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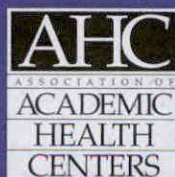
Education as a

Prelude to

Interdisciplinary

Practice (or Vice

Versa)



**Interdisciplinary Education as a Prelude to
Interdisciplinary Practice
(or Vice Versa)**

**Proceedings of the
4th Congress of Health Professions Educators**

Denise E. Holmes, J.D., M.P.H.
Editor

**ASSOCIATION OF ACADEMIC HEALTH CENTERS
1997**

The Association of Academic Health Centers (AHC) is a national, nonprofit organization representing more than 100 institutional members in the United States that are the health complexes of the major universities. Academic health centers consist of an allopathic or osteopathic school of medicine, at least one other health professions school or program, and one or more teaching hospitals. These institutions are the nation's primary resources for health professions education, biomedical and health services research, and a major portion of patient care services.

The AHC seeks to influence public dialogue on significant health and science policy issues, to advance education for health professionals, to promote biomedical and health services research, and to enhance patient care.

The views expressed in this book are those of its authors and do not necessarily represent the views of the Board of Directors of the Association of Academic Health Centers or the membership at large.

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PREFACE

The Association of Academic Health Centers (AHC) established the Congress of Health Professions Educators to advance a collaborative vision for the future of health professions education. By convening faculty and administrators from across the spectrum of health professions schools, each Congress offers a unique opportunity for these educators to examine questions that are crucial both to their individual disciplines as well as to a future of interdisciplinary health professional education and of increasingly multiprofessional, team-oriented health care practice. Since 1993, AHC has organized Congresses on confronting a new era, on making teams work, and on diversity in the health workforce. Attendees are from the health professions that are members of the Federation of Associations of Schools of the Health Professions; the Fourth Congress thus marked the first time that doctors of chiropractic participated.

The Fourth Congress, held in June 1997, marked the first program developed and held under the auspices of the new Center for Interdisciplinary, Community-Based Learning (CICL). In February 1997, AHC and the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services jointly established this Center, which will receive three-year government funding and has three broad aims. First, the AHC/HRSA Center will seek to strengthen and institutionalize academic health centers' commitment to interdisciplinary, community-based learning, particularly in underserved areas. Second, the Center will provide expertise to academic health centers with respect to model curricula and training sites for interdisciplinary, community-based learning. Third, CICL will support an interdisciplinary network of health care professionals working to create and strengthen an interdisciplinary, community-based curriculum.

The Fourth Congress focused on interdisciplinary education as a prelude to interdisciplinary practice, but also pondered the extent to which the latter drives the former. The papers in this book offer lessons from educators' and clinicians' experiences in the field, commentaries on why interdisciplinary activities have not progressed as rapidly or permeated as widely as we might have anticipated, as well as some suggestions on what we must do to move beyond the rhetoric.

We trust that participants and readers alike will find this volume educational and thought-provoking. Readers should recognize this volume as only the first product of our new CICL. We have already begun plans for an expanded Fifth Congress, to be held here in Washington in June 1998. Look for information about that conference, and CICL and AHC activities in general, on the new AHC Web site (www.ahcnet.org). Abstracts of the Fourth Congress proceedings are also found on the AHC Web site.

We would again like to thank Congress participants and the contributors to this program. Our special thanks go to HRSA's Bureau of Health Professions for its generous

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An Historical Perspective

The Evolution of Interdisciplinary Education

De Witt C. Baldwin, Jr.

Today the word team is in constant use. I saw an advertisement in Sunday's New York Times that bore the heading, "Team Leaders Wanted." What does the term "team leader" mean? I do not know what it means to advertise for a team leader, as if one could come in and be a team leader, and a team leader of what? One of our confusions is that the word team has become ubiquitous, that everyone is using it for any purpose. We should be cautious about this, because words evolve, they change, they become archaic or obsolete. I read somewhere that approximately 7,000 words are lost each year. Words may be co-opted, destroyed, or abused, sometimes for political reasons, sometimes for ideological reasons, sometimes for practical reasons, and often simply through overuse. I wonder whether we are in danger of overusing the word team.

Let us go back to the Webster definition of a *team*: "two or more draft animals harnessed to the same vehicle or implement." That could be described in human terms as a number of persons associated together in a work or activity. The definition of *teamwork* seems to explain more precisely what we are after: "work done by several associates, with each doing a part, but each subordinating personal prominence to the efficiency of the whole." The word team has gotten so overused that we may be moving towards the use of the word teamwork as a more functional approach.

Are teams an end or a means? We tended to look at them as a means for a long time. If teamwork is a means, to what end? Three desired end results in the health arena are better patient care, better integration of services, and better teaching for students. It should be noted that people have quite different motivations for joining a team. Some simply seek support from others, some may seek a way of diffusing responsibility, others a new way of learning, a new way of interacting, a new way of performing tasks, perhaps changing relationships, or perhaps even changing the health care delivery system.

Collaboration is another word that we use a great deal. We tend to look at Webster's first definition of this word: "to work jointly with others, especially in an intellectual endeavor." However, the second definition always lies just below the surface: "to cooperate with or willingly assist an enemy of one's country or profession."

This was Peter Newes' definition in 1968: "working on a problem that is complex enough to require more than one set of skills or knowledge, i.e., the amount of relevant skills or knowledge is so great that one person cannot possess all that is needed." Assembling a group or team of professionals with more than one set of knowledge or skills will enhance the solution of the problem. In the solution of such a problem, all possessors of the relevant skills or knowledge are at least temporarily considered to be equal or equally important, and that is the real sticking point. All of the involved professionals are working toward a common goal, for which they are willing to sacrifice

some professional security. This was said back in 1968; I do not think we have improved on it.

Teams can serve many different purposes. For example, they can provide special types of patient care (e.g., medical, surgical, or primary care teams). They can be focused on quality improvement or problem-oriented around a particular area like cleft palate or rehabilitation. They can be task-oriented or patient-oriented, procedure-oriented or process-oriented; they can be monodisciplinary, multidisciplinary, interdisciplinary, or transdisciplinary.

I have a vivid personal recollection of the work of health care teams from my childhood in Burma. In fact, I grew up with the concept of health care teams. Missionaries in the colonial services employed teams of people, typically including a physician, a nurse and local aides, to go into communities in order to provide health care services. They went from one small, rural community to another. Further, my folks introduced the notion of teams into work they performed in the early 1930s in this country, when they sent interfaith, interracial and intercultural teams into communities to teach world-mindedness.

Many people trace interdisciplinary health care teams in this country back to the turn of the century. Throughout this century, the increasing scientific and technological focus of medicine has perhaps atrophied the concern with the psychological and social well-being of the patient. However, as early as 1903, Richard Cabot introduced a social worker into the medical clinic at the Massachusetts General Hospital, and established teamwork among the doctor, the educator and the social worker. Cabot believed that the three professions were branches split off a common trunk (i.e., the care of people in trouble), surmised that the physician had neither the time nor the expertise to explore conditions in the home that might return the patient to the hospital, and anticipated that such teamwork added the social component.

At about the same time, Michael Davis and Andrew Warner of the Boston Dispensary also explored teamwork, again including the social worker. However, their interest emanated from a different locus, clinical efficiency. Davis and Warner wanted to replace "the missing social component." They sought a rational organization of care, and envisioned the future practice of health care as occurring in groups. They were concerned about specialization that was already beginning due to science and technology.

It should be noted that Davis and Warner did not include nursing in their model of teamwork, probably for two main reasons. First, in the first decade or two of this century, nursing was not a profession. Typically working class women, nurses were not university educated. Moreover, nurses were so closely associated with medicine that they were not seen as different, as adding what the physician could not do.

In fact, as discussion of teams began with respect to nursing, the notion of nursing leadership of auxiliary hospital staff was raised. The American Journal of Nursing

literature is filled from 1920 on with discussion of teamwork within the hospital. This had a highly ideological flavor, and was quite exhortatory. Theodore Brown deemed it a bid for equality, or at least for increasing status. Brown viewed the "[r]egular invocation of teamwork notions by ambitious fields allied to medicine as a device for leveling hierarchic distinctions and for establishing more egalitarian inter-professional relations." He ascribed this not only to nursing, but to clinical psychology, social work and other fields as well.

We often overlook the inevitable increase in democratization that has occurred during this century. We have seen it increasingly in enfranchisement of underserved or disaffected groups. A 1936 paper called for the elevation of nursing from a technique to a profession. The way to do this was obviously university training, with the issuance of baccalaureate degrees. However, this became both a boon and an Achilles' heel for nursing, because in many ways, nursing has been internally divided ever since. It raised the still unanswered questions of whether diploma and associate degree nursing were the same as baccalaureate nursing and whether to collaborate with medicine or go it alone.

As previously noted, social work also figured into the team. However, unlike nursing in its infancy, social work was always a profession, and social workers were educated people, typically from the upper classes. This field offered a way to express one's social concern without getting one's hands dirty. Social workers provided skills, knowledge, and a locus outside of the hospital which the doctor did not have. At the beginning of the century, Cabot introduced the social worker into the medical clinics at Mass General. Social work was officially recognized as a department in 1914 and within a decade, a hundred hospitals had social workers on staff.

In 1912, the federal Children's Bureau was formed. Its first five chiefs were all social workers. Then a series of relevant legislation was enacted, including the Maternal and Infancy Act in 1921 and the Social Security Act. Social workers were put into public health clinics. In 1928, the American College of Surgeons established minimal standards for social service departments in hospitals.

Health care teams were also being examined and developed in other countries at this time. In the U.K., following World War I, Lord Dawson headed an investigatory group that produced the famed Dawson Report in 1920. That Report called for a team approach to patient care and for health centers. While this sounds wonderfully modern, the idea actually emerged from World War I, which demonstrated the advantages of a triage system, albeit a military, hierarchical triage system. Out of the war experience began to emerge the notion of primary, secondary, and tertiary levels of care. In the 1920s, the Peckham experiment with London's pioneer health center led many to advocate a positive health model and a collaborative team approach.

World War II saw medicine developing enormous successes in surgical and medical care. The war stimulated even greater efficiency, including surgical teams in the field hospital.

Perhaps the first real interdisciplinary health team (as we recognize them today) was established at Montefiore Hospital in New York City in the late 1940s by Martin Cherkasky, who sent teams of physicians, nurses and social workers out on home care visits to the chronically ill. George Silver followed very shortly with his family health maintenance program, also providing outreach teams (again consisting of a physician, nurse, and social worker). Sydney Kark started an Institute of Family and Community Health in South Africa, and then transported it to Israel, where teams and interprofessional work continue.

This conference poses the question of whether education or practice drives the interdisciplinary vehicle. Interdisciplinary health professions education did not come into being until the late 1940s, and expanded in the early 1950s. At the University of Washington's Child Health Center, which received funding from the Children's Bureau, we had interdisciplinary educational experiences for faculty and students from nine different health professions, including physicians, dentists, nurses, social workers, nutritionists, psychologists, dental hygienists and medical technicians. The faculty team and students used to meet together and see patients.

At this same time, the Commonwealth Fund had become quite interested in integrating care, and began to use the term "comprehensive care" in 1949. The Commonwealth Fund supported the efforts of Fred Kern in Denver and George Reader at Cornell to engage in comprehensive care training for medical students. By 1959, 32 medical schools had programs in comprehensive care.

During the community mental health movement of the 1950s, social workers played a prominent role. The most common members of the mental health teams, social workers honed in on comprehensive care, so much so that when Lyndon Johnson's War on Poverty was launched in the 1960s, social workers took the comprehensive care and teamwork of the 1950s and injected these notions into the poor and underserved communities.

In the early 1960s, comprehensive mental health centers started to appear, with an immediate emphasis on teamwork. The teams consisted of psychiatrists, psychologists, social workers, nurses, and others. In her classic monograph, *Interprofessional Teamwork*, published in 1975, Rosalie Kane reviewed 229 articles on teamwork from the literature, and found the social worker to be the most common member of these teams. A typical mental health team at that time consisted of six to ten members. Kane found a total of 17 disciplines or professions represented on these various teams.

Many remember the 1960s as a great era, a period of tremendous ferment and positive social concern, as exemplified by President Johnson's Great Society and the War on Poverty. In this era, the federal government established the Office of Economic Opportunity. In terms of health care, the 1967 neighborhood health center guidelines asserted that "ways should be sought to develop, train and utilize a health team." Model

urban health centers were established at such sites as Columbia Point in Boston with Count Gibson, Mount Bayou in rural Mississippi, Mile Square in Chicago with Joyce Lashof, Watts in Los Angeles. This represented a real change in the practice of medicine, with physicians even writing prescriptions for food. Once in frustration, Harold Wise of the Martin Luther King Center in New York said, "The best team is a team of one." Nonetheless, he had eight teams that included internal medicine, pediatrics, nurse practitioners and family health outreach workers, each of which took care of 3500 patients. Because of the organizational and internal team dynamic problems, Wise turned to Richard Beckhart and Irv Rubin of MIT's Sloan School of Management to get some ideas about teams and team development. Also at this time, Sydney Garfield of Kaiser Permanente began to develop a health model that included truly comprehensive care, including preventive services and diversified systems.

Student health organizations also appeared at this time. Fitzhugh Mullan published an article in the *New England Journal of Medicine* in 1968, calling attention to activism of the student health organizations. First to be established was the Association of Interns and Medical Students (AIMS). In response, the American Medical Association created a student branch, the Student American Medical Association (SAMA), perhaps believing that it could best organize medical students in its own image. However, this group of young '60s rebels began to run off on their own and criticize ideas that the AMA held sacred. So the students bolted and became the American Medical Student Association (AMSA), and the AMA was left to reconstruct what is now called the Medical Students Section.

AMSA ran community health projects in the summers with interdisciplinary student teams from several health professions schools. AMSA leadership was very interested in social and clinical relevance and in social activism. From 1968 to 1975, approximately 5,000 students participated in these projects. It would be fascinating to find out where they are today.

Somewhere during this era, we decided that we had a health manpower shortage. In response, there was a proliferation of new health professionals and occupations. Between 1950 and 1980, thirty-six new medical schools opened. These were often community-oriented, and often had many community-based opportunities for learning.

In the late 1960s and early 1970s came a call for interdisciplinary education. Many believed that if we educated students together, they might practice together afterwards. George Szasz started the Office of Interprofessional Education at the University of British Columbia in 1966. Along with Marge Elmor, Beverley Rowley and others at the University of Nevada, I formed an interdisciplinary health sciences program in 1971.

In 1972, Edmund Pellegrino and the National Academy of Sciences convened a national meeting, which produced this definition of *interdisciplinary education*: "an educational experience can be interdisciplinary at the level of students, at the level of

faculty, or at both levels. Thus, each of the following combinations is properly interdisciplinary: (1) students from more than one health profession taught by faculty from one health profession, (2) students in one health profession taught by faculty from more than one health profession, and (3) students from more than one health profession taught by faculty from more than one health profession." We used the latter model at Nevada.

From the 1971 Comprehensive Health Manpower Training Act was formed the Office of Interdisciplinary Programs, run by David Kindig (who came down from Montefiore Hospital) and Dorothy Reese. This represented the first true federal focus on training students to participate in teams. There were contracts and grants for team training, and 20 educational programs were funded from 1974 to 1979. Those of us in interdisciplinary education were excited during this era. Finally, someone had recognized our efforts; federal funding was available for us to train teams. We conducted all kinds of research on team development and team dynamics and held numerous meetings to strategize about how to improve teams.

Some 50-odd programs during this period were supported by various agencies; the Office of Interdisciplinary Programs funded quite a few. You may recognize some of the schools that were funded during this period. One program, Maine Care Development Inc., still goes on, as far as I know. Nevada still has the courses we designed at that time. North Carolina transferred its program into an AHEC, as did many of the other schools. Also in the mid-1970s, The Robert Wood Johnson Foundation funded the Institute for Health Team Development at Montefiore, which was run by Harold Wise, David Kindig, Jo Ivey Boufford and Suzanne Eichhorn.

For the past two decades, there have been a number of important interdisciplinary health care team conferences. At one of the first, in 1976, a group of interdisciplinary training grant recipients met to distill what we had learned from our efforts thus far. Seventy-six people representing six institutions attended that Snowbird Conference, including participants from dentistry, medicine, nursing, pharmacy, social work and psychology, among others. Published proceedings of that conference were disseminated in 1978.

Since 1979, there has been an annual conference, with rotating sites and university sponsors, at which 30 to 40 papers on interdisciplinary teams are presented. Unfortunately, getting those papers published in journals or otherwise making them easily accessible is almost impossible. I have sought funding for ten years to create a small anthology of those materials, because the lessons learned therefrom are still relevant today; the issues we wrestled with then are precisely the same ones many of you face now. In some ways, little has changed.

In the mid-1970s, as today, interdisciplinary education took various forms on different campuses. At Nevada, we had a basic core of eight courses (28 credits) required of every student who entered any of 11 health or social service professions. This was

carried on in a sequenced manner through four years, at the end of which students participated as teams in clinical activities, working under an interdisciplinary faculty team. Instruction at some schools, such as British Columbia, Minnesota and Ohio State, was primarily academic in nature. At others, such as Colorado, Indiana, Florida, Maine, Yale, and Alabama, it was primarily clinical. Some programs were community-based (e.g., Maine, Kentucky, AMSA). Schools might have had only a single interdisciplinary course (e.g., Miami, Yale) or multiple courses (e.g., Minnesota, British Columbia). Like Nevada, Herbert Lehman boasted a carefully sequenced, integrated curriculum. Like Nevada, Georgia required interdisciplinary education of every student entering a health profession; however, most interdisciplinary opportunities were elective, as many of yours probably are today. This serves as a critical reminder that there are many forms of interdisciplinary education; one must be careful to remember that there is no one right way. One must work within existing constraints, such as the available professions, time, space, faculty and funding.

When the bulk of federal funding ceased in 1980, most of these programs disappeared. Perhaps four of them survived, often by scrambling for new resources. Nevada, for example, received foundation funding, then successfully identified two alternate sources of federal funds, and finally relied on AHEC funding.

Many teams in the late 1970s and early 1980s survived because of the then-Veterans Administration's (VA) concern about its aging population, and its assessment that interdisciplinary team training in geriatrics would be a good idea. Geriatrics seems tailor-made for interdisciplinary effort, since these patients often need multiple services from multiple health professions. The VA initially funded twelve programs, which were intended as models. However, these were so successful that instead of being known as interdisciplinary team training in geriatrics (ITTG), this became known simply as the interdisciplinary team program. By 1991, over 5,000 VA staff had been trained and over 60 clinical teams had been trained. In 1995, 535 students from nursing, social work, psychology, occupational therapy, pharmacy, dietetics, audiology and speech pathology were trained and funded by the VA.

In the last decade, the federal government has supported interdisciplinary team training in several important venues. The Division of Associated Dental and Health Professions in 1988 authorized support for rural interdisciplinary team grants; some 30 very successful programs were run. Marcia Brand's 1993 report noted that 3600 rural practitioners had been trained and that they had 620 preceptors. Of the thousand-plus students who had been trained, almost half settled in rural areas upon graduation. This grant program specifically required that no more than ten percent of students could be medical students.

