably close to their educational program. Because allied education programs are located predominantly in urban settings, the location of the program becomes very important.

3. Include within the program curriculum specific instruction about the rural setting and rural practice. For programs targeted to rural areas, preparing the student for the rural experience should be a major objective of the curriculum. General course work in rural sociology/anthropology is excellent background for helping the student understand the future patient. Moreover, if the professional coursework is oriented to the unique features of the rural setting, the student will be better prepared for the task ahead. Clinical experiences in the rural
hospital or other facility can be a successful hands-on experience which the students will view as invaluable.

4. Assist both students and rural communities with the placement of graduating students. In most areas, a rural-targeted allied health education program will be inscrutable to the urban sector and perhaps a mirage to the rural community. It will take time for others to become aware of, trust, and understand the nature of the programs. However, once this happens potential rural employers could be expected to seek out and have a preference for graduates of this type of program. The program staff can play a very positive role in meeting program objectives by helping match up each class of graduates with available jobs.

**Examples of Rural-Targeted Programs.** Unfortunately, few educational institutions have made that initial decision to target a program to meet rural needs. Some have, however, and one of the better known is the Regional Technical Institute for Health Occupations (RTI) begun in 1970 at the University of Alabama (UAB) in Birmingham.47 This program allows students to attend their hometown junior college for approximately one year before transferring into any of ten allied health associate degree programs at UAB. An advantage of RTI is that it allows students a year of schooling at a location close to home and at a financial savings. Theoretically it minimizes the uprooting of students from their home area, resulting in an increased likelihood of returning after graduation. The question of whether or not the RTI program actually works to improve the distribution of allied health professionals in Alabama has not been answered conclusively. Nevertheless, many positive things have resulted from the program, especially a widespread awareness that an allied health manpower maldistribution problem exists.

Other educational experiences aimed at rural allied health manpower shortages have focused on the type of graduate produced. During the mid 1970s programs were developed in at least two institutions to prepare students specifically for rural work in not one but two allied health fields. Southern Illinois University at Carbondale (SIU) and the University of Alabama in Birmingham developed multicompetency associate degree programs to prepare students in different allied health fields. The logic was fascinating, yet simple. Because of low patient volume, rural clinics and small hospitals may not be able to afford or utilize fully a medical laboratory technician or a respiratory therapy
technician. However, according to the reasoning, an individual capable of filling each role half-time could be used, and there was reason to believe that such a person would be in great demand. Thus was born the multicompetency educational program.

The SIU program, called the Rural Allied Health Manpower Project (RAMP), provided students with multicompetency skills in any two of three areas: medical laboratory, respiratory therapy, and radiologic technology. The program has been very popular in the rural communities of southern Illinois and has earned the School of Technical Careers at SIU deserved recognition. Recently, however, students have begun to seek certification in only one of the fields, primarily because of the higher paying jobs available in that single occupation. As a result, most of the activity in the present program consists of main track allied health majors studying the second field as a minor.

The School of Public and Allied Health at UAB graduates a “multiple competency clinical technician.” This graduate has skills in radiology, medical office assistance, and other clinical areas.

The future of the multicompetency programs will depend primarily on the characteristics of the labor market and economic forces related to that type of occupation. Since comparable training in any one of the disciplines results in certification eligibility, students probably will continue to prefer one “full” discipline as compared to two “halves.” In addition, licensure requirements and workload arrangements may cause the typical small hospital to be less interested in graduates of multicompetency programs. This will leave small clinics as the major source of employment for such graduates.

Area Health Education Centers. The maldistribution of health professionals has long been recognized as a substantial problem by the federal government. In 1972 the Area Health Education Center (AHEC) program was created in response to a recommendation made in 1970 by the Carnegie Commission on Higher Education. That recommendation was to decentralize health professional education by establishing AHECs in rural and inner-city areas of need. Legislative authority was passed by Congress in late 1971 and the program began with the funding of eleven universities in June 1972.

The goals of AHECs are to improve the geographic and specialty distribution of health care providers; the retention of providers in shortage areas; and their quality, utilization, and efficiency. The AHEC
program is based on the premise that educational programs can influence the graduate’s practice location and can also be an effective incentive for practice in unserved areas. The program was to be implemented through linkages between academic health centers and the local communities.

A total of twenty-one university health science centers were founded as AHECs by the Bureau of Health Professions, including the original eleven. These twenty-one projects operate forty-eight regional AHEC centers. Participating in these centers are numerous allied health, medical, dental, nursing, and public health schools.

In general, the AHEC program has achieved the long-term goal of improving supply and distribution of health care providers in AHEC target areas. Most AHEC-involved medical students chose primary care residencies, and AHECs have been major providers of continuing education programs, including over 46 thousand allied health courses. The federal government continues to maintain that the national AHEC program is making an impact on the problem of health manpower maldistribution.

Cooperative Health Manpower Education Programs (CHEP). The ripples from the 1970 Carnegie Commission report stimulated innovative action in more than one department in the federal government. The Veteran’s Administration received the commission’s report with a sense of urgency and in response developed a program that was to become known as the CHEP project.

The CHEP project and the AHEC program are similar in that they have common goals: to improve the distribution of health professionals and the quality of health care, primarily in rural areas. There are several important differences, however. The AHECs must have a university health science center as its focal point. The CHEPs, on the other hand, are established based on a partnership of the local VA medical center and a resident board of directors composed of representatives of local organizations and institutions. Other major differences relate to funding. The AHECs receive much larger federal funding but are limited to a maximum of six years each. The CHEP funding is at a lower magnitude, but it is ongoing and no continuation grant applications are required.

A total of ten CHEPs have been established at VA medical centers in an equal number of states. There was some confusion in the names of
some of the early CHEPs. Originally the VA called the program AHECs, causing them to be mistaken for the Bureau of Health Professions AHECs. The VA cleared up this puzzlement by changing the program name to CHEP. However, several of the CHEPs were allowed to continue using the AHEC name (e.g., Tuskegee Area Health Education Center).

The CHEP project illustrates perhaps as much as anything else the severity of the health manpower maldistribution problem. The Veteran’s Administration, which has traditionally operated almost entirely within its own structure, has taken a bold step to link with communities in this problem-solving effort. It demonstrates that even the VA, with its national network and its pool of civil service employees, has been affected by rural manpower shortages.

Conclusion

Rural health—like school health, occupational health, and others—is an idea whose time has come. Hence it is encouraging that a Journal of Rural Health is being initiated and the literature on rural health is becoming substantial. Two major books on rural health were published in 1982; another appeared in 1983. Additionally, a recent survey of researchers identified 232 ongoing or recently completed studies on rural health; and a 1975–1981 review of the literature identified 270 published articles and unpublished papers on rural health. However, one of the most striking voids in the existing literature is the dearth of information on rural allied health personnel. With the exception of that on physician assistants and nurse practitioners, virtually no rigorous research exists on the relationship between rurality and the allied health professions. This is a critical need, especially at a time when the current dynamics of rural America are interfacing with current and expected dynamics of the health care system (e.g., prospective payments to hospitals and the likelihood of a physician “surplus”).

A final comment. This chapter has emphasized the differences that exist between rural and urban sectors. General characterizations, of necessity, glossed over the many differences that exist within the rural sector. For example, the rural South has a high proportion of Blacks and the rural Midwest does not. The rural Northeast is dotted with villages and hamlets, but communities are few and far between in the rural West. Similarly, while rural areas tend to have fewer health resources,
some rural communities have health care complexes that would be the envy of many cities. Indeed, the county with the highest physician-to-population ratio in the United States is an isolated rural county.*

We believe that the differences among rural areas are more extensive than the differences among urban areas. While any particular urban community, by virtue of its size, has more diversity within its boundaries than does any single rural community, more similarities exist between Atlanta and Los Angeles, for example, than between Willacoochee, Georgia, and Bagdad, Arizona.

In sum, it is just as important to recognize the differences that exist within rural America as it is to recognize the differences that exist between rural and urban America. When policymakers, educators, and others become sensitive to the differences both within and between, rapid progress can be made in bringing improved health services to those 64 million people who call rural America home.

**Notes**


4. Hassinger, "Violent Behavior.”

5. Hassinger, "Violent Behavior.”


11. Baldassare, "Local Perspectives.”

*Montour County, Pennsylvania, has a population of approximately 20,000 and has over 200 M.D.s. It is well over 100 miles from any major city and is the home of Geisinger Medical Center.
20. Saltzman and Newlin, "Availability of Passenger Transportation."
25. Ibid.
26. Ibid.
28. Ibid.
34. Mott, F.D. and Roemer, M.I., Rural Health and Medical Care, New York: McGraw/Hill, 1948; Rosenblatt and Moscovice, Rural Health Care.
35. Rosenblatt and Moscovice, Rural Health Care.


45. Magrun and Tigges, "Mobile Intervention."

46. Greenberg and Kadish, "Mobility of Professionals."


54. Hassinger, "Violent Behavior"; Rosenblatt and Moscovice, *Rural Health Care; Muter and Donham, Medical Practice*.

Laurence Sterne, the 18th-century English novelist, in his book *The Life and Opinions of Tristram Shandy*, tells that the ancient Goths had an interesting custom of debating every major issue twice—once, drunk, so the discussion might not lack vigor, and the second time, sober, so discretion would play a meaningful part in the decision. Over the past seventy years accreditation has been subjected to both kinds of analyses by American educators. Since 1913, when the North Central Association of Colleges and Secondary Schools issued its first list of regionally accredited institutions, accreditation has been the primary means of determining institutional quality,¹ and from about 1930 various allied health programs have been subject to specialized accreditation.²

Accreditation has been deemed to be important to health care because it certifies the quality of educational programs preparing the health professional. It is important to society that accreditation function effectively and in a manner conducive to the enhancement of health care delivery. Yet, as Jerry W. Miller noted as far back as 1971, “accreditation’s effectiveness in the health fields is being jeopardized by mounting tensions evident among the health professions. Due in part to a struggle for control of the accrediting process, these tensions have a potentially debilitating influence both on the effectiveness of the accrediting process and also the working relationships among the health professions.”³

To better understand the reasons for the differences of opinion relative to the accrediting approach to quality determination, some background on the structure of accreditation, particularly that applying to allied health education programs, is necessary.
STRUCTURE OF ACCREDITATION

To put it as simply as possible, there are two types of accreditation and accrediting associations: institutional and specialized, or programmatic. Institutional accreditation is carried out by associations of regional or national scope. Institutional accreditation focuses on an institution as a whole and thus gives attention not only to the academic programs but also to such areas as effective management and administrative strength, enlightened personnel policies, financial and physical resources, student personnel services, consumer protection. Thirteen institutional accrediting bodies, including nine regional commissions and four national institutional accrediting associations that accredit special types of separate institutions (business, trade and technical, home study, and Bible) are recognized by the Council on Postsecondary Accreditation (COpa), a nongovernmental organization representing the interests of accrediting agencies and postsecondary institutions.

Specialized, programmatic, or professional accreditation is carried out by associations within specific occupational or professional fields that usually are closely related not only to the educational programs but also to the professional associations in those areas. Specialized associations accredit programs (sometimes designated as "schools" where a cluster of allied health programs exists in more complex institutions) that prepare professionals, technicians, or members of special occupations, and also in some cases single-purpose, freestanding professional schools in these areas. Specialized associations require that the programs they evaluate, except for freestanding schools, be part of an institutionally accredited college or university. Through their relationships with professional associations, they attempt to provide assurance not only that the program is educationally sound but also that it is relevant to current practices in the field. The Council on Postsecondary Accreditation currently recognizes thirty-seven specialized associations, including such fields as medicine, dentistry, nursing, engineering, law, social work, and various allied health areas; however, COpa for recognition purposes includes twenty-five allied health programs under the single heading of the Committee on Allied Health Education and Accreditation (CAHEA). Even though these allied health fields are classified under one heading, the various accrediting groups have separate standards, or essentials, and conduct separate site visits to the campuses in most cases.
Through its Division of Eligibility and Agency Evaluation, the U.S. Department of Education also recognizes a variety of professional and institutional accrediting organizations for the purpose of determining institutional eligibility for federal funding.

According to the Fall 1983 issue of *Accreditation*, the COPA quarterly newsletter, continued recognition for a period of five years was granted to the following associations in the general allied health area:

The American Home Economics Association to accredit baccalaureate programs in home economics; the American Physical Therapy Association to accredit entry-level professional programs for physical therapy and physical therapy assistant education programs; the American Dietetic Association to accredit coordinated undergraduate programs in dietetics and post-baccalaureate dietetic internship programs; and the Committee on Allied Health Education and Accreditation (CAHEA) to accredit educational programs for assistant to the primary care physician, cytotechnologist, diagnostic sonographer, electroencephalographic technician, electroencephalographic technologist, emergency medical technician-paramedic, histologic technician/technologist, medical assistant, medical assistant in pediatrics, medical laboratory technician (associate degree), medical laboratory technician (associate degree), medical laboratory technician (certificate), medical record administrator, medical record technician, medical technologist, nuclear medicine technologist, occupational therapist, ophthalmic medical assistant, perfusionist, radiation therapy technologist, radiographer, respiratory therapist, respiratory therapy technician, specialist in blood bank technology, surgeon's assistant, and surgical technologist.

COPA found the interim reports of both the Council on Education for Public Health and the Accrediting Bureau of Health Education Schools to be satisfactory in regard to specific concerns expressed by the board. A number of other professional accrediting agencies are also recognized by COPA, but were not scheduled to be reviewed on this cycle.⁴

**Committee on Allied Health Education and Accreditation**

For the past fifty years, the American Medical Association (AMA) has participated extensively in activities to promote quality in allied health education and in accreditation review processes. In collaboration with the AMA, more than forty allied health organizations and related medical specialty societies have developed educational standards for twenty-five allied health professions. Using these standards, CAHEA
**Fig 1A.**—Settings of programs. Allied health programs by sponsor type; total of 3,025 programs. *Others includes blood banks, medical schools, proprietary schools, consortium and secondary schools, and US government institutions.

**Fig 1B.**—Types of sponsors. Institutions sponsoring allied health programs by sponsor type; total of 1,750 sponsors. *Others includes blood banks, medical schools, proprietary schools, consortium and secondary schools, and US government institutions.
ACCREDITATION IN HEALTH PROFESSIONS

Fig 2.—Functions of organizations involved in the Committee on Allied Health Education and Accreditation process.

The Accreditation Council for Health Education and Accreditation (CAHEA) accredits more than 3,000 allied health educational programs at almost 1,800 institutions, including hospitals and clinics, junior/community colleges, colleges and universities, and other institutions throughout the United States.

A sizable cooperative network is involved in the CAHEA accreditation process. The term *collaborative organizations*, however, refers only to the forty allied health organizations and medical specialty societies that have entered into formal relationships with the AMA for the purposes of (1) establishing and maintaining entry-level educational standards for allied health professions and (2) sponsoring review committees that carry out program evaluation and recommend accreditation action for final decision by CAHEA.⁵
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*At the time of the 1981 Annual Report Mailing, programs in these fields had not yet been accredited by the Committee on Allied Health Education and Accreditation.

†The last technician level program became a technologist level program in 1980.
The Committee on Allied Health Education and Accreditation was organized in 1977 when the Council on Medical Education (CME) of the American Medical Association delegated to it responsibility and authority for accreditation of allied health educational programs. The new committee replaced the Advisory Committee on Allied Health Education and Accreditation of the CME. The CAHEA is staffed by the AMA Department of Allied Health Education and Accreditation.

The following purposes and responsibilities of the CAHEA are excerpted from the original charge from the AMA Board of Trustees:

1. To evaluate and accredit allied health educational programs.
2. To review Essentials and accreditation procedures.
3. To maintain active liaison with the collaborating medical specialty and allied health associations.
4. To establish and maintain liaison with other technical and professional groups allied to medicine.
5. To maintain liaison with institutions sponsoring accredited allied health educational programs.
6. To work with the most directly concerned medical specialty, allied health, and other national professional organizations to draft minimum standards as Essentials and to establish collaborative relationships.

The 14 members of the CAHEA include persons who have a broad interest and/or competence in the allied health professions and services. Members include allied health professionals, educators, physicians, hospital administrators, an allied health student or recent graduate, public members, and representatives of the CME. The CAHEA functions independently in arriving at accreditation decisions.

As implied earlier, many institutions, for organizational and administrative purposes, include other professional disciplines such as dietetics, health services administration, dental assisting and hygiene programs, rehabilitation counseling, speech pathology, audiology, and physical therapy in the allied health domain; however, these disciplines are not within the purview of CAHEA. As is clearly evident from the summary description of the accreditation of allied health education programs, this area is filled with complexities, tensions, and continuing problems.

It must be pointed out that allied health education programs, unlike most other postsecondary professional programs, are conducted in a variety of settings, i.e., hospitals, two-year colleges, four-year institutions, etc. Figures 1 and 2 and Table 1 (reproduced with the permission of the Journal of the American Medical Association) indicate the scope of the programs, as well as their various sponsors and settings.
EFFORTS TO RESTRUCTURE
ALLIED HEALTH ACCREDITATION

In 1971-1972, the Commonwealth Fund generously funded a study conducted by a commission appointed to review the accreditation of selected health education programs. The study was cosponsored by the American Medical Association, the Association of Schools of Allied Health Professions (succeeded by the American Society of Allied Health Professions), and the National Commission on Accrediting (succeeded by the Council on Postsecondary Accreditation). The recommendations of the SASHEP commission (Study of Accreditation of Selected Health Education Programs) influenced in some measure the formation of the Committee on Allied Health Education and Accreditation, although several SASHEP recommendations for a freestanding accrediting body could not be realized because of funding problems. It is quite possible that such an independent body would not have been politically feasible at that time. Nevertheless, it is obvious that because of such studies changes are being made in the accreditation arena as it affects allied health education.

Over the years, even though the public, the institutions, the professions, and the government have relied heavily upon accreditation to provide indices to the quality of institutions and programs, there have been critics who have voiced fears regarding the power held by accrediting agencies. In an address given in 1939 to a group of representatives of accrediting agencies, Samuel P. Capen, formerly a specialist for higher education in the U.S. Office of Education and at the time of his speech the chancellor of the University of Buffalo, said:

There are rumblings of revolt, because at long last the worm is turning. Which, being interpreted, means that the responsible administrators of influential institutions in various parts of the country are tired of having the educational and financial policies of their institutions dictated by a horde of irresponsible outsiders, each representing a separate selfish interest. The issue is plain. Is the American University system to be dominated by competitive blackmail, or is it to be conducted in accordance with the best judgment of the boards and administrative officers charged with the responsibilities through charters and through legislative enactments? The American universities gave the standardizing agencies license to live. Whenever the leaders of the universities are ready to unite in the decision that these agencies shall live no longer, they will disappear. I think that day approaches.
ACCREDITATION IN HEALTH PROFESSIONS

In the intervening four decades, literally hundreds of such pronounce­
ments have been issued, yet accreditation still prevails.

In most recent years the position of critics of accreditation has
changed. They are not so much interested in seeing accreditation
activities curtailed or eliminated, but rather in effecting changes in the
process. Some of the primary concerns of institutional representatives
are enunciated by John W. Schermerhorn, dean of the School of Allied
Health Sciences, The University of Texas Science Center at Dallas.
Dean Schermerhorn writes:

Development of the accrediting concept has involved the focusing of the process on
smaller and smaller components of the University. Starting with identifiable colleges
and schools such as medical and education, accreditation has moved to discipline areas
such as chemistry, and finally to discrete programs such as allied health fields. It
is largely in this latter area that educational administrators have growing concerns.

In allied health, the majority of associate and baccalaureate programs are subject
to accreditation by an arm of the professional association of the discipline. Not only do
these procedures focus in detail on the operation of the individual programs but also, on
the entire university. It has been estimated that preparation for a program accreditation
will require between 200 and 500 man hours or $\frac{1}{10}$ to $\frac{1}{4}$ of an FTE. Added to that, are as
many as 500 pages of material to be assembled into 12-15 sets and mailed. All this, plus
annual and special charges levied to maintain association activity, give strength to
administration complaints of burdensome costs.

As philosophic implications of programmatic accreditations become more clear,
the extent of usurpation of authority of university governance is now being recognized.
Faculty employed, courses taught, methods of instruction, and level of university
support are all, to varying degrees, considered to be rightful concerns of the agency.
Level of educational preparation has also been assumed as a professional prerogative.\(^9\)

Although accreditation is publicized as a private endeavor, the
process, according to Schermerhorn, has been incorporated into licen­
sure laws and into grant-funding legislation, so it is apparent that the
term voluntary may be a misnomer. He also holds that programmatic
accreditation is being used to promote "professional growth." It is his
belief that such use of accreditation is inappropriate because it makes
the university an agent of the profession, carrying out its dictates rather
than functioning as an autonomous, creative seat of learning. Oversight
of the detailed educational activities of a university program is not the
province of an outside association, whatever its motives.

Harold L. McPheeters of the Southern Regional Education re­
cently said, "Currently there is concern about certain professions that
appear to be using the accreditation process as a lever to upgrade the required academic degree level for entry into practice, although there is little evidence that the health care system requires such advanced levels of education. This will increase the costs of both the academic education and the health care offered by future graduates.\textsuperscript{10}

Obviously the professions have considerable control over the educational programs; accreditation criteria are established by educators and practitioners who are members of professional associations that have a vested interest in limiting entrants into practice. Furthermore, licensure laws require that candidates for licensure be graduates of programs accredited by the various accrediting agencies. Allegations of restraint of trade have been leveled at such bodies as the Liaison Committee on Medical Education, which accredits medical schools, as well as the American Bar Association because of their influence on the accreditation of schools.

One of the alternatives to national accreditation as now practiced is to move to state-level accreditation or program approval, a procedure already followed in a few states; however, there is considerable fear that political pressures from groups within the states might jeopardize the effectiveness of such a system. It must also be that the mobility of professional personnel would dictate more similarities in standards and procedures than might be possible with fifty different state jurisdictions involved in any approval process.