In this era, the Health Resources and Services Administration (HRSA) also supported interdisciplinary activity, but the language had changed: instead of looking at primary care, the focus had shifted to the generalist, but the theme of comprehensive care

remained. The purpose was to create interdisciplinary, primary care innovations in the pre-clinical M.D. curriculum to increase the supply of generalists.

The Maternal and Child Health Bureau began in 1994 to fund interprofessional demonstration projects aimed at at-risk children, youth and families. Thus far, they have funded projects in Hawaii, Vermont and Oregon.

In the 1990s, foundations have also rediscovered interdisciplinary education. You will recall that several major national foundations, including Robert Wood Johnson, Commonwealth, and Kellogg, had supported this activity in earlier times. However, the early 1990s saw a resurgence of interest, probably because of a renewed focus on the community. The W.K. Kellogg Foundation provided 47.5 million dollars to seven sites to foster community partnerships, and 128 new or modified multidisciplinary courses, half of which stressed primary care education, have been created as a result. The 1992 Robert Wood Johnson Foundation Generalist Physician Initiative sought to increase the number of generalists by creating community-based partnerships and using a multidisciplinary approach. The Pew Charitable Trusts also revisited teams, creating interdisciplinary service learning programs at 20 schools, targeting unmet community health needs. Most recently, the John A. Hartford Foundation has funded Geriatric Interdisciplinary Team Training (GITT).

Recent related efforts include those of the National Commission on Leadership in Interprofessional Education. Dean Corrigan of Texas A&M has spearheaded that initiative, which is aimed at integrating health education and social services for children. This marks a move toward more integration of services, such as what we had in the old days. Continuous quality improvement is another area where interdisciplinary activity is a natural fit. At the Institute for Health Care Improvement, Linda Headrick and others have been working to create interdisciplinary team training sites around the country.

Does interdisciplinary education work? I think so. Yet while nearly all of the literature tries to make the case, like many other good ideas, there is not much proof. There are no controlled studies, there are no long-term follow-up studies, only short-term ones. Do teams work? Yes, we can prove that teams work. Teams practicing comprehensive health care do offer better results for patients, and even, at times, on a basis that would be financially feasible.

Why do we not have proof that interdisciplinary education works? There are many reasons. First, idealists are not often scientific. Further, funding efforts dry up after three or four years, which hinders sustainability. People move on. There is often institutional resistance to the idea of interdisciplinary programs. Institutions have limited resources. There are inherent problems. Unlike patient care teams, interdisciplinary education does not have the bite of a task that must be solved in a certain amount of time. However, despite the lack of proof to date, it is probably part of the ongoing evolution of democratic egalitarianism that we seek to share knowledge and open barriers.

Perspectives on Team Practice

Enhancing Quality, Community-Based Care

Patricia Maguire Meservey

I will discuss enhancing quality, community-based health care through interdisciplinary education. In so doing, I will discuss my experiences with the Center for Community Health, Education, Research and Service (CCHERS), located in Boston, which has as one of its partners the old Columbia Point Community Health Center, now known as the Geiger-Gibson Community Health Center. Having worked in interdisciplinary education over the past 10 to 15 years, I have learned a tremendous amount. However, at times it becomes very frustrating that we are not better at implementing interdisciplinary education or care. Certainly, with almost a hundred years of teaming, we have to take a very hard look at why this is not happening to a greater extent. Perhaps the major reason is that we do not value it, we have not proven that interdisciplinary care and education really make a difference, and thus other values get in the way. As Dr. Baldwin noted, when foundations or the federal government stops funding interdisciplinary education or interdisciplinary care, the programs disappear. If those programs had been deemed to be making a valuable contribution, they would not disappear, they would stay in place. So this activity occurs when we believe that we have the resources, but is not incorporated into our work as an institutionalized part of the care we provide.

CCHERS is a partnership organization of a medical school at Boston University, a nursing school at Northeastern University, 12 community health centers and Boston Medical Center, which is the newly created entity of Boston City Hospital and University Hospital. We were one of the original seven programs in the Kellogg Community Partnership in Health Professions Education, founded in 1991, that Dr. Baldwin mentioned in his presentation. Two others at this Congress will touch on the work of the community partnership initiative: Dr. Paul Stanton from East Tennessee State University and Dr. Dona Harris from the Kellogg cluster evaluation team, now at East Carolina University, will discuss some of our evaluative work. Given Paul and Dona's upcoming presentations, I would like to focus on what my interdisciplinary experience in Boston has taught me about enhancing quality, community-based care.

First, however, I would like to read a paragraph from a paper by Dr. Baldwin, published in the *Journal of Interprofessional Care* last year. In summarizing the lessons learned in community-based care and education, Dr. Baldwin wrote:

Nor have the costs of such efforts, meaning interdisciplinary care, been accurately measured over a long enough period of time to fully assess the potential savings. Although there are real benefits to the team delivery of health care, including new and expanded roles for practitioners, delivery of services at the lowest level of skill and training, more comprehensive health planning and services, and better integration and continuity of care,

as well as a system turned to patient needs rather than professional convenience, ultimately the survival of health care teams in practice will depend on the cost benefits and cost effectiveness of such efforts.

Let me bring this to a community perspective, and again borrow from a colleague. Roberta Marchi, an outreach worker in East Boston, is a lifelong resident of that community. In an evaluation of CCHERS' interdisciplinary efforts, she wrote about the considerable challenges posed to the community in providing meaningful interdisciplinary opportunities for our students:

From the outset, we have grappled with two universities operating on very different calendars. Northeastern University College of Nursing is based on a cooperative quota system, while Boston University School of Medicine follows a traditional academic semester. This precludes longitudinal relationships among the interdisciplinary student teams. Medical and nursing students who team up in their freshman year may never encounter one another again through their entire four-year CCHERS experience. It was only in our fourth year of operation that CCHERS achieved the parallel assignment of nursing and medical students to the health centers on the same day and time weekly. This solved one considerable barrier to the interdisciplinary teaming, but only one.

Each discipline has its own academic criteria and culture, the protection of which is guarded from interference by outsiders. Students often arrive with a mind set which has been carefully honed through media culture, as much as by academic traditions, so that they come to the community with an attitude about what is appropriate to their role and what is not. These are medical and nursing students at the *start* of their professional education. The reality is that their proper role within the community and clinical setting is limited. Some students understand this, others believe they should be put to task immediately, working with patients in a clinical setting. This is an assumption with which the community would and should take issue.

For too long, the socioeconomically disadvantaged, people of color and immigrant peoples have felt themselves dehumanized and used as guinea pigs in teaching hospitals. Community-based health centers are culturally competent and committed to giving high quality, personal service to their patients. The idea that our patients can be treated or experimented upon by first-year medical or nursing students is not acceptable by virtue of our mission; our care is not second rate. Despite this, we believe that interdisciplinary collaboration early in training fosters mutual respect, better understanding of the scope and value of other disciplines, and a recognition that teamwork and shared decision making have benefits for both patient and provider.

CCHERS comes to terms with these disparate circumstances by employing a *community partnership* model of health education, which incorporates respect for and consultation with those directly involved in serving the community, such as schools, human service organizations, as well as working directly with target populations on specific health concerns.

As economic reality has mandated shorter hospital stays and more health care in community settings, managed care purports to be the wave of the future. This implies a *systems* approach to health maintenance which will require communication and coordination among *teams* of providers from various disciplines who will be called upon to assist clients over the course of a lifetime in many ways, from pediatrics to adulthood and on to gerontology.

According to the World Health Organization, it is impossible to separate good health from a population's standard of living. This is evident in developing countries, where lack of proper sanitation and sewerage, infected water supplies, etc., exact a terrible toll of illness and death. While many of these obvious threats to health may not pertain in the United States, conditions exist that are major causes of morbidity and mortality, such as the prevalence of smoking, substance abuse, various forms of violence and lack of access to health care. These require a broad environmental view of conditions and societal practices that ultimately impact the economic viability of health care in this country.

The role of the physician/nurse as health educator cannot be stressed too emphatically in the face of recent data regarding the impact of behaviorally induced morbidity. Yet it is this role which is seen as irrelevant by many students.

In summary, challenges to interdisciplinary experiments in the community are four-fold. They include working around diverse university schedules, the quarter versus the semester system, the protection of each discipline's academic integrity as separate and distinct from others, limits posed by students' inexperience or lack of advanced professional skills, and attitudes brought to the community service opportunities that are available to them regarding what is or is not appropriate to their roles as future doctors or nurses. These are juxtaposed against an overwhelming need to treat with dignity and sensitivity the people of communities beset by educational deficits, low socioeconomic status, cultural and language barriers, whose resultant lifestyle or practices adversely impact their achievement and maintenance of good health.

When Roberta wrote that piece for us, it was really quite astounding how she was able to call us on our struggles to move medical and nursing students into communities. I would like to amplify on each of her challenges. It may seem as if I am headed in a negative direction at the outset, but I will turn it around before the end.

We have learned that interdisciplinary teaming is not valued by faculty in either medicine or nursing, our program's two principal disciplines, but this sentiment likely crosses into any discipline. If it were valued, scheduling would be easy, since that is not a big issue. We change students' schedules all the time-- for example, if students are going to work in the emergency room, and we want them on a night shift or if they have to cover during a weekend to gain the value of that experience. Some students have carried beepers to be reached when a woman goes into labor, so that they can experience the labor and delivery. If we valued it, we would do it. But scheduling becomes an easy excuse to keep us from taking an action that we really do not want to take.

The second challenge, maintaining professional identity, is more important than learning how to provide coordinated, quality care. Arguments continue today that a medical student must be taught by a physician, so that he or she gains an identity as a physician in practice. Of course, if the resources or time allows, a nursing student can participate in that as well. Flip it around; a nursing student must be taught by nursing faculty to develop an identity as a nurse, but if time and resources allow, a medical student can participate in that as well. We focus on the discipline, on the boundaries, rather than looking at possible collaboration. I often hear from other nursing faculty (and have probably stated myself) that we can certainly teach medical students or a medical school colleague might be able to teach nursing students, but relinquishing our respective student populations creates nervousness about what they are being taught and by whom.

A third problem is that we do not know how to teach interdisciplinary care. When students come together, we tend to focus on skills and concrete knowledge (e.g., anatomy or particular pharmacological agents), rather than dealing with more vague, conceptual areas, such as communication, negotiation, or conflict resolution. Thus, we defer to that which is concrete. We are scientifically based. It is easier to look at what we can touch, feel and be absolute about.

Finally, students and faculty alike continue to see themselves in very traditional roles. They see themselves practicing medicine, practicing nursing, practicing social work; they are not looking at the teaming component that must occur as our environment changes. We often hear of situations in which a nurse practitioner and a primary care physician work in a clinic together, but more times than not, it is parallel play or even triage -- again pulling a term from Dr. Baldwin -- it is more of a triage approach than it is interdisciplinary care. The patient panels are seen separately, and conversation between providers only occurs when perhaps one is able to give another more information about a particular issue; it is not a collaboration, not a sharing of care.

Now for the positive side, since the news is not all bad. The first very positive lesson that we have learned is that interdisciplinary care is not always needed. We need not force it to fit into situations where it is unnecessary. Nonetheless, all practitioners must know how to practice in an interdisciplinary manner. For a healthy child in an economically secure family in a safe, prosperous community with no physical or mental

health concerns, no interdisciplinary team is necessary. It is not economically feasible, and no great benefit will come from having an interdisciplinary team work on that child. However, if that same child's mother should lose her job or father should become clinically depressed, if some other factor comes into the mix, an interdisciplinary team might well become necessary. While not always functioning on an interdisciplinary team, practitioners must know how to tap interdisciplinary resources when appropriate.

The second lesson, related to the first, is that interdisciplinary teams function best when the required patient care is complex, since health care providers will not jockey for role or a sense of purpose. When there is clear work for each provider or profession, there will not be the same war over turf and responsibility, and issues of identity do not become as apparent. One example of this occurred with Boston's Health Care for the Homeless, an agency with which our students work. This local program provides care to our homeless population, including a wide range of different age groups and families. They work with both individuals and families, providing a very wide range of medical, mental health, social and public health resources, with an interdisciplinary team approach that includes traditional providers (i.e., physicians, nurse practitioners, nurses), as well as some who might be considered less traditional -- outreach workers, family advocates, mental health assistants. Outcomes are very difficult to measure in this group, because it tends to be a somewhat transient group of people. However, for the core that remains within Boston and linked with our services, the program has been able to use a case management approach, much as a managed care organization would, in tracking individuals and families, and looking at the effectiveness of care.

A third lesson we have learned is that interdisciplinary teams function best when financial rules are loosened, and the team can determine both the care that is required for that individual, family or community and the person who is best qualified to deliver that care. Again, let me give an example from the Boston community. An elder service plan operates out of an East Boston neighborhood health center as part of the Program of All-inclusive Care for the Elderly (PACE), which, in turn, grew out of the On Lok program in San Francisco, and is now located in approximately 30 sites across the country. This program works with frail elders, who must first be classified as nursing home eligible to be members of the service delivery. Through waivers from Medicare and Medicaid, the PACE service delivery system is comprehensive, uses interdisciplinary teams for case management, and integrates both primary and specialty care into their services. Free of the rules and regulations of fee-for-service delivery, they instead identify who is the best provider for the particular need at that moment.

The East Boston group that I have worked with quite extensively is fascinating. They meet for one to two hours each day to determine what care they will provide to members of the PACE organization. When I first heard that, I wondered who had an hour or two to spend in a meeting every morning to organize care. In doing that, and in being able to prioritize, to determine who is on the verge of a crisis and who is available to cover that particular aspect of service, regardless of discipline, they have been able to maintain most of their members outside of nursing homes and to keep most cared for

within their homes with adult day care service. Patients are followed through their hospitalization, and although this is a full risk program, it is less costly than the capitated rate provided by Medicare and Medicaid. It does work. If it can work for the high risk elder, it should work for many other groups as well.

A third aspect is moving into the managed care area, which I believe is the force that is now compelling us to look more carefully into interdisciplinary care and therefore interdisciplinary education. Boston is certainly one place in the country where managed care is very real. I recently heard that we are up to 80 percent penetration within the metropolitan area. As managed care increases throughout the country, the need for a seamless health care system becomes essential. Patients that need to move from ambulatory clinics into the hospital, to extended care facilities, back to the home, back to school, back to work, demand multiple providers overseeing their care, and communication across those providers becomes essential. This is the model of interdisciplinary relationships, if not of a formal team. It is certainly the ability to work in an interdisciplinary care model.

Given these examples of some different interdisciplinary teams, and the recent recognition of a different intensity of need, a question arises. Do students need to be taught how to work in interdisciplinary care situations? Can they not just learn these skills when they get out into practice? Many will caution that we cannot teach everything in medical school, or nursing school, or in physical therapy programs, but these skills should be taught before students enter practice.

Again, a main reason why we cannot wait is managed care. Managed care organizations now say that it takes a year or more for them to retrain doctors who come into their systems. While a major part of this retraining is in the philosophy of how resources are managed, a good portion is also working closely with the medical, nursing, and administrative components of the team. It is impractical to think that it does not cost the system if we educate our nurses, doctors, physical therapists, social work students in isolation from the system in which they will work. Teaming requires knowledge, skills and attitudes that are unique and different. It does not simply happen; students must learn how to interact in a team and to understand the backgrounds of various members of the team.

If we agree that we have to teach them, what shall we teach them? Many academics do not work in teams ourselves; thus, how can we expect to have the knowledge and skills to convey the requisite information to students? This, I would suggest, is the major barrier to educating students in an interdisciplinary approach; it is an unknown area for traditional academics. While there is increased sharing of information across disciplines, most often academics take that information back to their own discipline and apply it there, but not in collaboration with other disciplines.

There are, however, some very highly successful interdisciplinary teams. Our historian earlier cited examples going back for a hundred years or more. Certainly

rehabilitative teams and chronic care teams have done an excellent job for many, many years. The three Boston examples that I just cited of care of the elderly, the homeless and managed care are also strong examples of how teams are evolving in today's world. Academicians must link with these teams to provide experience for students, rather than holding onto the notion that the university or hospital has the best practice. We should recognize that care being provided in the community setting has had to develop with very limited resources. As a result, the systems created in these settings are often cost effective and, given the proximity of the service to the consumer, they are usually a very high quality. While we advance our own knowledge of how to work in teams within the hospital and within our universities, our students should learn from those who have mastered interdisciplinary teaming, and from those who have been active for years within the community.

If we agree that we should take steps to implement interdisciplinary programs, and we have determined what we plan to teach students in an interdisciplinary fashion, how do we implement that plan? Here are some lessons that we have learned. First, make the experience real, rather than make-believe. Putting medical and nursing students together to do a project that a doctor and nurse would never do together is terribly artificial, and is not rewarding for a student's learning or future practice. It must be a real situation, in which role models are committed to the knowledge the student will gain through the experiences. It is quite important that the experience occur in clinical practice, where students are able to see what their future role might be, can understand the setting of goals, can see how conflict is resolved, and communication across disciplines is actually experienced.

There are, however, certainly great advantages to a one-on-one approach. It can be terrific when a mentoring relationship evolves across disciplines, when a medical student really connects with the nurse practitioner, or a physical therapy student connects with a social worker, and through a one-on-one mentoring aspect the student gets a deeper appreciation of another discipline, and perhaps the opportunity to generalize it to other areas.

A third area that is quite helpful, again cited by Dr. Baldwin, is community activity, whereby different groups of students can come together around a community service initiative. Certainly, the health promotion/disease prevention programs of the National Health Service Corps and AMSA have been doing this for many years, as have the Pew programs, bringing together students outside of their traditional academic programs for an in-depth experience within a community setting that by its very nature is interdisciplinary, drawing them out of the traditional frames of their practice, and giving them a different perspective of how their resources could benefit the community. To accomplish all of this, and coming back to the CCHERS partnership, a very critical part of building the interdisciplinary experiences is creating the linkages with the different organizations, agencies, teams that are currently providing interdisciplinary care.

I would pose three questions that you should ask in seeking to create these linkages. First: Why do you want to link up with anyone? You must have a reason to put energy into reaching out to a new organization. The expertise for interdisciplinary teaming must be sought in existing teams that have been active and successful, to build on that knowledge and apply it to other settings. The goal should not be to try to recreate the expertise in a vacuum but rather to tap into people who have proven their ability.

Second: whom do you link with? Again, you link with teams that have shown expertise, teams that are able to link back with the university. These may be people who are with the university or hospital, agencies, organizations, existing teams that are interested in a collaborative relationship with academic people who will incorporate education into their mission. To keep students from being burdens on a clinical setting, which would not be a healthy environment for the students, it is important to seek out groups that are interested in educating young professionals.

Third: how do you establish those linkages? That is best accomplished through partnerships. This cannot be viewed as a placement, where students are placed in an agency. They are precepted by someone who is out there, but that someone has to have a link back into the educational organization and be able to influence how the curriculum and those students' experiences are modified to bring the richness of interdisciplinary care back to the academic institutions.

Before I conclude, I would like to revisit Dr. Baldwin's paper just once more. Regarding what we have learned, he wrote one sentence that probably should go down in history as one of the greatest understatements of all time: "What has emerged from these experiences with interdisciplinary education and practice is the awareness that the task of teaching cooperation and collaboration in health care is not easy." It is very hard to do. We are giving up part of what have been our normal responsibilities and turf, but we must do so in order to gain over long term.

Unless we can prove that interdisciplinary care makes a difference, why do it? There is no advantage unless it makes a difference in terms of cost and quality. If interdisciplinary care does not make a difference, why bother with interdisciplinary education? I agree with the notion that idealists are not often scientists, and the notion that we should look at documenting what is happening. There is no way that we can put strength behind the models of interdisciplinary care and education until we prove both their quality and cost effectiveness.

Further, I cannot overemphasize the importance of academic-community partnerships. This relationship must be created on mutual trust and sharing, as well as on recognition that expertise lies on both sides of the partnership. That must come with an open dialogue about the advantages for students, for patients, for communities. There must be system support within the academic institutions, perhaps even a restructuring of our universities. Instead of focusing on separate medical, allied health, and nursing schools, we have to find ways to create strong bridges between these entities. While

health sciences institutions have moved in that direction, often they have simply created an umbrella for the separate silos that still exist underneath.

My final comment concerns sustainability. Back in the 1980s, we saw that, as funding for interdisciplinary education dried up, so did interdisciplinary education experiences. If we value this, if we prove it to be cost effective and quality effective, sustainability should be -- as my 13-year-old would say -- a no-brainer. It should not cost more to educate students together, if we have learned how to team effectively. If an East Boston neighborhood health center can do it working with frail elders, who collectively cost more for the health care system than any other single group, we certainly should be able to bring together and teach medical, nursing, social work, physical therapy students in a way that does not cost the student more money.

Moving from Interdisciplinary Practice to Interdisciplinary Education: Lessons from the Medicine and Public Health Project

Roz D. Lasker

Relationships between medicine and public health and between interdisciplinary practice and training have much in common. Perhaps most striking is the fact that the push for interdisciplinary training and that for a closer relationship between medicine and public health both seem to have generated more passion and rhetoric than action.

Last year, The Robert Wood Johnson Foundation, together with the American Public Health Association and the American Medical Association charged the New York Academy of Medicine with examining (1) why all of the talk about bringing medicine and public health closer together has not resulted in much action, and (2) what in the current environment actually could produce results. The objective here was not simply to articulate the desirability of medicine and public health collaboration, but to see whether a closer working relationship is in fact achievable, and if so, how.

Our first step in carrying out this charge was to convene a multidisciplinary panel, whose members were physicians, nurses, administrators, economists, historians and anthropologists. They had experience working in a broad range of settings: in academia and in practice in integrated systems, in public and private sectors and at national, state and local levels. Not content with merely contemplating this relationship between medicine and public health, the panel sought to inform its deliberations with information from the real world. Toward that end, it conducted a series of focus groups with students and practitioners around the country, held meetings with a variety of key players in different disciplines, and fielded a survey of medicine and public health interactions which so far has generated 500 examples of collaborations that are currently ongoing. The panel's work, which will be published as a monograph later this year, has some important implications for interdisciplinary training.

I will preview here some of our findings. I will also focus on the historical relationship between medicine and public health, discuss forces in the current environment that are making professionals in these sectors need each other to a much greater extent than ever before, and also discuss the broad range of interdisciplinary interactions that are beginning to take place in practice for which future professionals will need to be trained.

At the outset, let me clarify what we mean by medicine and public health in this project. Clearly, there is no universally accepted definition of these terms, but for the purpose of our project, we are using a broad interdisciplinary construct that builds on the two vantage points that societies have used to address disease and health. The medical perspective focuses on individual patients, diagnosing symptoms, treating diseases, relieving pain and suffering and enhancing their capacity to function. The public health

perspective encompasses the entire population, preventing disease from occurring by promoting healthful conditions for the community at large. Today in the American health system, the medical sector comprises not only physicians, but also nurses and a whole host of other personnel working in private practices, hospitals, organized systems of care and academic settings. The public health sector includes professionals in a wide range of disciplines, working not only in government agencies, but also in academic and community-based organizations. Obviously, there is a good deal of overlap in the type of professionals who can be in both sectors.

When the panel began addressing the relationship between medicine and public health, it immediately confronted an interesting paradox. On the one hand, medicine and public health seem so interrelated that many medical professionals told us that they view public health as a subspecialty of medicine, and many public health professionals described medicine as an effector arm of public health. On the other, when we conducted focus groups, we found that health professionals around the country have very little experience working with the other sector. Many did not perceive that the other sector was particularly interested in their perspectives, and they had difficulty articulating just how the activities of the other sector were relevant to their concerns or their work.

That immediately raised for us several questions. How did this paradoxical situation arise? Should anyone be concerned about it? And, considering the dramatic changes occurring in the American health system, are there now any compelling reasons to change?

To answer the first question, we examined the historical relationship between medicine and public health, which seems to have proceeded in three phases. The tacit assumption that medicine and public health are closely related seems to stem from the first phase in the mid-19th and early 20th centuries, when the two sectors shared a common vision, both appreciating the value of prevention and both appreciating the importance of addressing personal, social and environmental determinants of health. During this time, the most pressing health problems were infectious diseases. Since so little could be done for patients once infected, improving health depended on preventive strategies. At first, the public health movement with the active support and involvement of the medical sector focused on addressing environmental and social risk factors that contributed to the transmission of infectious diseases (e.g., overcrowding, poor nutrition, inadequate sewage systems, uncollected garbage and contaminated water and food). Later, with the emergence of bacteriology, preventive strategies were also targeted at individuals. Thus, for example, the administration of vaccines became a powerful tool for both sectors.

As medicine and public health both began to target interventions at individuals, the need arose to coordinate some of their activities. For example, public health workers needed to be sure that through the combined efforts of the two sectors, enough of the herd had been immunized to protect the health of the entire community. They also needed a means to determine who was diagnosed with a contagious disease in order to initiate

important community protection responses, such as isolating the patient, disinfecting his or her home, treating him with antitoxin and identifying and treating contacts.

Later, when cardiovascular disease and cancer replaced infectious diseases as the major cause of death, there was a need to engage the medical sector in counseling and the delivery of clinical preventive services (e.g., mammography and Pap smears), and to coordinate public health screening with follow-up treatment by medical practitioners. Mammography and Pap smears were not very useful if people did not seek treatment when they had abnormal results.

This type of coordination was, in fact, very difficult to achieve. The country's heterogeneous and dispersed health system provided no obvious platform to support cross-sectoral interactions. The loosely structured medical sector consisted of a vast number of autonomous practitioners, most of whom were in solo or small group practices, with no clear ties to populations. Its other main component, autonomous hospitals and medical centers, had relationships with practitioners, but no clear ties to public health. Originally established to support community efforts to prevent disease and promote health, health departments varied substantially in their capacity to carry out this function, and they had little or no jurisdiction over the medical sector. Equally important as the lack of platform was the fact that as public health's activities began to overlap with those considered to be in the domain of the medical sector, namely, targeting interventions at individuals, thorny issues arose about the boundaries of medicine and public health and about which sector was actually in control. These problems were serious.

It is possible that the medical and public health sectors would have found ways to overcome them, but the post-World War II environment encouraged them to evolve into very different cultures. As science expanded our ability to understand, diagnose and treat disease, a number of policies were adopted that encouraged the medical sector to become increasingly specialized, and to focus its attention on biological mechanisms of disease and on the provision of technologically sophisticated, inpatient care. Without supportive economic or professional incentives, it was very difficult to sustain interest among medical professionals or academic institutions in prevention or in the behavioral, socioeconomic or environmental factors that influenced health.

At the same time, it became much more difficult to get support for public health, among either the general public or policy makers. With the availability of an increasing array of antibiotics and vaccines, and with successful control of frightening diseases like polio, the communicable disease problems seemed to have been conquered, removing what many people believed to be the primary reason for public health. Cardiovascular diseases, diabetes and cancer had become serious health problems, but most people favored medical treatments and research directed at finding biological cures over the much more difficult and politically contentious public health efforts to change conditions of life that caused susceptible people to develop these diseases in the first place. In this

context, the most pressing need for public health seemed to be the provision of safety net services for people who were left out of the mainstream medical system.

As the interests, activities and resources of the two health sectors diverged, medicine and public health evolved into very different cultures, losing their common vision of the 19th century. Although there was still a need to coordinate medical and public health strategies, the possibility of interacting was becoming less and less feasible. Consequently, the most essential connections were made through legal mandates (e.g., disease reporting) and through linkages of clinical and public health services in public health clinics and public health categorical programs.

Not everyone was content with the disassociation of medicine and public health. Thus, a variety of strategies were proposed for bringing the sectors closer together. Some, like community-oriented primary care, preventive medicine, social medicine and a whole slew of proposals for curriculum reform, sought to change the nature of medical practice, making it more receptive to prevention and to the non-biological factors that influence health. Another set of strategies focused on the growing imbalance between medicine and public health, proposing policies that would reorient some of our health resources away from medical care and toward environmental, behavioral and socioeconomic health determinants.

In retrospect, it is not very surprising that none of these strategies had much impact. In spite of the problems associated with the divergence of the two health sectors, the public health sector was actually improving, the medical sector was certainly thriving, and some public health leaders were justifiably wary that a merger of the two health sectors could jeopardize aspects of public health that were not directly related to individuals.

If health professionals' work environment had remained as it was in about 1980, it would be very difficult to justify yet another attempt to bridge the gap between medicine and public health. Obviously, the health system has undergone dramatic changes since then, changes that have shattered any possibility of continuing the status quo, making it imperative for the two health sectors to rethink their relationship. At the top of the list of these changes is the growth of managed care, which has been associated with striking shifts of patients, resources, perspectives and services from public health to the mainstream medical sector. As a result of these shifts, the medical sector is beginning to take over certain activities of public health, such as the care of Medicaid patients and the delivery of clinical preventive and treatment services important for the community's health. This is creating a need to make certain services, previously linked to clinical care in public health settings, available now in private medical practices.

What is required to provide effective medical care for Medicaid patients? Clinicians need access to public health wraparound services, such as transportation, translation and child care, that help overcome logistical barriers in accessing care. They also need ways to link the care they provide in their offices to public health outreach

services like home visits. These are invaluable in helping patients and their families deal with complex medical regimens like those for diabetes or asthma, and in promoting compliance with treatment programs, for example, reinforcing the need for treatment in asymptomatic diseases like hypertension or in delivering directly observed therapy for patients with TB, and now of course, therapy with protease inhibitors for people with HIV/AIDS.

As health problems like sexually transmitted diseases and lead poisoning are increasingly being diagnosed and treated in private practice settings rather than categorical public health programs, new strategies are needed to assure that an adequate community protection response occurs. To limit the spread of these diseases or prevent their recurrence or progression, the diagnosis and treatment of individual patients now needs to be linked to public health strategies like contact tracing, partner notification and lead abatement in the home.

Managed care is also making certain perspectives and tools of public health, such as epidemiology and cost effectiveness analysis, much more relevant to the medical sector. As managed care organizations and practice networks take on financial risk, their economic viability depends on attaining information about the health status and health risks of their enrolled population and about the effectiveness and costs of medical interventions. Systems that want significant market share are also becoming concerned about the health of the entire population, because the health and behavior of non-enrollees in their plan can affect the medical needs and costs of their enrollees, and people not enrolled today may become enrolled tomorrow.

One very disturbing repercussion of managed care, associated with the shift in financing streams, is that public health agencies are finding it increasingly difficult both to finance care for the uninsured and to maintain their capacity to provide essential population-based services as managed care organizations take over much of their Medicaid revenue. In this environment, it is creating a crisis not just for public health departments, but also for the medical sector. Hospitals and integrated systems are facing very high uncompensated emergency room costs when the uninsured in their areas lack access to timely medical care, and in an environment of financial risk, the private medical sector is now economically dependent on the capacity of public health agencies to prevent unnecessary disease in the community. When public health efforts to protect the environment fail, it is now medical practices and managed care organizations that bear the costs of treating patients who come down with such food-borne or water-borne diseases as E.coli or Cryptosporidium or hepatitis A.

Managed care is not the only force driving medicine and public health to work more closely together. The pressure to contain costs is giving both sectors an incentive to reduce duplication of effort, to increase productivity, to achieve economies of scale, and to provide services more efficiently. When neither sector has the time or resources to do everything itself, which was not true in the past, then a closer working relationship begins

to make sense, particularly if each sector focuses on areas in which it has special expertise, or which would be inefficient for the other to perform.

In addition, the growing interest in performance measurement makes it apparent that the important results, whether they relate to health outcomes or quality control, depend on factors behind any one sector's control. For example, increasing immunization rates requires a coordinated strategy that involves not only medicine and public health, but also other partners in the community. Working together, they can approach the problem from reinforcing avenues. They can conduct education and media campaigns to increase awareness of the problem, not just among the public, but also among practitioners. They can provide outreach, tracking and follow-up services to deal with logistical issues that people face in obtaining immunizations. They can establish registries that provide clinicians with information about their patients' immunization status, and that automatically generate reminder letters or phone calls to patients who need immunizations, and they can provide free vaccines to people in hardship.

The final factor encouraging the two sectors to rethink their relationship is the trend toward consolidation. With market forces and redefined roles of government, professionals and institutions in both sectors are perceiving a need to become part of larger systems to avoid being excluded from selective contracting, to manage risk more successfully, to achieve economies of scale, to maintain their patient base, and for academic institutions to provide meaningful training experiences for students and residents.

This move toward integration and consolidation is not only establishing an incentive for professionals and institutions to come together; it also has the potential to facilitate new relationships between medicine and public health. At the very least, the dramatic shift from physicians in solo practices to large group practices and networks is reducing that vast number of independent medical practitioners with which public health agencies need to interact. At best, a fully integrated organization can give us the infrastructure to support coordination of services among a broad range of institutions and personnel.

Looking at these factors in a changing system, it is hard to avoid the conclusion that the two sectors need to work more closely together than they have in the recent past. But in a sense, that brought us from one paradox to another. If collaboration is indeed imperative, will professionals and institutions in sectors with very different cultures have enough in common to be able to relate? Having had so little interaction over 50 years, will they even know who to call? Will they have a clear idea of what they can accomplish by working together, or sufficient knowledge about how to collaborate?

The focus groups that we conducted around the country suggest that many health professionals do not know where to begin. Most are so overwhelmed by the changes that are occurring, and have so little experience working with the other health sector, that collaboration is not even an obvious strategy for dealing with their challenges. On the

other hand, the 500 examples of collaboration that we have accumulated through our surveys suggest that, for a substantial number of health professionals and institutions around the country, current circumstances are providing strong incentives for working more closely together, and that it is possible to overcome the cultural divide.

The monograph that will be available later this year will crystallize what we have learned from the experiences of the survey respondents, and will organize the information in a format that will be useful for other groups dealing with change.

One section of the monograph likely to be of particular interest to educators will describe exactly what can be accomplished through cross-sectoral interaction, including various ways that professionals and institutions in the two health sectors are combining their resources and skills, and the synergies that can be achieved by doing so. In a sense, these synergies lay out some of the interdisciplinary interactions that are needed in practice. Consequently, they can help inform educators about types of interdisciplinary experiences that might be valuable now in training.

Synergies that we have seen involve a broad range of professionals and institutions, and bring together a broad range of resources and skills. Each partner in the collaboration contributes what it does best. Together, they play reinforcing roles and consequently do much more together than either can do alone. The idea is not for one to change into another or adopt the skills of another, but to provide the skills that they actually do best. Think of this as building a house: it is as though one discipline can make a window very well, another a ceiling, another a floor. Through these collaborations, all of these pieces come together, and form a useful house.

I would like to give you some overview of the synergies we are seeing. One type of synergy establishes frameworks to provide medical care for the uninsured. Basically, these synergies link the willingness of many medical practitioners to provide medical care with critical supports that overcome a lot of the logistical and legal barriers. We are seeing four models for this through our survey. One is to establish free clinics. Another model develops referral networks and voucher systems that match indigent patients with private practitioners, and allow the latter to see patients in their own offices on their own time. Another model enhances staffing of public health clinics through contractual arrangements or pro bono care; academic institutions involved in this do so in return for the training experience for students and residents. The fourth shifts patients from public to private settings; these help many health departments move away from providing medical care directly, while still assuring the availability of safety net services.

The second synergy works on improving health care delivery by coordinating a broad array of health services that are directed at individuals. These include clinical services, the wraparound services previously described, outreach services and social services. This type of coordination helps overcome many clinicians' frustration with delivering care and helping their patients get access to practice and improving

compliance. Further, it enhances the success of medical care and potentially addresses important determinants of health that go beyond medical care through social services.

We are seeing three models for this in our study. The first establishes new personnel or services at existing sites. Many of these are putting public health nurses and others in private medical practices. The second brings different types of professionals together in one-stop shopping centers at comprehensive sites, with various mechanisms of coordination in those sites. The third enhances coordination for professionals who geographically are at different sites. These tend to take advantage of a patient wherever they present for care, and then link that patient up with a whole variety of other services that can be coordinated.

The third type of synergy that we are seeing shows how the application of a population perspective to medical practice can improve the quality and cost effectiveness of clinical care, and at the same time help assure the economic viability of health professionals and institutions. Here, we are seeing three types of models. The first uses population-based information to enhance clinical decision making. We heard repeatedly through our focus group that medicine has perceived a big need for public health information, but in the past has not found the information it has received from the public health sector to be very useful in practice. In the collaborations we are seeing, working together is improving the content, format and dissemination of this information. Another model is the screen and treat type of model I mentioned earlier. This uses population-based strategies to improve the efficacy of screening programs by identifying patients who can benefit from care, and then making sure that they are linked up with the medical sector and get that care. The third model applies population skills and information to the management of clinical practice; these very often involve clinical epidemiology and cost effectiveness analysis to help clinicians take on and manage financial risk.

The fourth type of synergy capitalizes on what can be accomplished through clinical practice to achieve clinically oriented public health goals. This is very important in an environment where many clinical services are moving to the private sector, and public health departments are at the same time downsizing. Here again, we are seeing several different models. One uses clinical encounters to build population databases, the most common of which are registries, especially immunization registries. To the extent that these two sectors work together to design information systems, we are finding that they are significantly more useful to both sectors. So, for example, an immunization registry can produce automatic recall or reminder letters, provide clinicians with information about vaccines themselves, and be linked to practice management software.

A second model capitalizes on that clinical encounter with a patient as a window to that patient's environment in order to identify and address underlying physical and social causes of health problems. A good example here would be lead toxicity, going beyond simply identifying a patient with lead toxicity and giving that patient chelation therapy to making the linkages to the home and/or school and thereby make necessary environmental changes. In a third model, the groups collaborate to achieve clinically

oriented community health objectives, like immunization and prenatal care. The concept here is using population-based strategies to funnel patients into clinical settings where these services are then delivered.