Another alternative suggested by some has been to rely solely on institutional accreditation without any specific accreditation for the allied health programs; this idea has been opposed vehemently by the allied health proponents on the basis that accreditation of the total institution would not guarantee the quality of individual programs within the college or university.

Other major concerns in the allied health accreditation process were identified as a result of a survey of participants at the April 1983 forum entitled "Accreditation: A Public Trust," sponsored by CAHEA. The nearly 200 participants attending the forum included administrators and educators of allied health programs in the CAHEA system, representatives of accrediting agencies, and other interested individuals.

The survey questionnaire, containing seventeen statements or "directives" toward problem resolution, addressed the concerns ex-
pressed at the forum and related to major aspects of accreditation: the accreditation process itself; the Essentials, or minimum standards by which educational programs are evaluated; the self-study; the site visitors; and the site visit. Participants ranked their five top priorities from the list according to their perceptions of the urgent nature, importance, and feasibility of addressing the directives. All directives, however, were judged to be important by virtue of their initial selection.

The overall response rate for the survey was 70 percent, or 134 questionnaires. Responses were divided into four participant groups: 67 percent (72) of the administrators responded; 76 percent (28) of the educators; 95 percent (18) of the accreditators; and 76 percent (16) of the other individuals.

All respondents were in basic agreement about concerns that merited the highest priorities:

• Greater efforts should be undertaken to validate the relationship of the Essentials of allied health programs to the quality of the graduates of those programs.

• A greater degree of uniformity and less duplication should be present in accreditation policies and procedures with respect to the Essentials, self-study reports, and the site visit.

• There should be less duplication in reporting to various accrediting agencies, in preparing for multiple visits, and in the logistics of accreditation.

• Accreditation should place greater emphasis on the outcomes or products of educational programs than on the educational processes.

According to the survey, least concern was expressed with the site visitors and the site visit teams sent to evaluate allied health programs seeking initial or continuing accreditation. In general they were regarded as being well-trained, supportive, and good facilitators in the process of assessing quality in programs and in guiding other programs to appropriate levels of compliance.11

As indicated previously, one of the major criticisms voiced by postsecondary institutions, and particularly by those institutions having a number of allied health education programs, is the multiplicity of accrediting visits, self-studies, etc., resulting from the separate activities of the various specialized accrediting bodies. In an effort to alleviate this situation and still maintain a process that will assure quality programs, the Southern Association of Allied Health Deans at
Academic Health Centers has developed a self-study format for colleges of allied health professions and an accrediting procedure for academic health centers allied health programs. These are based on the concept of one team, one set of standards, and one self-study for the entire school of allied health. The procedure has been tried on an experimental basis in six institutions and means are being explored with various organizations to provide accreditation recognition for such umbrella-type accreditation.

Frances Horvath has reacted to this effort by saying,

There is a strong movement among some allied health deans to abandon programmatic accreditation and move to accreditation of the entire school—at least certain kinds of schools of allied health. I do not know where this will lead; I do know that it would be unfortunate if we lost the valued input of the individual allied health professions in the education of their future colleagues. The institutions are just as committed to quality education as are the members of the professions, but we are increasingly being forced to provide that education in an era of rapidly expanding knowledge and technology and rapidly shrinking budgets. Given this, it is imperative that accreditation be a benefit we share, rather than a burden we bear.¹²

In spite of such comments opposing the efforts of the southern deans group, the movement is gaining followers and institutions from other regions of the nation are seeking information to assist them in mounting similar programs. Perhaps the major question yet to be answered pertains to the procedure to be used in evaluating those programs not administratively housed in an academic health center.

Perhaps one possible advancement may emerge from work being done by a group of Texas and Alabama educators who are working on the quantification of the accreditation process through the development of indices of effectiveness. The authors of this study report:

Many professional organizations, each with its own set of guidelines and criteria, are involved in accrediting allied health education programs. Though a trend toward consolidation of accreditation is apparent, there has been no indication that this trend includes consolidation of accreditation criteria.

These results suggest that the numerous criteria established by accrediting bodies are redundant. Experts in allied health education and accreditation were able to reach consensus on major criteria of effectiveness; thus, it seems possible that the accrediting agencies could agree on a common core of criteria. Additional criteria specific to a particular profession may be necessary, but the bulk of information needed for accreditation would be similar for all allied health programs. This could save time,
money, and expertise. In addition, commonality of criteria and the data necessary for those criteria might facilitate the trend toward consolidation of the conduct of accreditation.

Even though consensus on major components of effectiveness of allied health programs in junior/community colleges was reached, the applicability of the identified measures must be tested.¹³

Charges that accreditation is being used as an exercise in quasi-governmental power have generated a substantial volume of literature challenging the autonomy of the professions in exercising this function. Increasingly, accreditation as conducted by professional associations is being viewed in a negative relationship to the public interest by scores of scholars and writers.

One of the most prevalent concerns expressed regarding allied health accreditation has been what has been described as “the heavy hand” of medicine and dentistry. Many groups in the allied health arena have been of the opinion that the medical and dental professions have exerted too much influence and control over the accreditation of related allied health fields.

One of the explanations for the close alliance between the medical and dental professions and the allied health fields is that any accrediting enterprise is an expensive venture. The institutions themselves have been unwilling to pay the total cost of accreditation, and the allied health fields have not been able to do so. Consequently, the medical and dental organizations have subsidized the accreditation of allied health fields to a great degree.

Another reason cited for this hold on allied health accreditation stems from the alleged desire of medicine and dentistry to keep the allied health fields subservient to the physician and the dentist. Critics of medicine and dentistry hold that the essentials for accrediting allied health programs should be solely the responsibility of the allied health organizations; the procedure now employed places final responsibility for review and adoption of these standards in the hands of the AMA Council on Medical Education, with an initial review by CAHEA.

Because of these areas of dissatisfaction, the American Physical Therapy Association withdrew from CAHEA. It now operates as a separate, independent accrediting body. Several other allied health groups have contemplated similar action. The more firmly established professions, however, respond to these accusations by pointing out that
it is in the public interest that they retain a degree of control in order to protect the health and well-being of their patients, since the physicians and dentists are in many instances held legally responsible.

Both the Council on Postsecondary Accreditation and the Division of Eligibility and Agency Evaluation of the Department of Education have been attentive to these concerns of allied health groups. Concerted efforts have been made to provide assurance that there will be buffers between the medical and dental organizations and the allied health groups where accreditation is involved.

The SASHEP also made recommendations that would have separated allied health accreditation efforts even more from parent organizations. As has been pointed out, however, these recommendations were never fully acted upon and the establishment of CAHEA has been viewed as a partial step to bring about some separation for allied health from the medical domination claimed by many allied health representatives.

As one looks at the development of professions in our society, it is evident that each profession has attempted to develop some type of self-control by means of internalized codes of ethics, formation of associations, and a larger measure of autonomy in selecting colleagues and those entering the profession. As one means of expressing autonomy, the professions have sought to regulate entry into the field through control of education. Such control is justified on the basis that the profession is "the holder and the guardian of an esoteric, specialized body of knowledge; thus, only members of the profession are qualified to make judgments regarding educational programs that prepare future members of the profession."14

From time to time over the past several decades, the idea has been advanced that licensure or certification procedures might take the place of accreditation. However, advocates of accrediting have pointed out that while licensure and other similar procedures speak to the effectiveness of the individual, they say nothing directly about the quality of preparation programs in the institutions. It is also significant that some occupational fields still do not have certification or registration procedures, and many of the states have become increasingly reluctant to legislate licensure laws. These approaches to quality determination do not seem likely to take the place of accreditation.

One of the most recent critiques of accreditation and its effect on
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educational programs and institutions is included in a Carnegie Foundation for the Advancement of Teaching report, *The Control of the Campus (1982)*. Richard Millard, president of COPA, responded to some of the comments in this report by saying,

That there have been instances of overly specific and intrusive requirements by specialized accrediting associations, even cases where the interests of the professions have dominated over concern with the campus as a whole, would be hard to deny. However, to imply that all or most specialized accreditation "threatens the integrity of the campus" is in fact a generalization that would be difficult to justify or document. It is also true that the number of specialized accrediting associations has increased over the past 30 years but this is a function of an increasing number of professions and occupations where issues of public welfare, health, safety, and need for assurance of professional competence are matters of academic and public concern. In fact the number of specialized accrediting associations recognized by the Council on Postsecondary Accreditation has decreased from 39 in 1977 to 37 today. The associations in the Assembly of Specialized Accrediting Bodies not only are cognizant of the problems but in cooperation with the Council are addressing them.

In a number of areas involving specialized accreditation the report reinforces efforts currently underway and we welcome this reinforcement.15

In relation to institutional integrity and autonomy, COPA recognition criteria specify that an accrediting association (1) "develops and interprets its criteria to allow and encourage institutional freedom and autonomy" and (2) "examines and evaluates institutions or programs in relation to operational goals of the total institution and to educational outcomes." The council is working with the accrediting associations to ensure more effective compliance with each. Major steps have been taken by the specialized and institutional associations to encourage interagency cooperation and coordination, but to be effective this also requires institutional cooperation. It should be added that some of the specialized accrediting associations not only have under study but also are making substantial progress in the further utilization of educational outcomes in determining educational quality.

One of the recommendations of the Carnegie report calls on COPA to organize and maintain an appeals process to resolve conflicts when an institution believes it has been unfairly treated by an accrediting association. Currently each recognized accrediting association, as a condition of recognition, must and does have a fully developed and adequate appeals procedure of its own. The council holds that it is not the forum for any quasi-judicial review of individual accrediting deci-
sions. It does fulfill the intent of the recommendation, however, with a formal complaint procedure for institutions that provides for review and resolution. Institutions not only may but do frequently report to the council problems they have with the accreditation process. During the recognition process third-party testimony is solicited; any institution may submit such testimony on which the association may comment, but which is taken into account in the recognition review.

Further, COPA is currently considering the possibility of developing a system whereby each institution may send evaluations of accrediting activities both to the accrediting association and to the council. Most accrediting associations, including all of the regionals, now provide for evaluative reviews. The higher education organizations in the Assembly of National Postsecondary Educational Organizations (a division of COPA) provide an additional institutional point of view in the determination of the council. Thus, there is no danger of institutional concerns going unrepresented or not being considered.

Millard says, “In summary, the thrust of the recommendations in the Carnegie report on the whole are timely and helpful and call attention to the importance of accreditation. Some are already being carried out; others add to or stimulate discussion of the issues; and some need to be viewed in the light of what has already been accomplished.”

**Conclusion**

Even the most conservative elements in our society admit that American higher education is being asked to react to more pressures than ever before. The problems of cost, numbers, increased amounts of new knowledge, greater demands for service, and emphasis upon quality controls are creating unusual pressures upon the higher education community. The recurring question is, how many masters can and should accreditation serve? Inasmuch as the accrediting mechanisms serve as the major factor in quality control for our institutions of higher education, and for various professional and specialized programs within these colleges and universities, it is most appropriate to look carefully at current demands upon accrediting.