The fifth type of synergy we are seeing shows how diverse groups in the community can work together around non-clinical health issues, many of which relate to underlying causes of health problems, such as tobacco, diet, activity, injuries, violence. Here, each sector brings to the table not clinical skills and expertise, but rather their clout and influence, their legal authority, their convening power, their data and their scientific and technical expertise. We are seeing in the field collaborations whereby professionals and institutions in medicine and public health work to conduct community health assessments, to mount health education campaigns, to advocate health-related laws and regulations, to develop community-wide health promotion efforts, some of which evolve into healthy communities projects that address issues important to health, but which go beyond the traditional purview of health sectors to encompass education, jobs and housing.

In the sixth and final type of synergy, medicine and public health work together to shape the environment in which they work. They do this through activities that are related to health policy, to interdisciplinary education and training, and to conducting multidisciplinary research.

Academic institutions, both individual schools as well as academic health centers, seem to be active in all six types of synergies. The first five provide useful practice venues for realizing the sixth, in terms of interdisciplinary training. Quite a few collaborations in the field are used for this training in health promotion and disease prevention. What we are seeing in terms of interdisciplinary education and training itself is quite diverse. Many institutions use multidisciplinary teams; some are establishing combined degree programs. Quite a few are beginning to link academia and practice, and some are creating multidisciplinary centers that combine education, research and practice together.

Another section of the monograph will focus on how these synergies are put into action by describing the various types of platforms that allow collaborative work to be done. As you saw, the cases in our surveys involve a broad range of partners and working relationships must be established to allow these professionals to work together towards a common goal. Obviously, this is not an easy task in a health system in which deep cultural differences separate not only medicine and public health, but also each sector's professions, specialties, institutions and categorical programs. In addition to facilitating relationships, collaboration requires an organizational structure that can bring together the resources, perspectives and skills needed to achieve each synergy, while at the same time maintaining each partner's sense of identity and independence. The monograph will discuss five types of platforms that are useful in achieving these objectives: coalitions, advisory bodies, contractual arrangements, administrative management support systems and some interesting intra-organizational changes. It will

also discuss strategies that collaborations are using to foster communication and understanding among partners, to facilitate coordination of their perspectives, and to deal with the big turf and control issues. In terms of interdisciplinary training, we have seen that an academic health center itself can be an extremely useful platform to promote collaboration across disciplines.

In closing, I would like to comment on the paradigm that seems to undergird the collaborations that we are seeing, which should be very relevant to educators of health professionals who are going to be working in the 21st century. I hope it has been clear from my remarks that the collaborations that we are seeing do not involve merging the two health sectors. Quite the contrary, they recognize the value of having a health system with two distinct perspectives, one looking out for the health needs of the individual, the other committed to improving the health of the entire population. But they also recognize that these two perspectives can support and reinforce each other only if they are focused on the same terrain.

When I think of the paradigm that characterized the relationship between medicine and public health during most of the post-World War II period, the image that comes to mind is of two people standing back to back, looking in opposite directions. One, the medical sector, using a microscope to examine a landscape consisting only of diagnosis, treatment and biological mechanisms of disease, the other, public health, using a telescope to view a completely different and non-overlapping landscape encompassing prevention and the behavioral, socioeconomic and environmental determinants of health.

In the paradigm that has been suggested by our collaborations, these two protagonists have now been turned so that they are shoulder to shoulder, looking at a common scene, one that includes both prevention and cure as well as the full range of determinants of health. Instead of a microscope and telescope, each protagonist now has an adjustable zoom lens. In this way, the medical sector can start from the perspective of the individual, but bring in that broader context in which illness occurs to make clinical practice more effective. The public health sector can start with the big picture, but zoom in to appreciate the role that biological factors and clinical care can make to improving the entire community's health.

In today's environment, working in this new paradigm seems to be a key to getting a handle on many of today's complex health problems, but at the same time, it is an important strategy for insuring the future viability and success of health professionals and health institutions. In academia, it provides a way to expand the patient base, to enhance opportunities and venues for research, and to establish training sites and programs that can increase the future success and marketability of students and residents by teaching them valuable perspectives and skills. In a sense, by reshaping the relationship between medicine and public health, people engaged in collaborative activities have found a way to take charge of and shape their own professional futures. That may be the most important message that our study provides.

Overcoming Barriers to Community-Based Health Care Teams: Models from Partnerships for Training

Jean Johnson-Pawlson

The Robert Wood Johnson Foundation's Partnerships for Training (PFT) project offers us multiple examples of health care educators working together as teams to educate groups of students from three disciplines. Before I discuss PFT, however, I want to comment on Dr. Baldwin's remarks: clearly, teamwork and interdisciplinary education are not new. In fact, life centers on teamwork. Health care is not the only place in our lives where teamwork occurs. In marriages, in every kind of work situation, teamwork has to happen.

So why are we refocusing on teams in health care now? What is different about teamwork in relation to interdisciplinary education in the health professions? I would suggest that the current focus on interdisciplinary education and practice really reflects a shift in the balance of power in health care. Traditionally, medicine has held the power within health care, but health care has become too complex for so much of the power to rest in the hands of one profession. We are now seeing that good patient care requires medicine and other disciplines to work with each other in new ways. The PFT program clearly illustrates that real benefits accrue when different professions work together. I think our grantees feel they have gained power, rather than lost it, by becoming members of interdisciplinary teams of educators.

The Foundation initiated the Partnerships for Training program about five years ago as part of their effort to seek new approaches to workforce issues, particularly the chronic shortage and maldistribution of primary care providers in underserved rural and urban areas. Foundation staff held focus groups across the country resulting in a decision to invest in an interdisciplinary education program involving nurse practitioners (NPs), physician assistants (PAs) and certified nurse-midwives (CNMs). They realized that increasing the supply and improving the distribution of primary care physicians would not, by itself, eliminate access problems, so they established the fundamental requirement that each project include at least one nurse practitioner, nurse-midwifery, and physician assistant program. They decided to tackle the distribution problem by emphasizing extension of education to students who were place-bound and job-bound, i.e., students who could not move to metropolitan areas or give up their jobs to enroll in traditional-format education programs.

When the Foundation first approached me to be the PFT program director, Michael Beachler, an indomitably spirited individual whom many of you know, asked, "Should we first invest in flak jackets?" I replied, "I do not think we need to do that. I think that some people are really invested in seeing how these health professionals can work together." In my experience at George Washington University, I have seen physician assistants, second year medical students, and nurse practitioners learn together

for almost 25 years, and we have had no need for flak jackets at the GW Health Sciences Center. In addition to students learning about other disciplines, we have, in fact, achieved some economic efficiencies by teaching these students together that we would not have achieved if their programs had separate faculties.

And, as it turned out, we did not need flak jackets to launch PFT. Indeed, we had 37 applicants for twelve PFT grants, a larger response than many had expected. Three of the initial twelve grantees have been on a fast track and have already moved from the planning phase into the implementation phase. Seven others are in the process of applying for implementation funds with the decisions being made at the beginning of July 1997. Two of the twelve chose to not move on to the implementation phase, an outcome which offers some indication of just how difficult this project is.

Sally Tom, the PFT deputy director, and I have traveled across the United States, visiting our projects, learning, and making observations. I would like to share with you some of the observations we have made and the lessons that the project has already produced. However, in order to appreciate my comments fully, you must understand the work and scope of this project.

PFT is an incredibly complicated project. It seeks primarily to address the maldistribution problem in underserved areas by extending NP, PA, and CNM education into those underserved areas, both rural and urban. The program's strategy is simple: take the education to the student so that the student can stay in her/his community while going to school. In order to reach this goal, grantees must undertake certain activities. First, while the entire program does not have to be interdisciplinary, some educational connection among the three disciplines must exist. The interdisciplinary activities serve both to prepare students for future practice in interdisciplinary teams and to achieve economies of scale in the use of educational resources. Second, the projects must forge linkages with communities. This requirement in particular challenges the grantees as they move into the next phase, because many academic institutions do not have strong, long-standing commitments and/or working relationships with community partners.

Third, the projects must find ways to extend their programs over distances - usually via electronic technology - in order to deliver education to students in their homes and home communities. We have learned that if we want NPs, PAs and CNMs in underserved areas, the model least likely to work is that of exposing our prototypical students to those areas for periods of time during their education. Thus, the project focuses largely on taking educational programs into underserved communities where potential students already live. In this model, working with community partners becomes essential; because those are the folks who will identify students for the programs.

Fourth, policy activity constitutes an important part of the project. In several grantees' states, significant barriers to practice still exist. For example, Mississippi does not recognize physician assistant practice. Illinois is not a strong supporter of nurse practitioner practice. Idaho remains a last frontier with respect to nurse-midwifery

practice. Many issues remain in the policy arena in many states, including prescriptive privileges, payment, and recognition of these providers by managed care organizations.

I want you to appreciate PFT's size geographically, as well as the breadth of academic institutions that it encompasses. We have projects in Detroit, in the San Joaquin Valley in central California, and all of Idaho, New Mexico, Minnesota, Wisconsin, and North Carolina. We have combined projects in southern Illinois and Indiana, and in Colorado and Wyoming. A total of 56 academic institutions across the country, ranging from major institutions to middle-sized institutions to some smaller ones, are involved with PFT. Each project also has a plethora of clinical partners, managed care partners, policy partners, and public agency partners. While all of our projects are fascinating, I would like to mention one project in particular, because its complexity and scope are striking. The Delta project incorporates the Mississippi River delta counties of Arkansas, Tennessee, Mississippi, and Louisiana, and multiple institutions that serve students in those states. I am not aware of any other project that has tried to link educational institutions across four states in this kind of activity.

What have we learned so far from PFT? The project is still relatively young, so we do not yet have many results or findings with respect to the project's end goal. But as we have traveled across the country, we have gleaned much useful information about interdisciplinary cooperation among educators. One, we have observed that most of the projects have gone through a similar evolution with respect to interdisciplinary curriculum decision making. The evolution entails both the process that happens within the group, as well as the content issues with which the groups struggle.

At the very beginning of the development phase, when our grantees received \$200,000 each for 15 months or \$300,000 for 24 months of planning work, people were feeling pretty good. They thought this was a great idea, and sitting down to talk to each other was an even greater idea. Faculty members began sharing information about programs, about themselves, and about their disciplines, which really helped everyone to understand the interdisciplinary issues better. It often turned out that even within the same institution, the faculties of the NP, CNM, and PA programs knew very little, if anything, about the other programs. So people began a very basic process of becoming acquainted with one another and with one another's education programs. You can appreciate that the nursing program faculties and the physician assistant program faculties were becoming acquainted despite a long history of mutual suspicion and occasional outright antagonism at the national, state, and institutional levels.

For some grantees, the initial euphoria lasted for a fair period of time, but others moved through that phase rather quickly and into the next, in which very essential struggles over educational issues began to occur. During this phase we often reassured the grantees that engaging in these struggles indicated that they had reached the real work of the project, and did not, as they feared, indicate that they were failing.

Almost all of the projects began to tackle course content in a fairly similar way. They simply laid out a grid showing when all courses were taught. Thus, they could identify the common content, typically in health assessment, pharmacology, physiology, pathophysiology, and some of the clinical content courses. They also at this point began to see some of the differences in the courses that stemmed from the differences among the disciplines and sub-disciplines, such as midwifery, or physician assistant, or an adult, pediatric, or family nurse practitioner. By laying courses, and course contents, out on a grid and comparing programs, they could see what was taught, when content and whole courses were taught, and the sequencing of the content and the courses.

Three, as a result of examining and comparing their programs, several difficult issues quickly became apparent and centered on content, particularly what course content could be shared amongst the disciplines; on the sequencing of core courses; on the timing of educational experiences and courses; and, on whether and how to share clinical placements. In addition, as most physician assistant programs give undergraduate credits, and most nurse practitioner programs give master's level credits, grantees had to figure out how to handle teaching students who would be receiving two different kinds of credit for jointly taught, shared courses. They also became aware of other potential complications, including restrictions on transfer of credit among institutions, tuition differentials, particularly between private and public institutions, and coordination problems created by different academic schedules that ranged from when during the day and week courses were offered to the mismatch between quarter and semester systems.

This may sound boring, but the one issue that most tended to be a lightning rod for conflict was the timing, the sequencing, and the length of time that should be spent on particular content. These issues really reflected very discipline-specific philosophies about practice and education. For instance, most NP and CNM programs combine didactic and clinical experiences in the same course, but PA programs typically provide most of their didactic education in the first year and most of the clinical experiences in the second year.

We observed that in the process of these curriculum discussions, the partners often erected barriers. The most commonly erected barriers were disciplinary boundaries, i.e., what one could and could not do, what had to be taught by faculty from the students' same discipline, sequencing issues, and accreditation. Issue by issue, most programs worked out their concerns. At one site visit we were discussing how the group worked together and we asked, "What happens if an education program says 'no, we will not change?'" After a brief silence, one of the program directors leaned forward and said, "In this group, you aren't allowed to say 'no.'"

We are trying to assess how much of a barrier accreditation really is. A program director can easily cite fears about jeopardizing the program's accreditation as a way of undermining a proposed change. If someone does not want to make a particular change, alleging that "The accrediting agency will not accept that change" or that "We will have to redo our total accreditation" can put a halt to innovation in education. In reality, we

are finding that the concerns seem to have arisen more from fear of loss of control of one's curriculum than from the accreditation requirements themselves. Nonetheless, we will continue to examine the accreditation issue, because it still seems to loom large in peoples' minds. And, we plan to talk with accreditation agencies to elicit their perspectives on these questions.

We saw that not all the barriers could be removed by working on the substantive issues. With the erection of barriers, conflict often erupted. Dealing with the dissension of the one or two members who did not want to move ahead with the work and who kept erecting barriers consumed much of the partners' energy and caused significant pain for some of the PFT groups. In order to resolve the conflict that arose out of disciplinary concerns, two projects had to change the composition of their groups. They realized they could not address the substantive issues to the partners' satisfactions, and would therefore, need to remove the partners themselves. Their experience confirmed that a group cannot accomplish this kind of work if major dissension divides it internally. Moreover, changing the group membership involved significant amounts of work because people had become highly invested in maintaining the original inclusive vision of the partnership. These situations presented the grantees with great difficulty. In the end, however, people had very clear, committed discussions, albeit discussions that were not easy but that led them to resolution of the conflicts. We were impressed by our grantees' success in managing these particularly painful issues of group membership and in resolving the differences they encountered on issues related to course content, core course sequencing, timing, clinical placements, the graduate and undergraduate overlap, and tuition differentials.

I note parenthetically that, in this interdisciplinary endeavor, people typically most fervently wanted to protect their clinical placement sites. Some project directors observed that certain schools would not share their lists of clinical sites. Doubtless, everyone in this room can understand that, since clinical placements are any program's lifeline. The programs did not want to give up their list of preceptors to become fair game in the other programs' search for clinical sites, because each of the disciplines had nurtured a particular group of preceptors. One project worked around this issue by establishing at the outset a "no poaching" rule that prohibited partners from recruiting other programs' preceptors, and by agreeing that together they would develop new sites that all programs and students could use. It worked. This agreement exemplifies the very proactive solutions that grantees have created to solve potentially difficult problems.

All of the grantees have emphasized interdisciplinary participation in the development of their governance and decision making procedures. People very quickly came to realize that each discipline had to have an equal voice in the decision making. The structure of the working groups reflected this understanding. In some cases, a group member would express the perception that one group was trying to move an agenda along at the expense of the other members' issues and concerns. However, because groups had insured that each discipline had a voice in the decision making process, when the group sat down to work through the issues, they were able to resolve them.

The Delta project piloted a cross-disciplinary course that surprised and impressed us. With so many disciplines focused on protecting their own turf, we expected that most of the grantees would want to keep the content and teaching of the discipline-specific courses separate. But those in charge of the Delta project did not. They have developed an interdisciplinary professional role course, which expects students in each of the disciplines to learn about the history and professional issues of each of the other disciplines as well as of their own. The course includes issues such as payment for services, licensure, certification, and relationships with medicine. We will be watching with great interest to see how that course changes as the project evolves and how other projects handle teaching about discipline-specific professional roles.

I can reiterate what Pat Meservey and Bud Baldwin have stated, that doing the interdisciplinary planning and implementation is incredibly time-consuming and emotionally challenging - a very personal kind of activity - that leads to numerous benefits. I would like to tell you about some of the actual and potential benefits that the PFT program offers us in health professions education.

First, since each program faculty collectively has some niche of expertise that the other program faculties do not possess, interdisciplinary cooperation can lead to expansion of expertise for all concerned. Midwifery constitutes perhaps the most noticeable and obvious of this type of benefit. Midwives can contribute teaching in obstetrics-gynecology, one of midwifery's obvious strengths that other disciplines often do not share. In turn, nurse practitioner and physician assistant faculties can assist midwifery faculty as the latter expand into more primary care education. Some of those areas of expertise can enhance the capabilities of all the programs.

Second, partners have also benefited in the area of increased political strength, both within their home institutions and across institutions. This can be bad news for vice-presidents, but good news for program directors. Interdisciplinary cooperation means that more faculty have common interests and share a common fate. They may be more likely to speak with a unified voice, or to tell the institutional leadership to take action. Their collective statement will be much stronger than if just two midwifery or three NP program faculty spoke up. So, we can expect to see that interdisciplinary cooperation will probably shift the political balances within some institutions.

Third, beneficial external shifts in political strength can also occur. All providers face the problem of receiving recognition from managed care organizations (MCOs) and third party payers. The Fresno project brought the heads of the professional associations of nurse practitioners, physician assistants, and certified nurse midwives together in their barriers-to-practice committee. These three professional associations had never before met together anywhere in the state. As a result of becoming acquainted on this committee, the three associations sat down with a managed care organization to discuss their omission as named providers on the provider panel lists given to the MCO members.

Together they succeeded in changing this MCO's policies and they are currently discussing similar changes with the other major MCO in the San Joaquin Valley.

Fourth, the potential also exists in the PFT projects for grantees to begin to bring their workforce output into line with labor market projections. As institutions, states, and entire regions struggle with defining their workforce needs, programs that share information have a greater potential to impact the quality and the type of their students' preparation than those that do not talk to each other. Today, educational institutions (at least private institutions) have a tremendous incentive to admit as many students as they possibly can in order to maximize tuition receipts. We have seen an incredible increase recently in the number of both NP and PA programs. In 1992, there were 237 nurse practitioner programs in the country; in 1995 there were at least 530. This growth raises concern about the workforce. Will we have too many nurse practitioners and physician assistants? Less concern exists about nurse-midwifery, because at the present time the country has only about 5,000 many nurse-midwives. We will watch what happens with admissions decisions with these programs, and we will watch how those admissions decisions may actually be linked to community need.

Fifth, the potential exists to evaluate the impact of interdisciplinary education. As Pat Meserve clearly delineated, we do not yet know much about greater efficiency. We do not know if interdisciplinary education will yield higher quality and/or lower costs, but the potential exists in this project to begin to answer these murky questions. We must carefully assess the outcomes of the project to determine whether net gains or costs - both monetary and social - result from combining faculties and students.

We have seen that the evolution of the projects resembles any relationship. It includes people getting to know each other and liking each other, real issues being raised, conflict erupting, and either people not being able to deal with conflict and stopping the relationship, or being able to resolve and move past the problems.

This may not sound like a big accomplishment, but it is: people in the PFT project have established cross-disciplinary friendships. Previously, people from different disciplines literally did not know each other; they did not come in contact with each other even though they may have worked in the same office buildings and clinical facilities for years. Indeed, most institutions had incentives designed to keep people from knowing each other (e.g., making them compete for resources). However, groups that have come together have genuinely become friends, to such an extent that, on occasion, if we challenge a particular discipline during a site visit, the other disciplines come to the rescue in an instant. It is really heartening. As people become friends, these friendships strengthen their willingness to work collectively in these very challenging projects. Friendships and willingness do not suffice to make the projects successful, however. Effective leadership, on the part of both the project directors and team members, has played an essential role in conflict resolution, in creative problem solving, in the many, many hours of hard work the grantees have undertaken.

We have become convinced that it takes a special kind of person to exercise leadership in a multidisciplinary, often multi-institutional, and sometimes multi-state team. It takes a person who recognizes the power of personal relationships. You cannot simply come to meetings and think that all group activity occurs there. You must pay attention to and foster social functions; one must recognize significant events in others' lives.

Trust is also essential, and it does not develop quickly. You must create space for that trust to develop. Some people criticized the idea of the fast-track PFT grants; these people believed that the 15-month period for planning did not allow adequate time for people to get to know each other, to begin to trust each other, and to accomplish the work. In most cases, this apprehension proved false; in one case, choosing the shorter time frame may have contributed to a project deciding not to apply for implementation funds.

The PFT Leaders must pay attention to administrative detail. They must administer and manage effectively. They must be organized. They must work particularly hard at the slow process of communicating with all team members and patiently wait for responses from all team members. For example, forgetting a physician assistant who is feeling a little vulnerable to begin with in the midst of many nursing partners could blow the project apart. Forgetting a program at a small institution that feels vulnerable in the midst of larger institutions could be fatal to group cohesiveness. Recognition of all of the little details is key, as is making space for all the voices to speak at the table.

The PFT Leaders must be willing to create a persuasive vision of where a project will end up even though they themselves have never been there before. This project has no road map for how people should work together, no directions for them to follow. Rather, partners have to have a notion of where they want to end up, and then strike out in that general direction, creating the road and the map as they go. It is not a project where someone can take someone else's vision and run with it, but a project that requires that people be willing to strike out into unfamiliar, uncharted, potentially hostile territory.

Negotiation and conflict management skills have played an absolutely key role. If we are really serious about interdisciplinary education in any academic institution, we must include negotiation and conflict management skills. Otherwise, we will never teach our students how to work effectively in a team. One cannot avoid conflict; conflict is there, people are negotiating at every turn. Many have already recognized this need, and include conflict management courses in their health professions programs.

Finally, PFT has shown me the need for people who work in interdisciplinary teams to enjoy chaos and people. These projects can be messy. People flow in and out, communication flows in informal ways. People have to make decisions that they never anticipated, which involve, for instance, changes in membership of groups, joint issues about joint admissions. There must be real enjoyment of people. Interdisciplinary education may not be the way for introverts to go. Not that it is impossible for introverts,

but I think that people are more likely to enjoy interdisciplinary activities if they really enjoy people, different people who bring different assets to the table, and not just people who bring the same skills to the table.

Partnerships for Training will continue for another six to seven years. We are in the process now of thinking through some of the evaluation criteria and processes. We will have some very rich, very exciting information: details about numbers of joint faculty appointments, specific courses taught, the numbers of students impacted, the community clinics impacted, information about distance education technology, even a more qualitative analysis of the people issues and the processes by which grantees moved from one point to another. We feel very confident that PFT will attain the goal of increasing the number of certified nurse-midwives, nurse practitioners, and physician assistants in underserved areas. We also believe that six to ten years from now, we, the Foundation, and the grantees will be able to look at these projects and see graduates who went to school in their home communities still practicing in those same communities.

The Kellogg Community Partnerships and Health Professions Education Initiative

Dona L. Harris

I will share with you my perspective on the Kellogg community partnership initiative, now in its fifth year, for which I have served as a cluster evaluator. I will briefly discuss the background of the program and some of its lessons, then turn to some recommendations that can be made from data we have gathered.

Officially known as the Community Partnerships and Health Professions Education Initiative, this program was originally funded by the W.K. Kellogg Foundation in 1991. Seven sites were selected to participate in the Initiative, and each has received funding over the ensuing five years. The major goal of the Initiative was to encourage students to pursue careers in primary care. This encouragement was to occur through a socialization process, beginning with the attitudes of faculty who could pass on a philosophy of the value of interdisciplinary activity, and then sending students out into communities, where they could actually see clinical practice in teams.

The seven Initiative sites each boasted, at a minimum, medical, nursing, and allied health education. However, there was no distinct model; each site would develop its own programs. Interestingly, the grantees did work together in developing their programs. Several seminars were put together so that people could learn from each other. In the end, of course, each site's program captured the needs of the local institutions and communities.

In terms of evaluation and outcomes, the Kellogg Foundation has a fairly well established mechanism, which includes three levels of evaluation. First, the projects are expected to self-assess their efforts. Next, cluster evaluators look at the general outcomes across the projects. Finally, the Kellogg Foundation conducts its own evaluation process at the institutional level.

I am part of a nine-member team of cluster evaluators. Many of us were originally affiliated with Michigan State University, and the program is housed at MSU's Office of Medical Education Research and Development. The evaluators are a somewhat eclectic group, including political scientists, medical educators, sociologists, and a health economist. Seven of the nine were assigned to sites. I was assigned the CCHERS site in Boston, and was therefore lucky enough to work with Pat Meservey.

The cluster evaluators' first credo was to do no harm to our respective projects. Sometimes evaluators can get in the way, but we were quite careful to be an asset to the process and never to share information that would be either detrimental or specific to our projects. Through site visits, focus groups, and the establishment of working relationships, we all saw the projects grow and develop over time. We assessed the attitudes of faculty and of students. We met with the project evaluators regularly. We

gathered a great deal of information, including such materials as annual reports, and are now organizing and sifting through this information in order to make significant recommendations.

My particular area, interdisciplinary activity, was perhaps one of the most difficult. We could not even agree on terminology. Is it interdisciplinary, is it multidisciplinary, is it multi-professional? We decided to use the term multidisciplinary.

The first lesson we have learned is an important one: Those who seek to affect career choice must focus on the long-term. Since that is what we will be doing, we have not stopped with simply the five-year mark of the projects, because many of the students are not even finished with their training program and into practice.

Of 5,542 eligible students at the seven academic health center-based sites, a total of 3,296 students, or roughly 60 percent, participated. Fifty-one percent of those were actually placed in communities. Projects reported that they spent an average of 40 percent of their time in the communities. These numbers greatly exceeded our expectations from the outset of the program. The projects were initially expected to meet a 25 percent student participation goal, where they would spend a minimum of 20 percent time in the curriculum. With respect to new courses, there were 199 new or significantly revised courses; 138 of those were offered in the community, and 183 were required, with 80 being multidisciplinary (i.e., enrolled students from more than one health discipline). The fact that nearly 1800 individuals served as faculty at the seven sites, including 600 from the academic institutions and 1200 from communities, amply demonstrates that these really were "community partnerships."

We learned that accommodating students, especially for community placement, requires expansion of the number of teaching sites. Over the five-year period, the number of teaching sites was expanded significantly to approximately 44. New community programs represented one of the interesting offshoots. While this area did not necessarily encompass "formal curricula," the students got involved in immunization sessions, mentored students at local public schools, participated in health fairs, and generally took on projects where they could work together. They did not necessarily practice their career choices, but they did learn to work together in teams and to contribute to communities. The students had many creative ideas for projects.

Although many struggles occurred, there were many victories. Overall, we certainly have seen many, many successful outcomes. It may be helpful to consider those successful outcomes in terms of sustained curriculum change. To this end, it is crucial to get the faculty to support the activity from the outset. One of the ways faculty and administrators buy in is by redirecting resources to support the program's infrastructure.

We also witnessed firsthand the incredible importance of site coordinators. One scary part of this type of activity is that, when money gets cut, site coordinators may be at risk. These people are critical to the success of the project. They take care of the

students and handle all of the structural details. Faculty development is also critical. This does not mean adopting a bombardier approach, dictating what will be done. Rather, it means getting faculty involved early and ensuring their continuous involvement. That also helps to develop communication skills among your faculty.

Several presenters at this Congress have mentioned leadership, and we examined this critical outcome closely. We conducted a leadership study, and found that leaders who participated and who respected values were much more effective than those who were interested in power and hierarchy. This result is quite interesting since the typical academic center is based upon power and hierarchy. The qualities of these leaders, together with their stability over the five years, helped the more successful projects to be more successful.

The most challenging aspect of the program typically was the multidisciplinary aspect. We noted from the student and faculty evaluations that this worked best primarily in the communities. That was the location where the faculty and the students indicated that they really enjoyed the opportunity to learn from each other, and to work together to provide care.

As previously mentioned, the number of clinical teaching sites expanded to 44. This presented some problems for us, as it will for others who develop new teaching sites. How do you assure that the same kind of education occurs at each site? This challenge multiplies the responsibilities of supervisors to ensure that high quality experiences occur, that schedules are coordinated, and that students are supervised. We also examined the cost of having students in hospitals. Since hospitals can much more easily incorporate students, especially medical students, into their routines, this did not represent as great a challenge as expanding into communities.

The community sites that were used for this initiative boasted fewer professionals, who often were overextended by their obligations to serving the underserved. The clinic directors said that at least one hour per day was added to health professionals' time to accommodate students in the community-based sites.

As you can imagine, many of these sites were in rural areas. Just by virtue of the distance, student travel from the academic centers to the communities sometimes caused problems. Some institutions explored sending students out to live in communities. In many instances, the community providers became faculty for the initiative.

Cluster evaluators clearly saw the effectiveness of students out in those clinics, and therefore cannot overemphasize the value of students' clinical education. Delivering supervised care will help them understand the different roles and how different health professionals work together in the clinics.

Sometimes curricula provided in rural areas simply represented moving the teaching of biostatistics into a community. That subject, for example, we believe belongs

back at the academic center, where it comes naturally. It would be preferable to enhance students' opportunities to get out into those areas where the clinic is part of the real day-to-day world of a community.

Over the past five years, we have learned that this is an expensive approach. Nonetheless, we need more cost information. As these projects continue, we will examine what happens when the dollars are removed. We will also assess how far in-kind support can go and how much hard dollar revenue increase support will be given to the communities. If a team is working together, it is hoped that its members will focus on how they can distribute the wealth so that students benefit as well as faculty, rather than seeking individual gain. These issues are at the core of long-term sustainability.

We are optimistic about the longitudinal aspects of this initiative, but we will not know the true outcome until these students actually enter practice. Only then can we accurately assess the types of communities served, and in what types of configurations.

When students come in as medical students, as nursing students, as dental students, as pharmacy students, they want to know how they should behave. Accordingly, the socialization process that teaches them their roles is very, very important at academic institutions. Such socialization should not be accomplished without also introducing students to the value of working in teams. Sending students to sites where they have actual role models working together enables them to see both that it works, and that people are valued for what they can contribute to patient care. It is also important to assess what makes sense for campus-based and for community-based learning.

Many -- perhaps most -- of us in the academic world are trying to change. At my own institution, we are working to integrate the curriculum. However, the moment a threat of removal of resources for multidisciplinary programs arises, what happens? People go back to their departments, and claim that they want to pass on the identity of their individual discipline, noting that they selected that discipline because it was the best. Thus, most institutions will need a dramatic culture change to teach in a multidisciplinary and/or interdisciplinary fashion. You cannot simply change the label unless you also change the culture. That is one of the hardest parts of this field.

The institutional mission is important, and successful leaders constantly keep it in front of their people, reminding them. At the start of every meeting, my dean talks about East Carolina's tripartite mission: to help the underserved, to train minority medical students, and to provide service to the eastern part of North Carolina. I hear it again and again. Repeated reiteration of this mission makes listeners believe it, buy in, and start acting as if they, too, own the mission. The mission is even more effectively implemented if everyone works together to establish it.

It is important to avoid a perception on the part of the community that academics are just paid to think or that academics just do research. In the field, academics must do whatever is needed of them, and our communities expect much from us.

Probably many of you have read Putnam's recent article, "The Declining Significance of Bowling," which explores how we need to return to our roots and to our civic responsibilities. Similarly, students who are removed from their communities and put into academic health centers often forget where they came from. If they go back and realize that community responsibility, they are likely to exhibit civic responsibility and may even become community leaders. Many communities participating in the initiative are now realizing their needs, and are actually benefitting from the partnerships' effort with the students.

The process of tenure, in which good teachers who do not publish may suffer, raises the issue of appropriate rewards. We must ensure that community faculty have suitable rewards and recognition, since they do a great deal of the work but are often treated as second-class faculty. This will mean changing the philosophy at many institutions.

Collaboration mandates moving across disciplinary boundaries. One who claims to be a specialist may just have a one-track mind. We need to remove the disciplinary blinders, as well as gender and ethnic boundaries, and expand our view. Effective leaders are those who can cross disciplinary boundaries and work together. Teamwork will require effective collaboration, however, so that team members can see both what lies ahead and what came before. But working together, team members often find that each has expertise in different areas, and they must respect that expertise.

I will end by noting that the Kellogg community partnership initiative is almost a return to our roots. In terms of partnerships, interdisciplinary and multidisciplinary education and practice, it is not just a project. Rather, it is a commitment to a plan. The initiative is well thought out but, more importantly, actually works. It works in settings where it is most appropriate, so that students can see it effectively help patients.

Institutional Perspectives

How We're Moving Toward Interdisciplinary Education

Paul E. Stanton, Jr.

I will begin by addressing the history as well as the mission of the James H. Quillen College of Medicine, and then progress to the interdisciplinary activities that the College has developed along with the College of Nursing and the College of Public and Allied Health at East Tennessee State University.

East Tennessee State University, including the James H. Quillen College of Medicine, is located in northeast Tennessee in what is called the Tri-Cities region, consisting of Kingsport, Bristol, and Johnson City. Demographically, there are 1,200,000 citizens in the region. Obviously this provides a tremendous base for students as well as faculty, staff, and clients for services of the Division of Health Sciences and the College of Medicine at East Tennessee State University. The College of Medicine was established by the federal Health Manpower Assistance Act of 1972, commonly referred to as the Teague-Cranston Act after its sponsors. This statute established five new colleges of medicine, all with a primary care mission and all having a relationship with the Veterans Administration Medical Center (VAMC) on their respective campus. Given the requirement of a relationship with a VAMC for formation of a medical school, the only eligible school in Tennessee was East Tennessee State University. After seven years of initial start-up federal funding, the state would pick up the separate funding of the medical school.

The Tennessee General Assembly approved the medical school in 1974, and the first class of 24 students matriculated at the College of Medicine in 1978. The College of Medicine, while being charged with a primary care mission, is community-based and consists of the VAMC at Mountain Home, now called the James H. Quillen VAMC at Mountain Home, and three not-for-profit hospitals, one in each of the Tri-Cities. In addition, there is a psychiatric hospital for the training of students and residents. In sum, there are approximately 2,200 beds available for teaching throughout the Tri-Cities region.

The College of Medicine has, through its first several classes from 1982-1997, had an average of 60 percent of graduates by class entering PGY1 primary care positions. It is ranked now by some as second in the country in terms of percentage of students entering primary care residency positions. Family medicine at the James H. Quillen College of Medicine has grown tremendously in terms of enthusiastic student entry into residencies in that area. In 1995 and 1996, more than 30 percent of its graduates entered family medicine residency positions. This places the college at approximately tenth in rank order as far as students entering the family medicine residencies.

In 1988, the then-president of the university, Ronald E. Beller, recommended the initiation of a formalized Division of Health Sciences, which brought together the

College of Medicine, the College of Public and Allied Health, and the College of Nursing. Coming together formally for the first time, the three colleges had a great opportunity to work together under the Vice President of Health Affairs, who also serves as the Dean of the James H. Quillen College of Medicine.

Shortly after the three colleges were linked in January 1989, they had the opportunity to participate in the W.K. Kellogg Foundation's initiative, Community Partnerships with Health Professions Education. This initiative was aimed at community-based, educational opportunities in underserved areas, in our case in rural areas. It combined interdisciplinary curricular activity of the three colleges and required a longitudinal exposure to the community. In our case, this meant that 25 percent of each class in the College of Medicine elected to enter the Kellogg track based in the community, which required their physical presence in the field one day per week. The College of Public and Allied Health established a longitudinal minor involved in the community, while the College of Nursing actually housed 25 percent of its students in a community setting. When we hired faculty, they were required to live in the field.

The Division of Health Sciences works with two specific rural communities, each of which has a population of roughly 2,000: Mountain City, located in Johnson County, and Rogersville, located in Hawkins County. Each community put together a respective community advisory board made up of 20 to 30 individuals, to which the three deans of the respective colleges were added. Obviously, the communities had overwhelming voting power compared to the university. In addition, two individuals from each of the community advisory boards were selected to serve on a central Office of Rural and Community Health governing board. This particular governing board consists of the four community representatives (two from each site) and the three deans. Again, the majority of the votes came from the community representatives to indicate the empowerment of the communities. Interestingly, after some six years, no vote has ever been taken, as decisions have always been reached by consensus.

Comparing the Kellogg Community Partnership curriculum with the traditional higher education curriculum, we can readily see that the latter is classroom-based and, in the case of medicine and nursing, hospital-based, with an emphasis on tertiary care, whereas the Kellogg curriculum incorporates both the classroom and significant community-based time. In the traditional curriculum, there is emphasis, particularly in medicine, on subspecialty content and practice, whereas the Kellogg curriculum is primary care-oriented. In the traditional curriculum, different professions have always trained separately, whereas in the Kellogg initiative, there is an interdisciplinary emphasis in courses and experiences. When our Kellogg initiative was first approved in 1991, many, many hours were spent on curriculum revision and content from the beginning of the proposal development through initiation. The Division of Health Sciences' three deans, as well as curriculum representatives from each of the three colleges, met for three hours every Monday afternoon for three and one-half years. This led to tremendous curricular revision.

Primary care was emphasized from the beginning, and many turf issues arose, particularly between the College of Nursing and the College of Medicine. In the traditional setting where medicine had "reigned supreme," there had been no interest in sharing practice arenas or turf with nursing. Under the new Kellogg initiative, however, the Community Partnerships Program required curricular revision to achieve common practice sites and common teaching sites. Issues between the College of Nursing and the College of Medicine became apparent as early as two or three months into the funded initiative. Turf issues became so significant that a conflict resolution retreat had to be called. A husband-and-wife conflict resolution team was called into service for a two-day retreat held outside of Gatlinburg, Tennessee, not far from the campus. The consultants and the leadership from the College of Medicine, the College of Nursing, and the College of Public and Allied Health were literally locked into the two-day effort. During this time everything from name-calling to accusations of wanting to take another's turf, to simple statements such as, "We can never work together," was raised. When the weekend session was over, everyone left feeling that the project was a total loss. Everyone felt very badly, but interestingly, over the next few weeks, people indicated that no worse names could be called, and no worse accusations could be made than had already been made. At this point, the wheels seemed to turn towards a more cooperative working environment.