Accreditation may be viewed as serving society and the public welfare, individual students, professionals, the institutions themselves,
and, in more recent years, federal and state governments. From time to
time the question arises, to which of these groups do accrediting bodies
owe primary allegiance?

Obviously, the answer to the question of primary obligation is not
one that can be categorically answered; however, the fact that institu­tions enter into accrediting arrangements (even though sometimes
under some duress) gives some substance to the premise that the
institutions have first claim on the efforts of accrediting organizations.
On the other hand, every segment of society is concerned with and is
affected by the quality of higher education and its component pro­grams. The individual states license members of professional groups,
often using specialized accreditation as a basis for eligibility to sit for
the licensing examination. However, migration across state lines often
requires and leads to regional and interregional agreements on some
generally accepted standards and procedures.

Accreditation must be considered within the context of the expand­
ing social and economic problems of our age. As a result, there are some
very significant continuing issues to be considered by groups involved
in accrediting activities. These include:

1. The general, persistent question of whether accreditation impedes innovation
and change in educational programs or whether it stimulates new ideas and
practices. The entire question of currency and relevancy of standards or
criteria needs serious consideration by each accrediting organization,
with particular attention being given to the products of the educational
programs.

2. The need to study the connection between licensure/certification, registra­
tion, and accreditation. Accredited institutions that award degrees accept
an increasing amount of credit based on experience. This credit at
times may result from useful professional experience. But even if this is
true, degrees and accreditation based partially on credit for experience
need further study when the graduates holding such degrees enter
professional fields that require state licensure and registration. In
addition, the use of testing for certification and registry, another crit­
ically important method for determining individual abilities, needs
further exploration.

3. The growing demand for accountability brought about by huge expenditures
in education. Can accreditation procedures be redesigned to provide this
accountability to state and federal governments and private donors, or
will other systems of assessment and evaluation be devised? Possible relationships between accreditation and national assessment should be explored.

4. The question of fees charged by accrediting organizations for services rendered to the institutions. There is a wide diversity in practice among the organizations, and institutions of higher education are raising more and more questions about such matters.

As we look to the future, every effort must be made to shape policies to meet the changing conditions that confront us. A cursory review of the history of education leads to the conclusion that accrediting procedures usually have been developed not in anticipation of needs but after they have grown to full maturity. This situation is not unique to accreditation. It is found in all types of social activities and is a phenomenon not likely to be eliminated; however, it would be far better to provide the means for easier and more rapid changes in policies and procedures of accrediting as the need for change develops. Changes are facilitated when there is widespread confidence; confidence is based to a large extent upon knowledge and communication.

Carol M. Elkins, executive director of the National Accrediting Agency for Clinical Laboratory Sciences, says,

It takes a partnership to measure quality—a partnership of interested, knowledgeable parties. The myths about accreditation can only be dispelled when all partners understand that programmatic accreditation (1) is accountable to the general public and the student consumer and is not professionally controlled; (2) uses relevant national standards adopted after thorough review by all involved parties; (3) demonstrates credibility in its application of the accreditation standards through public disclosure of positive and negative actions; and (4) functions effectively at a minimal cost because of the large volunteer effort involved in making accreditation decisions. Then the partners can truly work toward measuring the educational quality of programs.17

Whether accreditation is a bane or a blessing remains a question that will be discussed and argued for many years to come; however, until a more perfect and appropriate means is developed for assessing educational quality, the majority of educators feel that the best means for dealing with this activity is continued work toward the improvement of the standards and the process. The ferment and experimentation in the allied health accreditation area place these disciplines in the vanguard of the movement toward improvement and development.
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Notes


16. Ibid., p. 5.

ARTICULATION OF
ALLIED HEALTH EDUCATION

Elizabeth C. King

Articulation is both a process and an attitude, . . . and attitude is the more important of the two for without it there can be no workable process.  

Sylvia is twenty-eight years old. She graduated from Silver State Community College seven years ago with an associate degree as a certified occupational therapist assistant (COTA). She has had seven years of work experience as a COTA: three years in a burn care unit in a large tertiary-care center and three years in a stroke rehabilitation unit, and she is currently working in a 300-bed skilled-nursing facility. She loves her work and is committed to the practice of occupational therapy. She would like to complete the requirements for a bachelor’s degree and become an occupational therapist. When she makes an appointment to discuss the occupational therapy program at Gold State University, the program director says to her, “Sylvia, we will transfer all of your general education courses, but none of your professionally related courses will be accepted. It is not appropriate for bachelor’s degree work at this university.” Sylvia leaves feeling angry, discouraged, and alienated from the profession of occupational therapy.

Daniel is twenty-one and a graduate from Silver State Community College with an associate degree in general studies. He has been unable to find employment and is thinking about going back to school. He reads the most recent manpower projection report from the U.S. Department of Labor and notes that job prospects for occupational therapists are bright. Subsequently he makes an appointment to see the occupational therapy program director at Gold State University. The chairman reviews his transcript and says, “Daniel, all of your course work from Silver State Community College will transfer to our bach-
OLOR's degree program. You will be able to enter as a junior and complete the program in two years.” Daniel leaves encouraged about the prospects of becoming an occupational therapist. Just before he leaves he asks, “Now just what did you say occupational therapists do all day?”

How could this happen? How could a committed COTA like Sylvia, with a love of the profession and a conscious decision to build upon her current skills, be denied the opportunity to transfer some of her professionally related coursework, while Daniel can enter the program with all two years of community college coursework accepted?

The answers to this question are simple and complex. They will be different depending on the person you ask. The most common answers you will hear are as follows:

“We couldn’t evaluate Sylvia’s COTA coursework; we have no way of knowing anything about the course content. Anyway, we don’t believe there is enough clinical education in that program.” This response represents a barrier created by curricula. Often the relationship between didactic and clinical education differs among institutions. There are different methods for assigning credit hours to courses, no methods for equating course content or curricula, and often faculty have limited knowledge of methods for evaluating students’ skills, knowledge, and attitudes for advanced placement.

“Our admissions office won’t accept any credit hours given for clinical education or internship experiences.” This response represents a barrier created by educational institutions and is the result of several things. There may be a lack of a coordinating mechanism within an institution to facilitate communications between admissions and academic affairs. There may be the lack of an institutional mechanism for changing policy or making exceptions to the policy when a strong rationale is given. An institution might not be doing any research that could result in innovative programs. The institution might not place high priority on responding to pressure for change in programs or on addressing new needs brought about by changes in society, education, and/or health technology. Educational institutions often are rigid bureaucracies, inflexible and resistant to change.

“COTAs have no experience in problem-solving; they have just been trained as technicians.” To me, this response represents the most difficult, most insidious barrier to articulation—the barrier created by
professional biases; some may call it academic snobbery. Regardless of how it is labeled, overcoming this barrier is often a formidable problem. Nothing can stop the progress of articulation more effectively than the readiness of allied health educators to exercise this territorial imperative. To a very real extent the success or failure of an articulation effort is often related to this barrier. Yet it is often an undiscussable tension. When this area of resistance does not exist or when it has been overcome, very successful articulation models can be developed.

Judging from the barriers that exist for many transfer students, one might assume that these students differ from so-called generic students. However, research indicates that while there are biographical differences between generic and transfer students, in the area of academic achievement there are no significant differences. At the time of enrollment at the senior college, the two-year college group is like the native student population in the four-year institution. This suggests that students with less academic ability have adjusted their educational goals or have terminated their formal education.

**B**EYOND THE **B**ARRIERS TO **R**EADINESS

Mayhew notes several conditions essential for academic change that will also facilitate the development of articulation:

1. There must be someone who wants change and sees an opportunity for satisfying individual needs.
2. There must be a large enough group of individuals who believe some change is necessary.
3. There must be genuine and continuing support from key administrators.
4. There must be technically competent people to carry out the change.
5. There must be resources (e.g., faculty, space, finances, library, clinical placements).
6. Those involved in planning and implementing the change must be able to anticipate some kind of reward. However, the reward does not necessarily have to be financial. It may be professional recognition, travel opportunities, increased job security, etc.
7. There must be comprehensive planning, including sufficient time and expert input.
While all of these are helpful to the success of new programs, not all are essential, nor will all necessarily guarantee success.

**EXTERNAL FACTORS**

**THAT MAY INFLUENCE READINESS**

Some educators write off articulation as nonsense or not feasible, but they may not have that prerogative much longer. Many external factors are beginning to affect their ability to refuse to consider students who would move from one educational level to another.

Two of the most ominous trends are declining enrollments and rising costs in both health care and education.

*Declining enrollments.* National Center for Educational Statistics projections indicate that total college enrollment will have reached a peak in the fall of 1981 and will decline 5.5 percent from that point by 1988.\(^4\) For 1988 compared to 1979, the projections show part-time enrollment up 3.7 percent and full-time enrollment down 9.3 percent. These enrollment statistics will place great pressure on the educational system to become more sensitive to student needs. They could lead to loss of faculty positions and folded or merged academic units. They will challenge the ability of many programs to survive and prosper.

*Rising health care costs.* A clamor to contain the rising cost of health care is being heard. The 1983 Social Security refinancing legislation is changing Medicare reimbursement from the present cost-plus payment system to a fixed-rate system. The new system is called *prospective payment* because rates are set in advance of treatment according to diagnosis. Predictions indicate that this fixed-rate payment system will cause cost control problems for the nation’s 5,800 acute-care hospitals, which receive an average of 30 percent of their revenues from Medicare and Medicaid.\(^5\)

The demands for cost-effective health manpower utilization are upon us. The educational sector cannot operate oblivious to costs to the patient. Solutions to the problems of unnecessary educational duplication must be found.

Success will depend on our ability to respond to declining enrollments and rising costs. Professional bias must be put aside as we become more problem-centered and less profession-centered. We must begin to consider the relationship of the profession to the patient and to contribute to a comprehensive educational and health care system.\(^6\)
Models of Articulation

An articulated curriculum is one with a basic philosophy of meeting student needs and providing for flexibility into and out of an educational program by capitalizing on the individual's previous education and experience.

There are four transfer models in allied health education that vary depending on the basic level of education essential to practice. These models are illustrated in Figure 1. Models A and B offer few transfer problems. However, substantial barriers to transfer exist for Models C and D. These four models are briefly summarized as follows:

1. **Transfer Model A: Pre-professional curriculum.** This curriculum provides for the completion of general education requirements and prerequisites for the professional education curriculum. The professional curriculum is offered as an upper-division program of study leading to a baccalaureate degree. This is a typical route for dietetics, medical technology, occupational therapy, and physical therapy. Problems of transferring of credit are rare. Daniel's transfer of credit is an example of Transfer Model A. Figure 2 illustrates this transfer pattern.

2. **Transfer Model B: Basic professional curriculum.** Several allied health curricula are offered by two-year, postsecondary institutions that grant an associate degree in applied science. Upon completion the student is eligible to sit for a licensure, certification, or registration examination leading to professional status in the discipline (for example, dental hygiene, radiologic technology, respiratory therapy).