I believe that leadership qualities have to be in place. Fortunately for East Tennessee State University in 1991, with initial funding, we had in place not only three deans but two communities that shared a vision, that were able to communicate openly with each other, that could build by consensus, and that could work as a team to facilitate problem resolution. From 1991 forward, it has been my belief (as well as that of others in leadership positions), that when rural initiative faculty vacancies come open in any of the three colleges involved, the administration should seek new faculty members with the same mindset of team play and interdisciplinary focus. There must be clear intention of supporting the rural, primary care initiative.

I would like to discuss briefly the campuses in Mountain City and Rogersville, our two rural sites for teaching, service, and research. In the case of Mountain City, we chose to initiate the Nursing Clinic and the Family Medicine Clinic in separate but adjacent locations, whereas in Rogersville from the beginning in 1991, the College of Nursing and the College of Medicine have occupied the same facility. The idea was to compare the two sites, to see whether the visibility of nursing as a freestanding entity in Mountain City would overcome more quickly the traditional view of the nurse practitioner being under the physician than would occur at the Rogersville campus, in which practitioners were together from the beginning. Interestingly, the Mountain City case with greater visibility experienced very quick development as a teaching and service site for nursing. However, we are now merging the two services with equal representation and equal empowerment of the two services.

In Mountain City, a seemingly residential structure of approximately 1,500 square feet serves as a teaching and academic building. It was built by the county in support of

the rural health care initiative, and the county continues to support the efforts of the university because in return tremendous services are being offered to the citizens of a county that was almost totally depleted of health care providers. Now there are three family practice physicians and three nurse practitioners under the same roof in Johnson County.

In Hawkins County, our second site under the initiative, the citizens and the hospital agreed to renovate for the university areas in the hospital that could then be used for teaching and service sites. This has functioned very well, and, even as I speak, the county is adding additional space for teaching and service as needed.

It is interesting for me to note that now College of Medicine faculty (primarily family practice physicians), College of Nursing faculty (particularly family nurse practitioners), and College of Public and Allied Health faculty members (particularly in the areas of environmental health, communicative disorders, and public health) are all working side by side in interdisciplinary teaching, service and research activities in these rural communities.

The communities conduct their own student orientation course at the beginning of each new academic year. The one-credit course extends over the period of one week, and the students love it. They learn to work together as a team from the outset. The two communities have been integral participants and take great pride in their involvement with the rural primary care track students.

Here are some of the outcomes of the community partnerships five-year project (which is now actually entering its seventh year): (1) 94 percent of the Kellogg track medical school graduates choose primary care residencies, compared to 55 percent in the non-Kellogg or traditional track; (2) 65 percent of the Kellogg track medical students choose to stay in Tennessee for training as residents, compared to 40 percent in the non-Kellogg track; and (3) half of nursing graduates have taken positions in non-hospital settings including school health, home health offices, and nursing homes.

Interestingly, deaths due to all causes in northeast Tennessee peaked in 1989 in both Hawkins County and Johnson County, the counties in which we have service and teaching sites. The peak was due to an almost total loss of physicians and other practitioners. The mortality rate due to all causes has dropped precipitously from 1991 through the current year; we believe this is due to a much more adequate practitioner staffing pattern, as well as a heavy student involvement.

We recently entered into a second W.K. Kellogg Foundation initiative aimed at graduate medical and graduate nursing education. At East Tennessee State University, we feel this is a natural progression since our first initiative was directed principally at the undergraduate level, whereas the second initiative will bring together family practice residents, masters level family nurse practitioner trainees, and graduate level students from the College of Public and Allied Health, particularly in environmental health,

communicative disorders, and public health. In the second initiative, we have added graduate seminar experiences as well as multidisciplinary clinical practice and community-based projects.

TennCare, a successor to the Tennessee Medicaid program, has recently brought an interesting additional benefit to our interdisciplinary training experiences. Under TennCare, Medicaid dollars, originally intended to support graduate medical education, were completely placed back into the general system and lost from the financial support base of hospitals and medical schools to support family medicine residents in training. Under the leadership of Governor Don Sundquist and Commissioner of Finance Robert Corker, last year the dollars lost were placed back into the medical education system. In an interdisciplinary project, the dollars are now "attached to the back of the resident" and go with that resident during his or her rural or underserved community experience; they become additional dollars to be used to support equipment and facility needs for training. Obviously if nurse practitioner trainees and public health trainees are in a similar facility, these dollars can help to support their training as well. To us, it has been a great and unexpected advantage.

My final topic is partnering. Whether with hospitals, MCOs, HMOs, PHOs, 330 sites, VA clinics, or health departments, it is now the mindset of the Division of Health Sciences for Medicine, Nursing, and Public and Allied Health to work together in any new venture or any new program possible. No longer will the Dean of Medicine go forward alone, or the Dean of Nursing alone, or the Dean of Public and Allied Health alone, but all will go forward as a collective unit wherever possible to develop initiatives that will allow the three distinct colleges and practitioner training areas to work with communities as partners.

At East Tennessee State University, having moved toward interdisciplinary education, we very much believe in it and intend to remain in this arena. We have spent seven years on this activity, and are committed to these communities for the long term. We will not let the communities down.

Building an Interdisciplinary Program from the Ground Up

Alan McKay

Two years ago, I received a phone call offering me a rather unique opportunity. The offer was to be a dean of a school of pharmacy at Shenandoah University in Winchester, Virginia. But it came with a catch: I had to start my own school of pharmacy, and I had one year in which to do so.

Now, think about your respective organizations. Imagine if your president turned to you and said, I want you to start an academic unit from scratch, to design and build the building, to fill it with faculty, furniture, notepads, sound systems, laboratories, and then to recruit your first class of students and enroll them, and do all of this in a year. It was a daunting enough assignment, made even more so because the year in which the school was built included a winter unlike any that Winchester has ever seen. The town had collectively 96 inches of snow that winter. Nonetheless, we finished the building and obtained the occupancy permit three days before the first class was offered.

This experience reminded me of an old Braniff Airline commercial with a voiceover of a salesman who obviously travels a lot, who was talking to his home office. He said, "Toledo on Monday? I can do that. Des Moines on Wednesday? I can do that. Chicago on Thursday. How can I do that?" All of a sudden, after the initial glow of the offer had worn off, it began to dawn on me what it meant to start something totally from scratch, with no preconceived notions, with experience that may or may not be applicable to what you are doing, and to have to do so in a time constrained manner, without much time to reflect on either your actions or their consequences.

I will share some of that experience with you, walk you through some of the decisions that we made and some of the major players who were involved in this process, the faculty, the curriculum, and the students, and then project a little bit into the future to give you an idea of where I think we are going with our educational program and how it relates to interdisciplinary education. Keep in mind that we are only one year into this process, having completed our first year of education with 70 students.

The first area that I would like to discuss is administrative support. Obviously, a job as complicated as this could not be accomplished without substantial support from both the community and the university's administration. Shenandoah University was founded in 1875 as a conservatory of music, and its conservatory is still quite well-known on the East Coast. Sixteen years ago, the university president decided that Shenandoah University's growth would not be in the traditional areas of arts and sciences, of conservatory. Instead, he wanted to move in a new direction that could more effectively expand the scope of services that Shenandoah University could offer.

He inherited a nursing program that had existed since prior to the Civil War. During his tenure, he has added occupational therapy, physical therapy, respiratory therapy, and pharmacy programs. We opened a nurse midwifery program when we opened the pharmacy school, and we plan to introduce a nurse practitioner program in the fall. The school of pharmacy facility also serves as a base of operations for the school of nursing and the program of respiratory care. In addition, Shenandoah University has a rehabilitative hospital, where the physical therapy and the other health professions programs are housed.

The other major player in this scenario, Valley Health Systems, is the parent organization that holds the tertiary care hospital with which we are associated, as well as two community hospitals, a rehabilitative hospital, two urgent care centers, an ambulatory surgery center, two family practice centers now being created, an ambulatory care center that will be expanded beginning in October, and a home health care agency. Valley Health Systems is very well positioned in the Shenandoah Valley to provide integrated care. In fact, there is no managed care in our end of the Shenandoah Valley. Because Winchester is only 55 minutes west of Dulles Airport in the Blue Ridge Mountains, it is somewhat surprising that it remains a community insulated from managed care despite its proximity to a metropolitan center like the Washington-Baltimore megalopolis.

Valley Health Systems has been very successful and very profitable. It built our building in one year at no cost to us out of its surplus revenues. It earned \$15 million last year, in excess of expenses. It is also very aggressive. Part of the reason that managed care has not penetrated that end of the Shenandoah Valley is that Valley Health Systems has been very responsive to the needs of Winchester and the surrounding area, which includes 400,000 people. Winchester is a community of only 20,000 people; 30 percent of the patients at Winchester Medical Center come from West Virginia. Valley Health Systems has carved out a very well-established region, and does a good job of managing the care of patients in those areas.

The facility is state of the art. When I arrived on July 5, 1995, I was handed three sheets of blueprints. Two months later, construction began, and the blueprints had swelled to nine revisions and 60 sheets. There were no change orders, and the building was completed on time. It essentially encompassed everything that nursing, respiratory care and pharmacy wanted and needed to do our jobs. The financing came from Valley Health Systems. We have a 28-year lease. I assume that at the end of 28 years, the investment will have been returned handsomely.

The school lies on the Civil War site of the Second Battle of Winchester. It is integrated into the Winchester Medical Center. We are about a half mile from the emergency room door, situated on a hill overlooking the medical center. The main entrance is on the lee side of the building because 365 days of the year the wind blows up there very strongly. Some trees still have not been propped up straight. We have a view

of three mountain ranges from the library window. There are plans to develop 100 acres around the pharmacy school and the health professions building.

Pharmacy, nursing and respiratory care share classrooms in our state of the art facility. More importantly, we interact on a regular basis, we have lunch together. It is an ideal situation from the standpoint of sharing ideas informally in a relaxed atmosphere.

The faculty are an instrumental part of the whole process. Right now we have seven faculty and seven staff, with plans to expand to 31 faculty members. One-third of our faculty are in the basic sciences, two-thirds are practice-oriented, unlike most of the schools with which I have been associated, where the split was 50-50 or slightly in favor of the basic science faculty.

Our organizational framework is not very complicated: it consists of two departments. We plan eventually to have 11 faculty in one department and 21 in the other. It is easy to get goals accomplished, because we do not have a lot of committees. Many actions occur by consensus, which seems a much more functional way to act. If you hand pick the faculty, they tend to be of a like mind about many of the major issues with which you have to deal. We can easily reach consensus over lunch or on trips to the coffee machine.

We have a non-tenure based system. Shortly after I arrived in Winchester, the health professions schools unilaterally abolished tenure. The main campus still has a tenure system, but the health professions schools believed that it inhibited performance of our duties. Thus, with the president's blessing, we abolished it. Faculty up through the fifth year have one-year, renewable contracts. After the fifth year, they may receive three-year renewable contracts that roll over every year, based upon performance evaluation and progress.

We are very technologically oriented. Beginning next fall, both the first and second classes will be required to come to school with laptop computers. The building is wired for it. We have remote access. The students have support within the building. In fact, two faculty support computer use on a full-time basis. We have our own Web page, which is incorporated into the curriculum extensively. We have also been working closely with nursing and respiratory care, and I just completed a workshop last week to assist the nurse practitioners in bringing their students and faculty up to speed on the technology.

It is fascinating to design a curriculum from the ground up, particularly since I have sat on innumerable curriculum committees. The best analogy I ever heard about a curriculum committee's work compared it to turning the Queen Mary around with a rowboat oar: eventually it will happen, but you will not be around to see it. This has perhaps been my biggest frustration in health professions schools. The environment around us is changing so much more rapidly than we can adapt, and the difficulty is due

in part to the intransigence of many faculty who do not want to change their course content.

Our curriculum was designed from the ground up as an integrated program. It is computer-based and problem-oriented. It uses extensive multimedia. The students in the first class have already done 12 presentations using power point. They must design their own slides, must incorporate the clip art, and must develop the presentations. In fact, every class requires a power point presentation. I received two animated cartoon Christmas cards from this class, so they are really innovative in their use of technology.

We use simulated patient encounters. Objective, structured clinical exams or standardized patient assessments are an integral part of this curriculum. The students have to pass an annual progressions exam to move to the next year, a significant component of which consists of standardized patient assessments that are staffed by the students in the other health professions. The physical therapy students and the nursing students served as patients in the standardized patient assessment center, and they were very complimentary of first year students' performance under the time constraints.

Our students are an interesting lot. They come from 13 states, as far away as California and Florida. Sixty percent are Virginia residents, mostly from the Shenandoah Valley, but from as far south as Big Stone Gap. Fifty percent have bachelor's degrees. The admissions process is designed to select those students who can think critically on their feet. There is a required 30-minute personal interview, in which prospective students are presented with hypothetical situations that they must analyze and about which they must make some determination. They are also given a written, proctored, critical thinking examination that lasts 30 minutes. That examination is scored and becomes part of the admissions process, as well as the more traditional measures of success, such as transcripts, the PCAT references and an essay.

The structure of the new program consists of more than simply using technology for the sake of using technology. Obviously, technology must be used aggressively. It must be placed in the context of the course and used to enhance the efficiency of the educational process. The faculty must be comfortable with the technology, and its use must occur with a degree of sophistication that warrants the student's time in learning how to use it. This is not a marginal commitment. We are now getting requests from the other health professions schools for assistance in bringing their students up to speed, and are cooperating to the extent that seven faculty can do so. We also anticipate that technology will be the mechanism by which the health professions ultimately share critical patient care information to the advantage of the patients they serve.

We are involved in developing clinical problem solving skills. It always struck me as an interesting paradox that we expect students to develop these skills in their last clinical year. They put on their coats, they walk out into the practice settings, and they perform like experienced clinicians. We are trying to move the process to an earlier point, through service learning projects, in which students interact with other health

professionals, and through problem solving classroom exercises. Students are encouraged to hone those skills from day one, actually during the admissions process prior to day one.

Team development has stopped us in our tracks. We divided the students into 12 practice teams, which were assigned to classroom, service learning projects. They developed their first series of slides together. Of the first 12 groups, three sent delegations in to me to complain bitterly about the teams. They complained that they could not get along with certain other persons. I admonished them that this is what life is all about. I said, "If you can develop coping skills and if you can manage your interpersonal conflicts now in a structured setting, think how much more effective you will be in the practice environment." We are now in the process of evaluating the teams. We would like to incorporate the other health professions into those teams, because the group dynamics are an important aspect. Communication skills are also important for good teamwork. We develop communication skills both informally and formally in presentations.

One particularly telling experience occurred during a weekly debriefing as part of the service learning project. One student raised his hand and said, "I do not like this." I asked, "What do you not like?" He said, "I did not come to pharmacy school to deal with poor people." I asked where he was doing his rotation. He said, "I am down at the free clinic." I replied, "Let me give you some context. Imagine a patient on a Thursday afternoon who goes down to that free clinic and stands on the busiest street in Winchester to receive free care. How much more humbling an experience can you imagine than standing on that street corner for two hours before that clinic opens? The occupant of every single car that passes that corner knows why you are standing there." I did not hear a complaint from the student after that. But it sometimes takes that kind of experience, dealing with real-world problems, for our pharmacy students to begin to develop the empathy and the altruism that we would like to see all of them possess by graduation.

We emphasize primary care, and have joined forces with the medical center to start a new family practice residency program. We have already recruited two faculty who will work in primary care settings to develop that program with the medical center over the course of the next year. We also have an emphasis on entrepreneurship, and are collaborating with the nursing and PT programs to develop patient care clinics in remote areas around Winchester. We seek other opportunities for collaborative ventures like this, opportunities that would probably have been unthinkable years ago when pharmacy schools were relegated to the ivory tower.

The picture is changing rather rapidly out there. The sands are shifting fairly quickly under our feet. Back in 1993, Richard Scott, the then-newly named CEO of Columbia/HCA, said, "This is a great time to be in the health care business; it is complete chaos. That is when you do well." We are all learning how to benefit from each other's experience in a tumultuous health care environment and trying to return to our respective settings and apply those lessons in order to do well. To an extent, that is what we are

doing at Shenandoah University, but this is not necessarily an easy process. As a new school, we took resources away from existing schools. There is a natural tendency for others to resist that kind of intrusion, particularly during times of tight resources. We are trying to maintain educational relevancy in the midst of a confusing world. What is relevant depends on whom you ask. However, to the extent possible, we start with what is happening in the health care environment and work backwards into the curriculum.

We also run into problems based on orientation to individual disciplines. All too often, people think about what is best for their discipline, before they think about what is best for the student, for the university or for the patient. I do not know of an easy way to surmount this problem, other than to continue the dialogue.

There is still a perception of safety in the ivory tower. I receive a call at least once a week from someone in the pharmaceutical industry or someone who works at a hospital, who seeks the safety of the ivory tower. I have to inform them that it is not what they think it is any more.

At Shenandoah University, we do not have to deal with promotion and tenure. In my past experience, I saw this cause atypical behavior, both pre-tenure and post-tenure. Those who were pre-tenure acted like prostitutes; they would take any dollar and any opportunity to publish that came along. Post-tenure, no one cared. In either case, I saw aberrant behavior that compromised my ability as a dean to move a group of people effectively forward as a team.

We also have a history of professional isolation. When I was in pharmacy school at the University of Maryland, every discipline was on a different floor. Unless we had a scheduled social event, we did not see these other people. Physical isolation breeds communication problems, distrust and inability to empathize with each other's problems. At Shenandoah, we have a flat building. We can walk down to the cafeteria, sit and drink coffee together. This enhances the ability of the group to solve its problems.

Where will Shenandoah University go from here? We are trying to develop a multidisciplinary orientation, and have met some success. We have seized opportunities for collaboration when and where they have existed, and as we expand the number of students and faculty, we anticipate enhanced opportunities for collaboration. We have established in the pharmacy school building a research lab, which we plan to share jointly with the nursing staff to conduct clinical drug trials. Finally, we have an entrepreneurial spirit. We would like to see all health professions realize opportunities for growth and development, whether in an academic or professional mode or in terms of interdisciplinary cooperation.

An Individual Perspective

What Changed My Mind About Education in Teams

R. Layton McCurdy

My charge is to discuss what changed my mind about interdisciplinary education. In preparation, I called my friend and colleague, Jan Bellack, and asked her about the Congress. She indicated that its core issue is reform. I thought about that briefly, and looked up *reform* in the Oxford English Dictionary. I did not like what I found: "the removal of faults or errors, especially of a moral or political or social kind." Then I remembered what Mark Twain said about reform, which was more attractive: "Nothing needs reform as much as the other person's bad habits."

I will describe briefly our university's history, and will discuss South Carolina as a laboratory to support collaborative, interdisciplinary education and practice. I will share my personal journey regarding interdisciplinary practice, and comment on current interdisciplinary efforts at our university and in our state. Finally, I will comment briefly on challenges, obstacles and barriers.

The Medical University of South Carolina has the oldest medical school in the south. Founded in Charleston in 1824 as a school of medicine with a faculty of six, we have been in continuous operation with just one interruption in the 1860s for three or four years for what my grandmother used to call the "recent unpleasantness." Our pharmacy school started as a second college in the 1880s. When Flexner looked at our freestanding school, which was still supported by the medical committee, he found that we did not have enough money or the right facilities, that the instruction was inferior, and he recommended that the school be closed. However, a very noble gentleman, who then served as dean of the school, decided that the school could survive if it were taken over by the state, and he started that process. The local citizens raised \$75,000, a vast sum in those days, and in 1913 built one building, which became the anchor of our freestanding academic health center.

We currently have six colleges: medicine, nursing, dentistry, pharmacy, allied health sciences, and a graduate school of biomedical sciences. We have a university hospital with 600 beds, a VA hospital a block away, and we manage the county hospital, which is also a block away; these account for approximately 400,000 patient visits. Our total budget is approximately \$800 million. We are the biggest employer in the city and in the region.

South Carolina is an interesting state. It has four million residents, half of whom live in urban areas and half of whom live in rural areas. It is a geopolitical unit unlike any other state that I have lived in, but there is much unity in the field of health care. There is a statewide AHEC. There is a family medicine residency network with seven programs. There are some 15 or so nursing programs in the state, as well as residencies in some other teaching hospitals. The University of South Carolina, our sister school, has

schools of medicine, nursing, pharmacy, and social work. So we have some programs in each place, which facilitates interdisciplinary education statewide.

I have not had a road to Damascus experience about interdisciplinary education. Rather, my conversion has come in small increments over time, and started early in my professional career. Growing up in psychiatric training programs, one learns quickly that he or she is working with several different disciplines. While there is always disciplinary chauvinism, there is also a great deal of respect for other disciplines. A series of learning experiences revealed to me the power, the force and the value of interdisciplinary practice and, in turn, interdisciplinary education.

My first job after my residency training program was at the National Institutes of Health. I worked part-time in the evenings, dealing with medications in a mental health center, where I was introduced to what I have come to call the "therapeutic triangle." This triangle consisted of a non-physician psychotherapist, the patient, and me. The three of us worked together very effectively.

My next position was in Atlanta at Emory University. Emory permitted its junior faculty to take a half-day of outside work, consulting or in field settings. I landed a job in the Clayton County Mental Health Center. Now a bedroom community for a very big city, Clayton County 30 years ago was a rural county south of Atlanta, beyond the airport. Our four- or five-office mental health clinic was housed in the back of the one-story brick building that also housed the health department. I went down on Thursdays, about 1 o'clock in the afternoon, and stayed until about nine. My assignment was to do the aftercare for former state hospital patients, who needed their medications and progress monitored. In the late afternoon, I often had tea or coffee with the seven public health nurses, who had nothing to do with our mental health clinic, but who covered Clayton County. They would tell me who was not doing well, who had been discharged, and I would ask how they knew. They would reply, "Well, Sally Jones has had no wash on the line for the last two weeks."

One aspect of this program was clearly not going well. If patients could afford their medicine, they could stay in Clayton County and simply get a prescription filled. If they could not, patients could get medications for free, but this entailed getting in the car, going back to the hospital (about 250 miles away), and waiting for a physician. The public health nurses and I negotiated a system with the people at the state hospital, who agreed to send medications to one of two pharmacies in Jonesboro. In turn, the pharmacists agreed to dispense them at low or no cost.

The nurses and I made a deal whereby they would see patients for aftercare and I would serve as a consultant. Some nurses enthusiastically approached taking on psychiatric patients, but one or two had to be convinced to participate. I would see any patient on Thursday afternoons; the nurses could see a patient with me if they wished. Further, the nurses could call me at any hour of the day or night, at home or at work. For the first 60 days of that program, I received calls about every hour and a half, day and

night. My wife wondered what was going on. Then the calls began to dwindle, and by the time six months had passed, we had a very effective, efficient patient care system. The nurses and I determined where our skills and competencies overlapped, and where each of us had special competencies. We worked it out because we had a task: to provide better aftercare for these psychiatric patients. That task approach, I believe, was the key. There are two ways to approach a situation: around a theory and around a task.

The rate of readmission to the state hospital was dramatically reduced; fewer than half the patients returned. We had no way to measure the quality of life accurately, but we saw obvious benefits. The mental health clinic director, an enterprising gentleman, recognized the potential of our highly effective approach to collaborative patient care. The clinic won the American Psychiatric Association's prize that year for the best community program. This was 30 years ago, but it has been one of the most important accomplishments of my life.

The next experience that made me change my mind occurred many years later, in fact not long ago, in Philadelphia. I was part of a psychiatric program of the University of Pennsylvania and Pennsylvania Hospital, with subcapitated responsibility for the mental health care of approximately 270,000 HMO patients. That meant that our providers saw patients upon psychiatric referral from the primary care doctors. Some primary care doctors sent us many patients, including some whom we probably did not need to see. Other primary care physicians did not send as many patients as we expected. We wondered if there were an efficient way to manage this, because we were over-utilizing resources. After wrestling with this a little, we decided to station nurse clinicians in those high-utilizing primary care offices. These nurses would, in essence, perform triage. We discovered that we reduced utilization, without detriment to the quality of patient care. The psychiatric nurse could do a great deal to assist the primary care physicians, many of whom enjoyed maintaining contact with their patients. We received a small grant to study this issue, and wrote up the outcomes, including what we had learned about measuring the quality of life.

Finally, as part of this journey, as the dean of medicine at MUSC for the last seven years, I have learned quite a bit, especially from my colleagues. One, Jan Bellack, is part of a group that has instituted a program with a grant from the Pew Charitable Trusts. The project includes learning about quality improvement in an interdisciplinary fashion. They have held several conferences, and produced some papers. I have been watching with great interest and enthusiasm. To date, their work has been largely theoretical, but they are now beginning applied research. Three or four other schools around the country are also engaged in this study of quality improvement.

I realize that our school is not as far along in interdisciplinary terms as some, but we are learning, we are assessing the value and importance. We are committed to learning what we need to know, and to acting promptly where we see that interdisciplinary education addresses and adds value to our system.

As a freestanding academic health science center, we have some disadvantages. We do not have departments of sociology, anthropology or English. We do not have the broad representation of a general university. On the other hand, the fact that we are all health science schools is also a major advantage. A gathering of the deans in our institution encompasses health sciences people. With the exception of the graduate school, we are all educating health science professionals.

In 1991-92, we embarked on a strategic planning effort to get our hands around our future. At that time, our five professional schools were very college-bound. Deans had been in their positions for many years, and everybody was cordial, but we were very circumscribed as colleges. Each college produced a strategic plan and then we patched them together like a ransom note as our collective strategic plan. We began to evolve toward the goals identified in our plan and to enjoy some success.

We reevaluated the strategic plan in 1995-96, but this time the effort began on a university-wide basis, and was technically sophisticated and expensive. We hired planners. I have become a great fan of strategic planning and planners, because it seems that whatever we plan to do, happens.

How could we change during just three or four years to a university orientation? During that time, we recruited all new deans, except for me. I am convinced that institutions that have a very difficult time getting beyond the boundaries of the individual schools are not enjoying success or, at the very least, perceive themselves as such. We brought in a really terrific new, young provost, who had been the dean of Emory's public health school. With fresh, invigorated leadership, we decided to look more seriously at planning and to think about the institution's future. Our research funding tripled. We became very competitive for top students. After reengineering, our hospital went from a three to four million dollar bottom line to a \$25 to 30 million bottom line. We developed a network of primary care doctors in our community. It should be noted that ours is a very state-oriented institution. We do not envision ourselves as a national resource. Rather, we exist to improve the health of South Carolinians.

As an outcome of the strategic plan, and of both individual college as well as inter-college efforts, we began to define the clinical competencies that we wanted our students to have, and to pair those up and match them. The clinical competencies roster for the college of medicine is not the same as that for the college of pharmacy, but there are some similarities. The planning committees focused on the commonalities. One commonality that emerged quickly, at least in theoretical terms, was the capacity to work collaboratively and effectively with other health care providers. Another was to draw on outcomes, touching on issues of effectiveness and efficiency. That is probably in all strategic plans. When we came to a clinical task, we would ask, "Who *can* do this task?" instead of asking, "Who *should* do this task?" We bought into the notion of asking, "Who can?" It may be more than one discipline. In fact, more often than not, it is.

Over the last two and a half years, we have undertaken several initiatives to support this heightened emphasis on effectiveness and efficiency. We committed five million dollars to create a center to study outcomes, which will address some of the questions raised at this Congress. We brought into our VA hospital a fabulous man from UCLA, who started an instantly successful program of primary care teams for veterans in the ambulatory setting. He was so successful at the VA that after a year, we asked him to offer the same program at the university teaching clinics. The planning for that will likely be completed within the next six months.

We set aside \$11 million this year to fund a project known as Healthy South Carolina. The project's criteria or success factors included working with faculty in other colleges, addressing health promotion, and addressing avoidance of health care treatment. The leverage of money generated some 20 applications, three-fourths of which involve faculty from different colleges. With half of the designated money, we funded six of those projects. After peer review, we gave critiques, and we are going to receive applications again.

We in the college of medicine created a volunteer program, which has since expanded to all of our colleges, in which students interact through extensive volunteer services. Ninety percent of our medical students participate in this program, with similarly high participation rates in other schools across the university. The projects range from teaching health care principles to schoolchildren to painting houses for poor people out on the islands. It encompasses a broad range of volunteer services. The students run the program, and the university pays one person to coordinate available opportunities, maintain a roster of activities and keep track of who is doing what. This program brings the students together around a task, and has been extremely successful.

We have been working collaboratively with the other medical school in the state for two years to plan the number of residency slots statewide, and have made much progress to this end. We now have a format whereby no one can change numbers in any teaching program statewide without group consensus. The state invests a small sum of money in all residencies statewide.

We then began to look at other opportunities for medical students, and agreed that rural education is crucial both for our institution and for our state's health care professionals. The other medical school, which is in Columbia, has a rural site or two with education for various disciplines, as do we. Thus, we made a commitment to establish enough rural sites that every student in both schools will have an opportunity for rural training. What can be learned there? Clearly, students will learn about medicine and about patient care. However, they will also learn about diversity of culture and lifestyle, about attitudes, about teamwork. We will start out having every student spend a month at a rural site. We think it will take 12 or 15 sites.

The criteria for rural sites are five. First, the site must be rural, which sometimes is difficult to define. We use a funny little checklist that includes characteristics such as

finding clothes on a clothesline and being able to get through to the mayor when you call the mayor's office. Second, it must involve primary care. Third, it must be an interdisciplinary experience, which can be problematic in many rural sites, where perhaps just one or two doctors are practicing. We will have to bring other faculty into these sites. Fourth, it must have state-of-the-art information technology, since we will link these sites to the home base. Finally, there must be an active data collection site for health services research. We are now cobbling together a set of sites, and will later expand this endeavor.

Let me close with a few words about challenges and obstacles to implementation of interdisciplinary education. The history of the health professions in our country demonstrates why we still have major challenges and obstacles to accomplishing this goal. If you look at health professions here and in other Western nations, particularly European nations, we are really different in this country, especially in medicine. I can assure you, from having had the good fortune to live and work for several years in Great Britain, that British physicians and nurses do not enjoy the same prestigious status as their counterparts in this country. Some people believe this is because we were originally a frontier nation, in which anyone with an education was held in high esteem.

Two books, both published in the 1980s, give an excellent sense of both how our professions developed into independent units and the characteristics of those independent units. One, Rosemary Stephens' *In Sickness and in Wealth*, concerns hospitals in this country in this century and is a lovely, histo-sociologic survey of hospitals and the people who work therein. The other, Paul Starr's well-known *The Social Transformation of American Medicine*, is also a definitive source. These publications show how, in the last century and a half, all of the health care professions in this country have shifted from trades to professions. In this, we may be unique in the Western world.

Health care is changing rapidly, but the movement toward professionalism has not been equal. Each profession has moved in the direction of professionalism at a different pace, which is an obstacle. Doctors and nurses may be the model for comparison of two disciplines, since there have been long-term, traditional barriers between physicians and nurses. There have been enormous changes in nursing and medical education since the 1950s and 1960s. I remember vividly a conference I attended at Columbia University on nursing education in the mid-1960s, at which much debate occurred about the transformation from diploma schools to degree schools, and maybe master's programs. Traditionally, nursing initiatives around patient care were couched in terms that maintained the then-existing hierarchy in which all decisions were made by doctors. One issue has to do with jurisdiction, occupational kinship, who owns the territory, who is the default owner if ownership is not articulated. Medicine has long been the designated owner by default, but that old barrier is changing.

Further, there are sex role stereotypes. Traditionally, nurses were women and doctors were men. Now that is changing, perhaps faster in medicine than in nursing. My

graduating class from medical school had one woman. The class my school graduated this year included 51 percent women. That represents enormous change in 35 years.

There are social class stereotypes. There was at one time a social class diversity between people who went into nursing and those who went into medicine.

Perhaps the most powerful barrier has been the asymmetry of power. By that, I include money. That has not changed as quickly, interestingly enough, as these other barriers have, but that it is changing. One can see extremes today. At one end of the spectrum, you have physician arrogance, which still exists. At the other end, equally corrosive, lies the quiet, implicit hostility among nurses and in nursing schools toward physicians. Both positions exist, and these issues have not been resolved.

Finally, there is an education barrier to interdisciplinary education, but we may respond to this problem. The seeds of collaboration and interdisciplinary work and effective patient care are best planted in the early days of education. I think the greater chance of people being imbued with that spirit comes when those seeds are planted early on. How can we teach students? One handy, yet simplistic, model often used is that of overlapping circles, the pretzel approach, indicating which discipline can teach a certain subject. A second important question is, what evidence exists of the value of interdisciplinary education, what is the outcome?

In the end, although there are many very effective managers of people and resources, leadership will make the difference. Managers by definition stay within boundaries; leaders are willing to go beyond boundaries, to push the edge somewhat. In examining and supporting interdisciplinary education, such leaders will be required.

A Perspective from the Federal Government

Interdisciplinary Programs of the Health Resources and Services Administration

Claude Earl Fox

I have been at the Health Resources and Services Administration (HRSA) for just three months. While I am not expert in the area of interdisciplinary education and training, over the last few months I have enjoyed learning a great deal more, and certainly am concerned about and very supportive of such activity.

The President's proposed budget for 1998 recommended almost a 60 percent reduction in the training area within the Bureau of Health Professions, mostly within primary care and nursing. This in part is because of a sense that the market will take care of the supply problem. However, interdisciplinary training is one area that was not recommended for reduction in the President's budget, which serves as an indication that the Administration supports such training. For the last several years, HRSA has been more involved in trying to direct its monies toward areas that the market is less likely to deal with, areas such as diversity, meeting the needs of underserved populations, and interdisciplinary training. We are trying to anticipate exactly what will happen, and whether Congress will accept the proposed budget.

Most of you are probably aware of the breadth of programs within HRSA. However, many people do not realize that the agency's budget is one-third larger than that of the Centers for Disease Control and Prevention. In terms of funding, we are the second largest U.S. Public Health Service agency, behind only the National Institutes of Health. Our funding is currently at \$3.4 billion.

We provide many opportunities for training, including interdisciplinary training. For example, HRSA expends about \$800 million to approximately 2,200 community health centers through our Bureau of Primary Health Care. The maternal and child health block grant, which totals approximately \$670 million, includes \$100 million for training and other demonstration projects. Under Titles I through IV of the Ryan White Act, we house all of the nation's discretionary funding for AIDS care, encompassing projects with cities, states, community health centers, and pediatric AIDS centers.

Perhaps one of the best indications of the value of HRSA experience comes not from formal information concerning our training programs, but straight from a student's mouth. Matthew Borrego, a doctoral candidate at the University of Arizona College of Pharmacy, thought he would give back more than he received through a HRSA interdisciplinary training grant. He was sent to an isolated, predominantly Hispanic community in the little town of Nogales, Arizona, on the U.S.-Mexico border. Going in, he thought that he knew most of what there was to know about working as part of a team to address disease prevention and health promotion issues.

Let me read for you what Borrego, to his own surprise, learned from the experience. He stated, "I didn't expect to receive an education so enlightening, to so transform my outlook as a student, a teacher, a health care professional, and even as a human being. But that is exactly what I got. I can't quantify the experience, or precisely what I learned as a member of a health care team, working wonders with limited resources. I can't assess how much I learned from working with patients reluctant to take prenatal vitamins, because they believe them to cause excessive weight gain, or for patients whose tuberculosis medications were stripped of labels because they were ashamed for their families to see the bottles.

"But I can quantify my interdisciplinary training experience. It has been an extraordinarily profound, life-changing, real experience, a real education that every health care provider should receive." I am not sure that we need much more rationale than that to go forward and spread the gospel about the value of HRSA's interdisciplinary and community-based programs.

HRSA is committed to educating future health professionals across disciplines, in classrooms, in clinics, and in underserved communities. This is increasingly becoming a focus within the agency generally and within the Bureau of Health Professions in particular. We try to provide interdisciplinary training in preparation for coordinated care, to prepare our students for real practice, and to address the needs of a changing workforce. HRSA's community health centers have become a viable site for interdisciplinary training. Similarly, our AIDS education and training centers and geriatric education centers are now training professionals across disciplines.

When I came to HRSA, I asked what made our training programs different, what we were doing that was not being done elsewhere or that would not be part of the marketplace. I asked this because I wanted to be able to explain to Congress and to others outside the agency how our activities were both valuable and unique. Our work to develop interdisciplinary teams falls squarely within this category.

In a larger sense, we have tried to think through the purpose and meaning of HRSA. The agency was created a number of years ago through the combination of two agencies, and consists of a series of conglomerate programs that some claim do not fit together very well. However, HRSA at its essence is about access to health services. Whether we are talking about putting a health center in Los Angeles, about helping states pay for protease inhibitors through our ADAP drug program with our AIDS grantees, or about setting up a Healthy Start infant mortality reduction project in Baltimore, HRSA is about access. We are working to ensure that our nation's health workforce is equal to the challenge of meeting the health care needs of all Americans.

I come from a rural community in Mississippi, a community that still does not have physical therapists, occupational therapists or social workers, does not in many instances even have the requisite physicians and nurses, much less have these health

professionals work in an interdisciplinary manner. The problem of lack of access is perhaps exacerbated in inner cities and in rural areas, but exists throughout this country.

HRSA's interdisciplinary grants working with Area Health Education Centers (AHECs) address part of the access problem. These grants train physicians, nurses, pharmacists, dentists, and allied and public health specialists to work side by side. When I was going through my M.P.H. program at the University of North Carolina at Chapel Hill, I had an opportunity, through an AHEC, to work in a rural community that had no providers. When I reflect back on that experience now, I can see again what an abundance of opportunities HRSA facilitates for health professionals and patients alike.