Advance study beyond this basic level of preparation is often for
teaching, administration, or expanded functions, or possibly for additional basic science study. Transferring credit from a basic professional curriculum requires the senior institution to approve a curriculum that represents a departure from a traditional associate degree program. Transfer Model B is illustrated in Figure 3. Much progress has been made throughout the country to facilitate Model B.

3. **Transfer Model C: Certificate-granting basic professional curriculum.** Some allied health professional curricula are offered in hospital-based programs or in postsecondary vocational-technical schools that grant a certificate. Upon completion the student is qualified to sit for a licensure, certification or registration examination leading to professional status in the discipline (for example, respiratory therapy technician, radiologic technology, and dental assisting).

The curriculum emphasis at this level is on the professional curriculum with related professional science courses. Little or no general education is provided. Often transferral of this professional course work to a two-year institution, a senior college, or a university is fairly difficult. Figure 4 illustrates possible transfer to either the bachelor’s or the associate degree.

4. **Transfer Model D: Intermediate professional curriculum.** The most significant characteristic of this transfer model is that the course of
**Curriculum Examples:**
1. Dental Hygiene
2. Radiologic Technology
3. Respiratory Therapy

Figure 3. Transfer Model B: Associate Degree Basic Professional Curriculum.

**Curriculum Examples:**
1. Dental Assisting
2. Radiologic Technology
3. Respiratory Therapy

**BS may be in advanced clinical courses, teacher preparation, management, or advanced related sciences.**

Figure 4. Transfer Model C: Certificate Basic Curriculum.
study leads to an intermediate level of professional certification within a discipline (for example, assistant, technician). Transferral to a senior institution or to an upper-division program within the same institution traditionally has been very difficult. Sylvia, for instance, had completed an intermediate professional curriculum as an occupational therapy assistant and then experienced difficulty in transferring to the professional curriculum. The traditional route to advanced professional studies has been a pre-professional curriculum (as in Transfer Model A), not an intermediate degree or certificate. Figure 5 illustrates Transfer Model D.

Several factors complicate transfer of credit between these two levels. Two significant factors are that several professional associations have not yet delineated competencies by level of education. In addition, while there is considerable overlap between lower-level and upper-level courses, the courses are not exactly the same. Consequently, full transfer credit cannot be granted without some curriculum changes.

However, the greatest barriers to transferring this intermediate professional course work are often created by faculty. Faculty biases
regarding the essentiality of their specific course(s) inhibit transfer. Similarly, academic snobbery is a very real yet subtle, undiscussable barrier. These barriers may inhibit seriously the production of valid information for problem solving and decision making.

Negotiating transfer agreements for intermediate professional curricula is challenging and often a very difficult task requiring much patience. Because these agreements are the most difficult to negotiate, their successful completion is a fine accomplishment. They require educators to place the needs of students over the needs of faculty or institutions. Success in this area will strengthen the disciplines and all of allied health education.

A Model for Initiating Articulation Agreements

Because the development of successful sequences of articulation requires change, often both for the sending institution and the receiving institution, it can best be planned by understanding the change process. Four phases have been developed to illustrate this and to provide a model for initiating articulation agreements. This conceptual model helps in developing a process that can be useful in developing task specific work/time plans.  

**Phase I: Planning and Assessment.** The planning phase begins with a literature review to determine what similar efforts have been made, their strengths and weaknesses, and their relevance to proposed articulation efforts. In addition, relevant manpower data and educational data are needed. This information will help answer the questions, Are there sufficient job opportunities to support this effort? What educational programs and students will be served by this effort? Consequently, early planning tasks are to complete an inventory of allied health programs that may be involved in articulation and to synthesize manpower data to support the availability of jobs. The establishment of an evaluation design for the articulation effort is also a Phase I task.

An advisory group, task force, or steering committee is necessary to provide general coordination, help secure support from essential publcs, offer advice, and monitor the progress of the effort. The advisory group should contain representatives from all of the educational institutions involved (i.e., public colleges and universities, independent
colleges and universities, practicing clinicians, and hospital administrators).

Finally, Phase I should include communication with the relevant professional accrediting bodies. Involving professional accrediting bodies early on will help lay the foundation for success at the implementation stage.

Phase II: Developing and Comparing Curricula. The first step for Phase II is to activate discipline-specific advisory groups. For example, if the goal is to develop articulation agreements in medical technology and dietetics, two separate advisory groups would be formed. Representation for the advisory groups should include faculty members from all the involved educational institutions, practicing clinicians, and professional organizations. The central concept in selecting these advisory group members is that those responsible for implementing the agreements should assume key leadership positions in developing the agreements.

The major activity of Phase II is to delineate roles and functions for each level of practice within each allied health profession and to identify competencies by level with the goal of developing curricula. Each allied health discipline is at a different stage of development with this task; consequently, some groups will be able to do this with greater ease than others.

While each advisory group is developing a curriculum that contains the information for safe, competent practice, its members can also gather program-specific information such as course outlines, clock hours, percentage of lecture, lab, and/or clinical components per course, minimal acceptable grades, and the pre-professional and professional components of each curriculum. These data will provide the necessary information for transfer decisions.

The comparing of curricula among programs requires the sharing of each program’s philosophy and/or mission statement, as well as the curriculum design including such specifics as course outlines, course objectives, and examinations.

Finally, for the ultimate development of sequences of transfer, the advisory group needs to be open to innovative solutions to transfer problems such as transition courses/modules and the resequencing of courses into basic and advanced. It has been my experience that when a receiving institution’s faculty recommends the use of challenge exam-
inations they are really saying, "We don't believe that your course is of similar rigor." Consequently, they may administer a teacher-made examination that the sending institution students cannot possibly pass. In one such situation all of the transfer students were soundly failing the challenge examination. A closer look revealed that the challenge examination contained advanced-level course material that was not included in the associate degree curricula. Furthermore, the examination was not reflective of the course being challenged. If challenge exams are to be used, they should be developed using a test blueprint and should be reflective of the course objectives. Of course, soundly conceived and carefully developed challenge examinations can be useful tools for determining the transfer of credit. There are many fine examples of this, yet challenge examinations also can be used as a smoke screen for delaying or preventing transfer. In other words, faculty members are saying, yes, we believe in articulation, yet their actions are saying, we don't want any of your students. When there is a discrepancy between words and actions, one is most likely to believe actions.

**Phase III: Implementation.** This phase will have a greater chance for success if the individuals/groups involved in the planning and the development of the transfer agreements are also responsible for its implementation.

Implementation should include the development of student recruitment information describing the available program and its benefits. Press releases also give the program greater visibility and educate the public. Orientation programs for the faculty of all cooperating institutions need to be held. Obviously many faculty will have been involved throughout the planning process, but all new faculty need an orientation. The establishment of a sound academic advising program is also necessary. My experience suggests that it is best to identify one individual in each program to be responsible for advising transfer students.

Finally, the original committee that developed and negotiated the agreement should meet periodically to monitor the endeavor.

**Phase IV: Evaluation and Revision.** A plan for evaluation of the articulation agreements is essential. Often the essentials of the evaluation are included in the formal articulation agreement.

The evaluation plan should seek to answer such questions as
• How are transfer students performing when compared with generic students?
• Is the program cost effective?
• Are clinical agencies satisfied with transfer students?
• Did the curriculum modifications do what they were purported to do?
• Are any changes recommended? from faculty? from students? from employees?

This model for initiating articulating agreements was successfully applied in Kentucky to develop a statewide plan for allied health education that permits entry and exit of prepared personnel at a variety of levels and has improved interinstitutional efforts to share educational resources. The articulated system was developed in six disciplinary clusters: clinical laboratory, dental auxiliaries, dietetic nutrition, rehabilitation therapies, radiological science, and respiratory therapy programs. All levels of programs within each discipline cluster existing in Kentucky are included in the system.

The accomplishments include the negotiation of approximately thirty transfer agreements, the development of model and core curricula, design for graduate follow-up, several publications, development of manpower models, and increased cooperation among project participants.9

DISCUSSION AND RECOMMENDATIONS

At first blush developing sequences for transfer appears relatively simple: if we but dedicate ourselves to sound planning and are philosophically committed to the idea we will be successful. Success is often elusive, however, and it depends upon a group of faculty, administrators, and clinicians working toward a common goal.

In reality, it is a difficult process fraught with problems and frustrations. For those of you you have tried it and have failed, or who have not tried it but would like to, here are a few suggestions.

1. Be patient! Probably one of the most critical behaviors to the successful negotiation of a transfer agreement is patience. There will be times when you will want to say “The health with it,” and take your course outlines and go home. Faculty have a penchant for wanting to
explain each nuance of an objective. Patience will assist you through the arduous process of comparing curricula.

2. **Be open and share.** Be willing to openly share such items as course outlines and objectives. It is also helpful if there are intercollege visits so everyone gets a firsthand view of the physical resources in each program. Intercollege visits also help develop mutual respect and trust among the group members.

3. **Develop an awareness for the interdependent behaviors that must be performed by group members.** Task behaviors are those behaviors that are related to achieving group goals, such as giving suggestions or directions and seeking information. Maintenance functions are those behaviors related to maintaining harmonious relations among members, such as helping, rewarding, relieving tension by joking, and showing satisfaction. Task behaviors and maintenance behaviors are equally important.

4. **View leadership as a shared group function.** By viewing leadership as a shared group function, all members are encouraged to contribute. The sharing of leadership ensures that all the resources of the group will be used productively.

5. **Willingly accept new members.** While a high turnover of group membership may indicate something serious wrong within the group, some turnover is natural. Welcome each new group member as a valuable resource.

6. **Allow “hidden agendas” to surface in open discussion.** Hidden agendas occur because an individual believes that the item may be judged as wrong or inappropriate, rather than as a reflection of a legitimate need or purpose. Remember, group members may be trying to simultaneously achieve individual and group goals. Often the degree to which both goals can be achieved determines the success of the group. Recognize that members may bring to the group a hidden agenda—one they hesitate to share openly because it may be self-oriented. Allow hidden agendas to surface in open discussion so that personal needs may be considered.

7. **View conflict as natural.** Most substantive issues will involve some conflict. View this as natural and indeed inevitable. Conflict worked through constructively can provide an important success experience for the group. Furthermore, it will reduce the fear of conflict and further strengthen the group.
Of primary importance to the development of a successful articulation agreement is a basic respect for each other’s programs and level of practice. This respect will facilitate the development of mutual trust. Administrative and fiscal security may result from a group of interrelated programs that are functioning together. This coordinated effort can give strength through a stable number of students.

It is not the purpose nor the thesis of this chapter to state that each allied health discipline should have completely articulated programs. However, it is my belief that students should not be required to duplicate educational experiences and that artificially imposed barriers should be removed.

In the words of Abraham Lincoln, “The dogmas of the quiet past are inadequate to the stormy present; as our case is new, so we must think and act anew.”

Notes

9. Ibid.
MICROCOMPUTERS AND ALLIED HEALTH EDUCATION: DIVERSITY AND POTENTIAL

John L. Phelps

“We are on the verge of a major change in the way people learn. This change, driven by the personal computer, will affect all levels of education from earliest childhood through adult education. It will affect most subject areas and most learners. It will affect both education and training. It will be one of the few major historical changes in the way people learn. The impact of the computer in education will not produce an incremental change, a minor aberration in the current ways of learning, but will lead to entirely different learning systems.”

Given the impact of computers in our society, we must accept the imperative to learn about computers, especially personal computers (microcomputers), in order to incorporate them in our teaching in ways that will lead to the most potent learning experiences for our students.

This chapter explores the development of microcomputers and their successful application in allied health education. It is becoming apparent that the rich diversity that characterizes allied health education is now matched by the diverse capabilities and potential of microcomputer applications. A strategy for using microcomputers in allied health education is described, along with likely consequences of implementing the strategy.

DIVERSITY AND CHANGE IN ALLIED HEALTH EDUCATION

Any examination of allied health education must consider its multidimensional, diverse character. The breadth of allied health is well illustrated by the National Commission on Allied Health Education
definition of allied health personnel: "All health personnel working toward the common goal of providing the best services in patient care and health promotion."2 Allied health education includes a substantial number of health-related disciplines. Even when disciplines are grouped or clustered, the range of educational activities from the laboratory sciences to medical records systems, for example, is enormous. Teaching and learning occur in settings that range from different hospitals to health science centers, to universities. These settings define approaches to education. Academic levels of allied health education programs range from prebaccalaureate certification to postdoctoral study. And, in accelerating diversity, student characteristics are changing. Age ranges, prior educational experience, background and motivation, and career goals are examples of important variables. If one could stand back and view allied health education, from any perspective it would be quite an edifice.

Recent action by the American Physical Therapy Association requiring that education for entry into the field be at the postbaccalaureate level by 1990, as well as the institution of prospective payment systems (e.g., diagnosis-related groups), testify to dramatic changes in allied health. Amid these changes, simple solutions or quick educational "fixes" will not suffice. Given the complex structure of allied health education, any successful application of educational technology, the hardware, the sequences, the procedures of instruction, must be perceived as relevant across the range of disciplines, academic levels, and settings.

Emergence of Microcomputers in Education

The personal computer, or microcomputer, is a major force in American life. The potential for the successful application of microcomputers as an educational technology in allied health education is high. Microcomputers are capable of matching the diversity in allied health education partly because of their hardware characteristics, but mostly because of their capability to use powerful software programs that are generic, that is, that can be used to educational advantage across the complex structure of allied health education. Convenient hardware characteristics and the general utility of many software packages that
now exist can result in any array of useful applications. To understand the potential for microcomputers in allied health education, we must examine the development and use of computers in education and in the larger social context as well.

A cogent analysis of the development of computers and how they have been used in education is provided by J. Hebenstreit in a keynote address titled "Computers in Education: The Next Step," delivered at a conference concerned with educating college students in the context of a rapidly expanding role of computers in society. Hebenstreit characterized the development of computer-assisted instruction (CAI) as a series of steps that parallel the emergence of computers themselves. In first step, CAI coincides with the appearance of computers as very expensive devices that were affordable only to the extent that their costs could be balanced by salaries of the people they replaced. Early CAI was associated with the thinking of B.F. Skinner and the concept that education is the transmission of knowledge. It was thought that computers were devices that could reduce teaching to a fully automated procedure. Thus, computers were used in governments, commerce, and industry to replace individuals. The computer-assisted instruction developed "mimicked" teachers.

The second step in CAI described by Hebenstreit was characterized by the need by industry for a more direct, interactive link to computers. Time-sharing, flight reservations systems, on-line data entry, and other interactive applications were developed. One educational outcome was the development by International Business Machines (IBM) of CAI software called COURSEWRITER II. This computer system consisted of the computer itself and up to thirty-two terminals. It was very expensive and was discontinued by IBM after only a few dozen systems were sold. Concepts that developed for CAI along with the COURSEWRITER II system included drill and practice, the dialog mode (where a student "converses" with a computer system), and, because graphics started to become available, modeling and simulation. The goal that computers should replace teachers persisted, but a new idea emerged: interaction with computers.

The third step, which includes the present, is the availability of the microprocessor integrated-circuit chip, which has made possible complete computer systems with dramatically reduced space and power requirements, reduced costs of purchasing and operating the systems,
and quickly increasing capabilities. The result has been a fundamental change in how computers are used. Analysts in industry now are looking at individual roles and functions to see which parts of work require human thinking and which is routine and so can be performed by a computer. Computers are being integrated into work activities, not replacing people. This has given rise to a category of industrial activities called computer-aided activities (CAX). Examples of computer-aided activities include computer-aided design, computer-aided medical diagnosis, computer-aided documentation, computer-aided office work, and so on. Computers, as a result of the development of the microprocessor chip, have undergone a metamorphosis, changing physically from large dominating machines that (at least potentially) could replace people in many spheres of human activity to low-cost, easily accessible and generically powerful tools that people use to extend certain aspects of work and other tasks.

Hebenstreit's analysis describes how computers have moved from a position of dominance to a position of subservience, from elite singularity to ubiquitousness, and there are no signs that microcomputer development is slowing down. The analogy is drawn that "if the aircraft industry had developed as spectacularly as the computer industry over the past twenty-five years, a Boeing 767 would cost $500 today, and it would circle the globe in twenty minutes on five gallons of fuel." It is crucial for allied health educators to "take a picture" of this moving target and examine it carefully to ascertain applications and implications related to the preparation of allied health personnel.

**EARLY EDUCATIONAL COMPUTING IN ALLIED HEALTH: CAI**

An examination of how computers have been used in allied health education in the past helps provide a background for an indication of how microcomputers should be used in the future.

The range and extent of computer activities in allied health education are not well documented, but past educational computing activities at the State University of New York Agricultural and Technical College at Alfred will serve to illustrate some of the key issues. Using sizable grant monies obtained in the 1970s, administrators at Alfred assembled equipment for a computer center: a minicomputer system
consisting of a main computer, supporting hardware, and a number of student terminals. This was accomplished when such equipment was expensive to obtain and difficult to install, operate, and understand, and at a time when there were essentially no available education programs designed specifically for allied health. A staff person was hired to develop and write the necessary programs. Since a number of students used terminals simultaneously for different programs related to different courses, the instructional programs themselves as well as the programs required to manage the whole operation needed to be quite complex. In addition to instructional issues that included presenting material, analyzing students' responses, providing feedback and perhaps remediation, these CAI programs had to keep track of students' responses, maintain records related to student activity at the terminals, and provide appropriate responses for inappropriate student keyboard responses. The management responsibilities of the CAI programs were considerable because the programs were, at least to some extent, mimicking a teacher. These CAI programs had much of the responsibility for students' progress. The effort required to develop and write them, along with their resulting complexity, attested to the magnitude of the task. The situation was further complicated by the fact that the hardware—the center of the operation—was located in one relatively out of the way location. To use many of the terminals and to obtain help or converse with the system "operators," faculty and students were required to seek out the operations center. The operators of this centralized computing facility persisted, however, and the author of this chapter had the opportunity on a number of occasions to visit the college at Alfred and see a substantial operating application of CAI in allied health education.

The computer installation at Alfred is an example of Hebenstreit's second step in the development of computers and their use in education. The system there was a time-sharing one, a number of terminals linked to a central minicomputer that provided a degree of interaction. The emphasis was on full-scale traditional CAI programs emphasizing drill and practice. Faculty members made requests for services, and "experts" did the programming.

If hardware systems like that at Alfred were in place at other schools of allied health, and if high-quality, appropriate, and useful software programs were available, they would be used. But this approach to
educational computing in allied health education has in fact not proliferated. This has not happened for several reasons that are perhaps best represented by what is called "the software problem." Using Hebenstreit's terminology, as we moved from step two (where the large computing system dominated) to step three (the development of the microprocessor), the cost of hardware has dropped precipitously. The relative costs of software, however, have soared. Estimates of the time required to develop CAI software range from 100 to 300 hours for one hour's interaction. Specialized programs (author languages) can reduce this time, but the labor-intensive aspect of CAI software development remains a major problem. As Pressman and Rosenbloom also note, CAI software manufacturers have a proprietary interest in their products that is a disincentive to developing general purpose, machine independent materials. At the present time there is no group related to allied health that has a strong commercial or noncommercial incentive to devote the time and effort needed to create validated CAI software for the allied health discipline.

Another aspect of the software problem results from the diversity in allied health education. To be economically cost effective, or even feasible, CAI software developed commercially needs to be broadly applicable, useful in different contexts. As the allied health professions continue to mature, common underlying principles will probably emerge, but not in the near future. For now, the content diversity and differences in academic levels and settings described earlier persist and in fact may increase as intra-discipline specialties increase in importance. Further, the number of programs that could even potentially share in the use of such software is relatively small. Diversity and small numbers present a very real obstacle to the would-be CAI software developer who wishes to distribute educational computing materials to allied health educators.

Finally, the software problem worsens to the extent that higher levels of learning are considered desirable. Much early development of CAI software focused on drill-and-practice and tutorial formats of interaction with students. At best these materials resulted in substantial learning at the level for which they were intended; at worst they represented "electronic page turning." That is still true today. As CAI software developers turn their education to the kinds of interactions leading to higher learning levels, they find an additional layer of
complexity in the sets of simulations and problem-solving exercises required for learning at higher levels. Given the current state of software and computer language capabilities, it is not likely that CAI materials of this type will be broadly available in allied health for a number of years.

The software problem presents a particularly difficult issue for allied health education. The likelihood is remote that high-quality CAI materials representing a significant instructional contribution to a multilevel, multidisciplinary educational arena such as allied health will develop and enjoy widespread use. This would seem to frustrate the goal to disseminate high-quality, useful computer-based materials.

For these reasons we must seriously consider the third stage of computer development and the use of computers in education: the introduction and use of microcomputers. We must learn about the important hardware characteristics of microcomputers that can be effectively used in allied health education, and we must come to understand how software programs can be used effectively to help us integrate microcomputers in our teaching.

**Microcomputer Capabilities**

It is important that we approach microcomputers in a way that will lead to understanding rather than bewilderment. We need not necessarily learn about the electronics, binary arithmetic, the logic of the most elementary computer operations, in order to intelligently apply microcomputers in allied health education. But we do need to learn about the functions and capabilities of microcomputers. Only then will we be able to envision their proper role in our field.

Descriptions of microcomputers abound; the reader will find the Toong and Gupta article an articulate survey of microcomputer hardware, software, and applications. Basically, a microcomputer is a collection of components including integrated circuit chips and other electronic devices attached to printed circuit boards, a keyboard, one or more motor drive units used to store and retrieve data on magnetic disks, a video display unit, and perhaps a printer. Instructions that allow various sections of the microcomputer to communicate whenever it is turned on are embedded electronically into some of the integrated chips. It is these instructions that make the device a computer when
switched on. Other embedded instructions, in other chips, comprise a language in that they serve to meaningfully link messages from a person (via the keyboard, for example) to the computer, as well as messages from the computer to the person (via the video display unit or a printer). Still other chips are reserved for a "memory" function; they are used to temporarily store information.

One can hardly read a newspaper or popular magazine without seeing advertisements for various microcomputers. Current popular brands include Apple (and Apple-compatible computers of other brands), Commodore, IBM, (and IBM-compatible computers of other brands), Radio Shack, and Texas Instruments. Most brands offer "low-end" versions including a minimum amount of internal memory and can be purchased for little more than $500. As internal memory and other features are added, capabilities increase; costs can exceed $5,000.

The microcomputer thus described does not amount to much. Turn on one of these and not much will happen: perhaps a beep or two or a message will flash on the screen. The situation changes dramatically when a person types a sequence of instructions (a program) into the computer according to the rules of the built-in language and directs the microcomputer to read the sequence. It also changes, perhaps even more dramatically, when a person inserts a magnetic disk on which a program is already stored, and directs the microcomputer to read the program. In either case, the microcomputer reads and acts on the instructions obtained from keybard or disk. Without any further intervention, the microcomputer acts on or becomes the program that has been read. This capability a microcomputer has to act on whatever instructions are included in the program read from a disk, and to do so at low cost and with impressive convenience and reliability, are at the center of its power and potential.

What the microcomputer can become has proliferated into categories of what are called applications software. A microcomputer can become a game; a word processor; a storehouse, organizer, and retriever of information; a spreadsheet for manipulating numbers; a device that performs statistical and graphical analyses; a device to read and record information from the external world; a device to control devices in the external world; and on and on. Each of these categories has yielded dozens, hundreds of specific applications software programs, specific sets of instructions to make the microcomputer act out
some particular task. As allied health education is diverse, so too are microcomputer capabilities, which seem limited only by human imagination and ingenuity.

**Future Educational Computing in Allied Health**

The microcomputer is, of course, being used now to some extent in allied health education. Current educational computing activities at the School of Allied Health at Alfred are an indicator of future directions. The dean at Alfred reports that the use of computers there has changed drastically in just a few years. The large, minicomputer-based system used for CAI operations in a computer center has been silenced by the expiration of grant monies that had supported it, by the lack of faculty and administrative support to fund what was seen as a major cost center, and by the realization that students were not using computers in the ways needed in the health professions. In its place, microcomputers have been placed in classrooms and laboratories, in proximity to students so they can use the devices as needed. Additional computer terminals, again located in laboratories, are connected to a central computer. Some software has been purchased and some is under development at the school. The dean reports that student and faculty interest and activity have increased manyfold.

Current uses of microcomputers at Alfred represent in part an example of a general approach for allied health educators. This approach corresponds with Hebenstreit’s third step in the development of educational computing: computer-aided educational activities made possible by the development of the microcomputer. Computer-aided educational activities using microcomputers represent a strategy that allows us to incorporate the capabilities of microcomputers in the diversity of allied health education programs. With this approach we acknowledge the diversity that is central to allied health. We match that with the diverse capabilities of current microcomputer technology, and we learn to apply a tool that facilitates high-level instruction and learning. The capabilities of microcomputers—their generic applicability, small size, and low cost—allow us to incorporate them in academic programs across disciplines, levels, and settings in a myriad of educational applications. The capabilities and flexibility of micro-
computers have the potential to help allied health education faculty move beyond dependence on large-scale, centralized computer systems and large, complex software packages. How?

Faculty members must learn to understand and use a relatively small number of applications programs that already exist for microcomputers. As we do, the microcomputer, as a tool, can be put to use in allied health education with applications developed using these generic software programs. Using these "tool kit" programs, we can develop powerful applications that can be used directly in our teaching and other activities. It should be noted immediately that in no case is programming a central assumption. This approach to using microcomputers in allied health education can be implemented almost entirely by developing specific applications using existing software programs, without extensive programming. The examples of computer-aided activities—computer-aided design, computer-aided medical diagnosis, computer-aided documentation, and so on—are not merely additional computer jargon, but also represent real applications of current hardware and software. This flexibility is being used to advantage in other important spheres of corporate and business activity, and our responsibilities require that we learn enough about microcomputers and extant software to appropriately use this resource in our professional activities. Braun, in reporting on a conference on precollege mathematics, science, and technology, described the computer as currently the most dominant technology in education.7 The most promising use of computers in learning environments, both formal and informal, is as a tool of instruction: learning with computers. As computer-aided educational activities are implemented, a number of important consequences will result.

As a first consequence, we will be able to show our students the best current understanding of how to think about computers and what their function should be in allied health. This modeling function is very important. Graduates of allied health programs in the immediate future must be able to use computers, not just operate them. As the basic notions of allied health develop, surely it will be required that practitioners be able to intelligently use computers in several arenas of their professional roles. The process to facilitate a general computer literacy in allied health education must begin now.

Along with the necessity to show how computers should be thought
of and used, it will be possible to use this resource to more forcefully develop teaching and learning strategies that emphasize higher levels of learning. This is because the whole instructional load is not on the computer, hence interactions with it can be better incorporated into learning and it can make more complex contributions. As we develop uses for microcomputers in allied health education, we must not be limited to the thinking that dwelled on a centralized and controlled drill-and-practice and tutorial environment. The approach outlined here is a small but crucial step in that direction. Microcomputers used in the ways described here can help us grapple with this important issue. It is discouraging to realize after the purchase of a microcomputer and associated software that the equipment and materials just sits there, but we must not look to this resource as any sort of replacement for educational planning and development, the hard work of creating worthwhile educational experiences for allied health students. The real value of microcomputers in allied health education will be to help us more effectively teach our students in the midst of rapid change.

Another consequence of using microcomputers in computer-aided activities in allied health education will be the better maintenance of an appropriate relationship between teachers, students, and technology. Used as a resource, not the central educational experience, microcomputers can improve the quality of interaction between teachers and their students, not degrade it. In this mode microcomputers can make a large difference in how students perceive and understand the intellectual components of their disciplines without undermining a patient/client orientation. Integrated as a tool in educational methodology, microcomputers will make important contributions but will not cause instruction to cease when they fail.

Breaking away from the requirement to acquire large numbers of computers is another consequence of using microcomputers as resources in allied health education. This approach does not depend on each student having a microcomputer or terminal. A relatively small number of microcomputers in classrooms, laboratories, resource centers, or faculty work areas will suffice. Faculty and student use of a set of microcomputers can overlap.

Finally, in embracing this approach to using microcomputers in allied health education, we acknowledge that dissemination of educational innovations is a long and difficult process. As resources, micro-
computers can be integrated appropriately over time and under control of those most likely to be affected. Dissemination is further helped in that a great infusion of money is not required. A particular discipline, academic level, or program setting is not forced to standardize on a single microcomputer brand or level of system.

These consequences do not depend on any single event or process sweeping across allied health education. The benefits of using microcomputers can be invoked on a program-by-program basis. No large-scale software development project need precede these activities. We have the resources within allied health to accomplish the integration of microcomputers into our academic programs.

**Components of Successful Computer-Aided Activities**

By considering and implementing four components of computer-aided educational activities, we can begin immediately to learn to use microcomputers effectively in allied health education. First, we must learn to use a few types of general-purpose applications software that already exist for microcomputers. This software can be used effectively by concentrating on the development of discipline-related applications in specific settings and for specific needs, not by writing computer programs.

A second component is to use microcomputers in ways that take advantage of the fact that they are fast becoming very convenient devices. The notion that faculty members or students will “go to the microcomputer” is obsolete. The microcomputer can be useful wherever the teaching and learning occur.

A third component is the attitude that microcomputers are simple tools that can be used effectively for parts of the instructional process, but rarely for an entire course, or even a substantial portion of a course.

Finally, we need to analyze actively our teaching and our students’ learning to determine where microcomputers fit well. An outcome of this will be to identify instances where microcomputers will be most effective as aids for faculty members. In other instances student use will dominate.

_General Purpose Software_. Commercially prepared, relatively inexpensive software now exists that can be of great value to allied health
educators in their academic programs. The value exists because although the programs to be described have powerful capabilities as the result of sophisticated programming techniques, their use is quite simple and they are general tools that can be used effectively in many situations. This software can be organized into categories in a number of ways. Our purpose will be served by briefly examining these categories: business, communications, graphics, and education.

*Business* software useful for allied health applications includes data base management programs, spreadsheet programs, and word processing. Data base management software programs can be thought of as electronic filing cabinets. When purchased, the program's only ability is to store information in an unorganized form and retrieve it in any organization or pattern desired. The person using the program must decide what information to enter and then enter the information. Once entered, portions of the information can be changed or deleted and new information can be added. The real use, of course, is to recall portions of the information that are needed at a particular time. Typically, key words, phrases, or numbers are entered and the information related to each word, phrase, or number is collected and presented (perhaps in alphabetic or numeric order) to the screen or printer.

The range of applications of data base management programs may be illustrated by considering that information about patients (real or simulated), laboratory tests, or any other relevant source could be entered by a faculty member. Students, in defining and using search statements as part of other instructional tasks related to the information, could draw conclusions or make inferences based on the subsets of data they collected. This resource might be used as students learn to develop treatment plans or other determinations where decisions related to such data are important. Search strategies and methods of data use could be critiqued during the learning activities. Individual students, small groups, or teams could use data bases in this and other ways. The decisions the allied health educator must make in this process are rooted in students' needs in a course or administrative needs of an academic program. They do not involve considerations of the internal workings of the microcomputer as an electronic device, and they do not require any programming.

Data-base management programs are empty structures, devoid of any content. It is up to a faculty member or administrator, appropri-
ately, to figure out why a data base program should be used in a course or administrative application, how it should be used, and what resources will be required to implement the project. This places a burden on a faculty member or administrator; there is no quick microcomputer fix, no instant implementation. As a benefit, however, allied health educators are freed from the difficulties of software that is inappropriate because it is designed for a different discipline, academic level, setting, or educational or administrative approach. Further, the focus of responsibility and control of the enterprise rests where it belongs, with the allied health educator.

Another type of business software, called spreadsheet programs, has considerable potential in allied health education. Spreadsheet programs (VISICALC is a common one) function to perform computations on numbers according to equations supplied by the person using the program. Numbers entered and calculations performed are displayed on the screen in a series of columns and rows. The person using the program might enter equations to keep track of household finances or fiscal data of any kind. Once they are entered, any numbers typed into the program at the appropriate row and cell intersection result in the automatic computation of sums, differences, and any other statistical or mathematical functions earlier defined. Spreadsheet programs are often used to determine the effects on budgets of changes in various line items, percentages, and so on.

For teaching applications, spreadsheets can be used to manipulate numbers that represent any phenomena. Many, if not most, of the relationships in allied health that can be quantified, and for which equations or other mathematical relationships are known, can be entered into spreadsheet programs. Data can be entered along with the equations, so students or faculty can immediately see the effects of changing variables in the relationships being studied. Studying quantitative relationships in terms of "what if?" exercises could lead to increased understanding of the relationships in many different situations.

Spreadsheet programs share the same types of potential applications as data-base management programs in allied health education. In both cases a substantial computing resource can be matched with important educational applications without constraints imposed by discipline type, level of academic program, or setting. The time and
effort in developing the applications is spent on analyzing the discipline content and the software capabilities, not on programming.

Word processing is the final example of business-related software programs that can be used effectively in allied health education. Word processing is perhaps the most general resource in this category. When word processing software is entered into a microcomputer, the microcomputer becomes a place to enter, store, revise, and retrieve any sort of typed material. This material is seen on the screen as it is typed. The “page” the video display unit “sees” can be changed, so a whole document can be viewed. Perhaps the most remarkable feature of word processing programs is the capability to make major and minor revisions in a document easily. Changes cost very little in either time or effort, and so the person using the word processor is less constrained in editing a document. A five-inch-diameter floppy disk can, depending on the particular program used, store 20,000 or more words. Documents can be easily printed on a variety of computer printers. The increased ability to manipulate text and print materials enhances administrative, faculty, and student spheres of activities. Microcomputer-based word processors can provide this positive effect in an allied health program at any level, in any discipline and setting.

In addition to software programs generally associated with business applications, communications programs allow microcomputers to be used for telecommunications activities that could also be useful in allied health education. With communications software programs, microcomputers can be connected to telephone lines to provide access to a large number of information sources and data bases. To use this capability, a microcomputer must contain the appropriate electrical interface equipment to permit connection to a telephone line. This equipment is available for most, if not all, systems; some microcomputers have it built in.

The interface equipment and communications software allow the microcomputer to act as a terminal when data bases are accessed by telephone. With the microcomputer set as a terminal and the instructions for the data bases to be queried, a person can perform library-type searches of sources in education, the social and physical sciences, and other areas as well. For a typical service now available (BRS After Dark), low-cost access ($6 to $20 per connect hour, including phone charges) is available from 6:00 p.m. through the early morning hours.
Once connected, searches can be performed for any purpose related to an academic program. This capability puts a powerful resource directly in the hands of allied health educators. In addition to the search capability, some services provide directories of available microcomputer software. These directories are updated often. This resource for allied health educators does not require expensive accessories or substantial commitments for ongoing costs.

*Graphics* programs that permit microcomputers to create graphic images are another valuable category of software for allied health educators. Most microcomputers have a built-in capability to create graphics images. They can be used to create graphs, charts, diagrams (including text information), and any other visual image that can be represented within the limitations of the resolution capability of the microcomputer. These images can be stored on disks and changed at will. They can be displayed on a standard color television screen and can be printed. Printing these images requires a printer with the appropriate capabilities; the images can be printed in black and white or in color, again depending on the printer used. Graphics software programs can be used to develop images quickly. These programs make it easy to create, edit, and store visual images. They also assist in the printing process.

The capabilities of graphics programs interact with software programs described earlier. For example, it is possible for a spreadsheet program containing equations or a numeric model of some phenomenon to create a set of data that represent many different outcomes. These data can then be entered into a graphics software program and a visualization of the processes under study can be made. These visualizations, either displayed on a screen for students or provided in printed form, can assist learning.

Microcomputer-created graphic images do not depend on elaborate and expensive photographic or graphic layout procedures. They can be produced quickly and easily. Again, this resource for allied health education is attractive because its application is not sensitive to contexts of discipline, level, or setting.

At first glance, there may not seem to be many *education* microcomputer programs available for use in allied health education programs. This is misleading, however, for the trick is to learn to match existing software capabilities with instructional needs in allied health.
The goal is not to find programs that will teach a course, or even any substantial portion of a course. The goal simply is to find programs that can incorporate the "stuff" of course, laboratory or clinical content, in a way that will facilitate learning as students interact with the computer program that includes the content.

Educational software programs are described in a number of computer education journals as well as in popular computer magazines. A computer-based information base has been described that provides information about the state of the art in the application of computers in schools. Called Resources in Computer Education (RICE), it lists producers of computer-based instructional and administrative software and provides information about all known software products for education. Access to RICE can be gained through any library or agency that can perform routine data base searches.

Many of the programs described in RICE are potentially applicable across all levels, disciplines, and settings in allied health education. Limitations in this activity reside mainly in the simple test of whether a good match exists between how these programs can be used and instructional needs as defined by faculty members responsible for teaching course material, and whether the faculty member can recognize that match.

The business, communication, graphics, and education applications described are available in software programs designed for each brand of microcomputer available. These software programs are not costly; most are currently available for less than $200 and many cost less than $100. Since these software program categories are not tied to any particular brand of computer, are not costly, and can be used in any discipline at any level in any setting, a flexible and potent resource is available to allied health educators. Further, as programs in these software categories improve, allied health educators can take advantage of new capabilities without having to write off the development costs associated with major programming efforts. Thus, effective applications in allied health education can grow as the capabilities of the software mature. Using existing software packages in relevant educational applications is a major component of using microcomputers effectively in allied health education.

Convenient Hardware. Powerful software programs have no value unless their use is relatively convenient. Because microcomputers are
physically small and the number of wires dangling from them continues to diminish, they are approaching the status of routine office equipment. Able to stand alone without complex hookups, they can be conveniently located where faculty members and students can use them. This breaks the pattern that required people to go to the computer. The computer now can be easily placed where people work and study. The implications for this go beyond mere convenience. With rare exceptions, educational work and study patterns never adapted well to the centralized computer center. To be required to go to the computer shaped and colored thinking toward computers and did not facilitate their acceptance or incorporation into regular work and study. Now that computing resources can be where the action takes place, faculty and students can readily incorporate this resource into educational programs. The decision to use a computer is less and less of a big deal. Current hardware is very reliable; there needs to be very little fuss in using microcomputers in offices, classrooms, and laboratories.

A Simple Tool. The third component is that the microcomputer, although internally complex, can be used in allied health education in simple yet powerful ways. We need to develop the concept that microcomputers are powerful and flexible resource tools for use by faculty members and students. Teaching and learning should remain the primary focus. Microcomputers can help students learn without assuming all or a major portion of the instructional burden. Important implications flow from this posture. First, if the microcomputer is used as a resource, the applications developed will be internally less complex, and students as well as a faculty members will be physically near the machine and in direct control of it. There is less to go wrong and mistakes or errors are more easily corrected. The types of general-purpose programs described above are less extensive, less encompassing, less comprehensive than large-scale CAI programs. Since faculty members and students are more obviously in charge of the microcomputer and the programs used, they can intervene directly to correct a keyboard error, a flaw in the program, or its use. (The first thing to learn about a microcomputer is the location of the on/off switch; the second is the sequence of keystrokes used to start a program.)

A second implication of considering the microcomputer a resource/tool is that the management load that must be assumed by the software programs can be essentially nil. This is a second factor that reduces the
internal complexity of the application program developed. Again, the microcomputer is the object of attention by students and faculty members and is not in control of the situation.

**Student and Faculty Use.** The fourth major component about microcomputers supporting computer-aided activities in allied health education concerns how microcomputers and software are used. This resource may be integrated into allied health educational activities at multiple points along a continuum that spans two extremes. One extreme emphasizes student use of the microcomputers and software programs, but not in the same way as past CAI approaches that emphasized drill and practice. Here the resource is used in and out of class. The resource is targeted at specific, relatively small components of a didactic course or laboratory experience. Students are encouraged to engage the microcomputer/software resource on a number of occasions over a span of time. Students will use the resource in ways unforeseen by the faculty member and in ways the faculty member may never learn about. Faculty members will be involved in the process as they direct certain portions of the microcomputer/student interaction, and will be a resource themselves as students work with the ideas embedded in the microcomputer software programs.

At the other extreme, the faculty member's use of the microcomputer/software resource is emphasized. Representative activities at this end of the continuum include using the resource for administrative assistance in the development and preparation of materials, documents, and so forth that are required in the faculty member's overall academic role. Teaching materials can be developed for use by students in the classroom or laboratory or for the faculty member's use in the presentation of instructional material. In designing and developing these materials, the faculty member may well gain additional insight into some central aspects of the material itself, because he or she will be concentrating on and manipulating the content, not enmeshed in the details of a programming language. The faculty member may use the resource as an aid in student advising or student placement on clinical rotations (by using data-base management software), or in keeping student records or grades (by using a spreadsheet program). A word processing capability could assist a faculty member's teaching, administrative, and scholarly activities. The faculty member uses the microcomputer/software resource like any other resource, when it is needed and for the purpose it is needed.
Microcomputers and the software available represent a resource that can be used by both constituencies over the whole range of the continuum described. The hardware can respond almost instantly to needs as defined by the software entered; the software categories described can be used effectively in a student-centered context and a faculty-centered context.

Caveats and Suggestions

A viable way to incorporate microcomputers into allied health education has been outlined. Microcomputers will be integrated in the context of rapidly evolving developments in allied health. Limitations are part of that context too, and it is perhaps most important to note that what has been suggested here may be relevant only for a short period of time, perhaps only a few years. Developments in computing hardware defy long-term planning. Given the speed of hardware advancement, a sudden breakthrough in either programming techniques, language development, or computer program applications would result in improvements in capabilities of the devices that can only be dimly anticipated. Further, the computer capabilities of those who will become both faculty members and students in allied health education will in a few years eclipse the skills and abilities of we who are now struggling to implement computing most usefully in allied health education. We are learning about computers as adults; they will never have known a time without them.

In this context, a requirement for success in implementing the ideas in this chapter is the enlightened support of academic program administrators and faculty members, based on a critical analysis of the appropriate use of microcomputers and software programs. The ability to provide support and offer analyses can develop only as administrators and faculty members acquire a genuine sense of what microcomputers are and what they can do in an educational setting with various software programs.

Thus, professional development of faculty and administrators lies at the heart of the promise of microcomputers in allied health education. We must learn about microcomputers so we can use them in our teaching and other academic activities. A lack of will to accomplish the necessary professional development is the greatest single potential limitation to development. If we rush out to buy microcomputers and
software without careful consideration of the process of integrating them into the curriculum and other areas of an academic program, success will elude us; that would certainly be true no matter what educational technology or methodology is being considered. The successful implementation of microcomputers in allied health education will require time and some money, but mostly a commitment to professional development and the careful development of goals and expectations to fit the situation and the support systems to develop this resource.

Bell suggests that as a process to implement computers in an academic setting is developed, questions related to planning, modes of computer use, hardware selections, hidden costs, and physical and conceptual location of computers be considered. He also suggests that three types of people are needed in the planning process: those who have done it before, those who have answers to the questions related to planning, and those who will implement the program. Within allied health, it would also be wise to examine how computers, especially microcomputers, are being used in practice in the disciplines. Access to experienced people and high-quality information about microcomputers in allied health education may be difficult to obtain, but it is crucial to any successful implementation effort. Perhaps small-scale but nationally based information clearinghouse for microcomputer applications in allied health education would help bridge information gaps and facilitate the development of networks of people with complementary goals.

It is unacceptable to avoid incorporating current educational technology appropriately in allied health education. Microcomputers have transformed computers into tools that can be used by everyone. We in allied health education must not be an exception. Microcomputers can help us implement good teaching and enhanced learning. We have the responsibility to use this tool efficiently and effectively. The application of microcomputers in allied health education is important only because it will help us contribute to the improvement of teaching and learning.

Notes


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