As the health care world has shifted on its axis, it has left us all feeling somewhat unbalanced. Just as soon as we understood DRGs, we had to learn about managed care and capitation. We are constantly moving on to other things, yet we always need to learn how we can provide services in a better and a different fashion. Old World ways do not seem to work well in our new world order. We cannot continue to train soloists. Even for group practices that are made up of group physicians, the song is calling for a different chorus. Interdisciplinary training is the way to build health care teams, where professionals from all disciplines can work in harmony. That is what the health force is evolving to and needs.

One question I was asked to address is whether health care practice drives interdisciplinary training, or if the training is driving the practice, a chicken-or-egg question. I am not sure we have an answer for that, but it probably is a little bit of each. However, as a person on the first cusp of the baby boom generation, I note that, while most of us thought that Communism would fall for any of several reasons, few of us would have predicted it would fall for economic reasons. Similarly, as someone interested in the prevention and cure of disease, I am interested to see the evolution of the health care market. Many of the concepts now being discussed in public forums and in boardrooms are being driven by the economics of the evolving managed care market.

Definitely, practice is driving training somewhat. However, I hope that training is also driving practice. That is one of the reasons for HRSA to be involved. In fact, there has been some question as to why, with all of the money going into graduate medical education, HRSA needs to provide dollars for interdisciplinary or any other training. The obvious response is that these are targeted dollars, dollars with which we can through training shape and mold practice. It is somewhat surprising to me that, in our current health care environment, where the solo practitioner and even the group provider is quickly becoming an anachronism, in a system where hospital stays for even the sickest patients are shorter and hospital staffs are becoming smaller, there is even a question about interdisciplinary training. I would think that it would be almost a fait accompli.

Leaders in the academic health center world are certainly in a position to help channel interdisciplinary education more into the mainstream, and to try to perpetuate this trend. No single school within an academic health center can implement an

interdisciplinary approach alone; it requires coordination and cooperation across a number of different entities. This puts the onus on academic health center leadership. From this Congress, I hope that you all gain some strategies that you can take back to your schools, to your deans, and work with preceptors. I hope that this meeting enables you better to spread the word that we must teach all of our health professionals from the very start how to think and act like team players.

That is the reality of health care today, whether you are talking about emergency room care, rehabilitation care, care in community health centers, or multidisciplinary group practices. Managed care accelerates this trend of teamwork and the need for interdisciplinary training, but interdisciplinary practice benefits patients as much as payors. Like the renaissance in primary care, our interest in interdisciplinary care is really a return to the roots of medicine. My great-grandmother in 1890 rode around with the physician, going from house to house, and we are almost returning to a time of trying to bring together medicine, pharmacy, dentistry, nursing and allied health after several decades of separation.

HRSA's target population, for the most part, is the medically underserved, those at risk for fragmented, episodic, uncoordinated care. A prime example of that would be children with special health care needs. Our maternal and child health block grant funds services for these children, such as those with spina bifida, who have orthopedic, neurosurgical, and developmental needs, who also need physical therapy and primary care. Often, no one individual coordinates that care. There may not even be a team in some areas. In his State of the Union address, the President announced a children's initiative, which is being developed within the Department of Health and Human Services (HHS) as we speak. That will include examining the concept of a health home for children, a concept that inherently dictates an interdisciplinary team approach to care.

Quality is also of concern to HRSA. We are trying to think through all of our programs with respect to quality issues. HRSA is closely tracking our 20 active interdisciplinary training programs in rural health. The lessons learned through these experiences are being disseminated through traditional publications and through electronic media. Similarly, our interdisciplinary efforts centered on geriatrics, community health, HIV/AIDS, and maternal and child health are all being culled for data. Given that we have so many demonstration projects within HRSA, we must do a good job of determining which aspects work well, of identifying the best practices models, and then disseminating that information.

The Wisconsin AHEC is providing intensive, interdisciplinary, clinical experiences for students in nursing, pharmacy, medicine, physical therapy and social work. The Western Maryland AHEC is partnering with the University of Maryland at Towson and Baltimore to develop an interdisciplinary curriculum that combines nursing, occupational therapy, physical therapy and social work. Faculty and training site representatives are linked by interactive video to overcome limitations of time and

distance, and working together to create a team curriculum that will serve as a model for others.

The University of Kentucky and St. Clare Medical Center have collected data on geriatric rural patients served through their interdisciplinary program. They will evaluate these outcomes against those of geriatric urban patients receiving multidisciplinary services outside an interdisciplinary program, which will be interesting.

The real work to integrate training programs across disciplines has to happen at the local level, inside individual academic health centers. As you all know, the issue of funding for academic health centers is under review right now. Within HHS, there is a group, of which I am a member, working on that issue, trying to develop a coherent, cogent position that will support academic health centers down the road, particularly as graduate medical education changes. Will change in graduate medical education occur in a thoughtful fashion, where we can use that money to encourage interdisciplinary and community-based training, where we can support the types of activities that are appropriate in the health care market? Or do we just let the change occur?

I will conclude with a story from Montgomery, Alabama several years ago, where 1,700 maternity patients were wholly without medical care. Everybody in the community was upset about it, but nobody had a plan. Finally, a group of people got together and formed a private, nonprofit foundation. They went outside the state to hire some obstetricians, then brought in some nurse midwives to work with the obstetricians, then brought in some social workers to work with the nurse midwives, and some public health nurses to do prenatal care. Then the health department, the hospitals, and the community health centers got together to form a project to provide care to these 1,700 low-income women. Not only did the system improve their care, but the infant mortality rates dropped as well. The number of prenatal visits went up. Women who prior to that time had only received drop-in delivery care in an emergency room were getting coordinated, comprehensive care. They were getting follow-up care in their homes, and even receiving attention for medical problems that had previously been largely ignored. That is just one example, but one that to me points out both the need for and the benefits of an interdisciplinary approach.

We do not have all of the answers at HRSA. We do not pretend to. Nonetheless, this is the type of education that we must continue to support. Whatever the Department does with respect to GME funding, if there is at some point a GME trust fund, we hope to see HRSA dollars therein focused on interdisciplinary care, and perhaps some dollars from other sources as well.

Educating Health Professionals in Teams: Functional Perspectives

A View from Geriatrics

Marie A. Bernard

I have been involved in the field of geriatric medicine for slightly more than a decade. I am an internal medicine physician who for six years as a faculty member felt that I knew geriatrics because I took care of older individuals. A mini-fellowship offered by the Geriatric Education Center of Pennsylvania made me realize that the care of older individuals entails much more than simply knowing how to establish diagnoses and how to prescribe medications. Thus, I am one of the Bureau of Health Professions' outcomes, in terms of training individuals for geriatric medicine.

Certification in geriatrics is offered jointly by the American Board of Internal Medicine and the American Board of Family Practice. The certifying examination was first offered in 1988, and recertification is required every ten years. I was among the first group to become board certified in geriatrics, and thus face recertification next year.

As a geriatrician, I see my role as working within interdisciplinary teams. Geriatricians do not typically have endoscopes or colonoscopes, and do not routinely perform catheter ablations. Rather, the tool that geriatricians work with is the team. I will discuss how this tool, assessment teams, has evolved as the focus in geriatric medicine. I will also elaborate upon information developed by a team of geriatrics and gerontology experts, which was presented in the White Paper on Interdisciplinary Geriatric Education at the National Forum on Geriatric Education.

The focus of the interdisciplinary geriatric team is to improve or maintain functional abilities for frail elderly individuals. Therefore, we want to assess physical and psychological functioning of individuals, and to assess and enhance their socioeconomic status in whatever fashion is feasible, given available resources. This work demands someone with special training and knowledge in medical assessment, but also necessitates individuals who are very well attuned to evaluating psychological and social circumstances. The average internal medicine or family medicine physician is not necessarily able to encompass all of these areas.

A standard comprehensive geriatric assessment entails evaluation in several spheres, only the first of which, the medical area, is typically best or easily accomplished by a physician. The assessment also encompasses (1) the cognitive status of the frail elderly individual, which oftentimes is assessed by psychologists or psychiatrists, but sometimes by a social worker or a nurse; (2) the mood of that individual, how well that person functions physically and socially, where a physical therapist or an occupational therapist will often be of much greater assistance than the internal medicine physician; (3) the patient's economic situation, social support and availability of a caregiver, also areas that physicians oftentimes are not adept at assessing, but social workers, nurses and other health professionals are very, very attuned to; (4) environmental hazards, which may lead

to risk for hip fractures and falls in older individuals; and (5) quality of life and well-being. All of those converge in a comprehensive geriatric assessment to assist in the care of that frail elderly individual.

Comprehensive geriatric assessment occurs with a multidisciplinary team that uses interdisciplinary skills. In the geriatric setting, we often see an evaluative team, perhaps including a physician, a nurse, a social worker, each of whom works within his or her own disciplinary perspective to come up with an assessment and a care plan and implement that care plan. The participants do not necessarily interact with the other health professionals who see the patient.

The capstone of state of the art geriatric care might go a step further, and have those health professionals interact to come up with a mutual plan to enhance the patient's function and well being. This would mean that the individual's caregiver would be part of the team, with acknowledgment and acceptance of the role and function of each team member. Sometimes the nurse will pick up an issue that might be considered to lie within the realm of the physician, or the social worker might pick up another that might be considered to lie within the realm of the dietician, but there no turf battle would arise over those issues. Rather, there would be respect and mutuality in the development of plans, and optimization of resources by that means.

The major goal in this type of team care is communication and mutual decision making. While little is necessarily easily accomplished in an academic setting, perhaps this is more easily accomplished in an academic health center than in a rural setting. In the latter, often the team members are not available at the same time to resolve these sorts of issues. Nonetheless, the strengthening of communication and mutual decision making can be done in a formal or an informal fashion.

What data do I have to suggest that this approach is a beneficial approach? A number of studies in the United States, starting in approximately 1984, have examined comprehensive geriatric assessment versus usual care for frail elderly veterans who were recuperating from an acute illness.

In that first study, Larry Rubenstein and his colleagues at UCLA, and at its associated VA, randomly assigned veterans to one of two groups: patients either were given in-patient, continued care by a multidisciplinary team that interacted in an interdisciplinary fashion to optimize function, or were simply sent home. They demonstrated that the mortality rate the year after hospitalization was much lower for the group who underwent comprehensive geriatric assessment than for those veterans who received usual care. A number of other, similar studies have since been conducted in different settings with similar results.

A meta-analysis of those studies was reported in the *Journal of the American Geriatrics Society* within the last several years. The meta-analysis concluded that comprehensive geriatric assessment, whether conducted as a consultation on a patient

unit, or in the home with a home care team ready to implement recommendations, seems to decrease mortality of frail, elderly individuals. The only setting in which no decrease in mortality was found in the meta-analysis was in an out-patient geriatric evaluation and management clinic. The postulate there was that although the team in the out-patient setting would assess the frail individual and make recommendations, the team will not necessarily be able to implement all of its recommendations. Several studies since the meta-analysis seem to show similar benefits, although other sorts of benefits (e.g., decreased morbidity, increased functional status, increase in quality of life) are all measured in a variety of fashions. Thus, meta-analyses to evaluate impact are difficult.

Does this lead to any cost savings? In our present environment, that is a very important consideration. Unfortunately, very few studies address the cost effectiveness of interdisciplinary teams. Almost a decade ago, Williams and colleagues randomly assigned frail, elderly individuals to comprehensive geriatric assessment versus usual care and evaluated cost of care a year later. They found similar numbers of hospitalizations for the two groups, but those in the former group also exhibited shorter hospital stays and, on average, less cost per care per patient, although the difference was not statistically significant. In settings such as On Lok in San Francisco, with comprehensive responsibility for the care of older individuals, including in-patient care, out-patient care and nursing home care, there seem to be trends toward cost savings as well. Nonetheless, we do not yet have definitive information to indicate that comprehensive geriatric assessment and specifically, assessment done by interdisciplinary teams, leads to significant cost savings. That is our challenge.

In terms of interdisciplinary education, geriatrics content is required for undergraduate medical students, nursing students and social work students. However, this education involves only content; it does not specify that one must work within an interdisciplinary team. Similarly, geriatric rotations are required in internal medicine and family medicine residency training programs; again, it is not specified that residents must interact in an interdisciplinary team, but the content is required. However, residents often will, in fact, work within an interdisciplinary team, depending upon the level of development of geriatrics at the medical center at which they are training. In contrast, within geriatric medicine fellowship programs, accreditation requires that fellows receive training within one or more interdisciplinary teams. That is the one area within medicine with a documented requirement for interdisciplinary training.

At present, a number of clinical programs provide excellent examples of interdisciplinary geriatrics. First and foremost, interdisciplinary team training programs in geriatrics exist throughout the VA system. Developed approximately 20 years ago, these programs continue to do a wonderful job of training interdisciplinary teams and providing interdisciplinary geriatric care. Nonetheless, they are specific to the VA system. In addition, the geriatric education centers funded through the Bureau of Health Professions are very specifically oriented towards interdisciplinary, geriatric health care. Since the first of these centers was established in 1984, approximately 50 geriatric education centers have been funded throughout the United States. Further, the Omnibus

Budget Reconciliation Act of 1987 led to nursing home regulations that require interdisciplinary assessment of individuals upon admission to nursing homes; the assessment team at minimum consists of a nurse, a social worker and a physician, but many times will include other health professionals as well (e.g., a physical therapist or a dietician). Finally, the Joint Commission on Accreditation of Health Organizations now puts increasingly strong emphasis on team assessments and team patient care.

Providing good interdisciplinary geriatric care presents an array of challenges. First, there are clearly differences in culture and philosophy according to disciplines. That challenge will exist regardless of the setting in which interdisciplinary care is provided. Second, the required qualifications for team members vary. In a typical geriatric assessment team, the range of disciplines may go from the physician, who has had many years of post-graduate education, to the nurse assistant, who possesses only a high school diploma. However, that nurse assistant may be the lone team member with the greatest degree of moment-by-moment information about that frail, elderly individual being assessed. Thus, that member is clearly as valuable to the team as is the physician.

Problems with scheduling and time constraints may hinder a team's ability to function optimally. Typically, the further one moves from the academic health center, the more of a challenge that becomes. There are clearly turf issues as to who takes ownership for the favorable or poor outcomes. As previously noted by others, administrative resistance sometimes occurs, such as when accrediting bodies will not give credit for multiple disciplines interacting.

On the other hand, a number of promising opportunities exist at present to enhance interdisciplinary geriatric teams. As health maintenance organizations become an increasingly common source of health care for the Medicare population, they begin to see the benefit of interdisciplinary team evaluations of the frail elderly. The present emphasis upon health promotion, case management and continuous quality improvement also begs for the interaction of a team to care for individual patients, rather than leaving the care to any single health professional.

As noted in the White Paper on Interdisciplinary Geriatric Education (a free monograph available from the Bureau of Health Professions), the vision for the future is that every older person will have access to appropriate interdisciplinary health care. This does not necessarily mean that every older person will require such care. In fact, when you look at the baby boomers, who will soon become geriatric age, the proportion of those individuals who will likely be frail and thus require interdisciplinary team care will remain relatively low, an estimated five percent of all people 65 and older, and perhaps 20 to 25 percent of people 85 and older. Yet the actual number of individuals requiring such care will increase exponentially, especially as the baby boomers gray. Consistent with the goal of allowing access to interdisciplinary team care for the frail and dependent elderly, the vision is that every health care setting would have an interdisciplinary geriatric program and, similarly, that interdisciplinary education would be a core component of education of all future health professionals.

I will conclude by citing two key recommendations from the white paper on interdisciplinary education that are especially pertinent to the Association of Academic Health Centers. There were a total of 13 recommendations within that paper, many of which are applicable to the association, but as a director of a geriatric education center, I deem two the most germane.

First, interdisciplinary academic activities should be recognized in determining promotion and tenure for faculty. In its funding of geriatric education centers, HRSA has done a wonderful job of facilitating interdisciplinary faculty interaction, because there are salary set-asides for faculty. But when a geriatric education center is no longer funded, it may become more difficult to have continued participation by those faculty, since they must consider promotion and tenure. Many times, they are faced with the question of whether the work is truly relevant to their discipline. Second yet equally important, establishment of chairs in interdisciplinary geriatric health care would raise recognition of the value of this interaction.

A View from Rural Health

Joseph V. Scaletti

We refer to the New Mexico interdisciplinary education project as an experiment because it is an ongoing process for us. We are now in the seventh year of the experiment. I will describe how we begin the process of interdisciplinary education, and how we take it from the campus to rural communities. In so doing, I will discuss the development of the community involvement and partnerships and will touch on outcome measurements, even though that picture has not yet fully emerged.

The New Mexico program was initiated with HRSA funding in 1990, and is slated to continue through 1999. Its primary goals are to increase recruitment and retention of health care practitioners in rural areas, and to make rural practice a more attractive career choice for students as well as providers. We accomplish these goals by sending our students as part of their training for two to three months to small, underserved communities, and we go to each of these communities prior to placement to determine precisely what they want from our program.

The schools and students that have participated since 1990 are medicine, nursing, pharmacy, physical therapy and respiratory therapy. As we have progressed, we have added other disciplines: public health, social work, dental hygiene, medical laboratory science, occupational therapy, and speech pathology, both on campus and off. For example, since we have no social work program at our institution, we work with the two institutions in New Mexico that do.

In six years, student enrollment in the program has grown from 11 to over 70, with the number of schools increasing from five to 11, faculty increasing from seven to 15, and communities from one to seven. We have more than 70 preceptors in the various communities who work with our students for that two- to three-month period of rural training.

In the initial, campus-based phase, we start recruiting students in November with an open house. We go to the different health professions schools, introduce students to the program, distribute descriptive manuals, and stress health providers' importance to smaller, underserved areas. In December, students, faculty and rural preceptors are actively involved in computer training. All students go out to the rural sites with computers. In fact, one mechanism for making rural communities more attractive for health professionals is electronic media. Back in 1990, simply having electronic mail was a major accomplishment. We are now moving further, with access to the Internet, affordable video conferencing, and use of desktop computers.

The actual program starts on campus in January with problem-based learning, which is our platform. Students use simulated cases that have been developed for them to

emphasize particular disciplines at different periods of time. For example, in the "Fallen Farmer" case, a farmer who falls off a tractor suffers an anterior cruciate ligament strain. This case study was designed to emphasize the physical therapist's role, as well as that of the pharmacist in dealing with pain. Cases are developed periodically to highlight different disciplines, so that students can demonstrate from their own vantage point and experience the expertise they can bring to resolve health care problems in the community.

Case studies are covered every Friday afternoon in three-hour tutorial sessions. Although problem-based learning was established at the University of New Mexico over 15 years ago with medical students, our system differs from the original format in that we use problem-based learning to bring out the students' expertise. We expect that students have been trained and are already competent in their particular profession; we simply want them to be able to share their expertise with other health care providers, so that when they go out into the real world, they will have had both some interdisciplinary experience and some involvement with problem solving.

By April, the students have selected the community in which they want to work. This group of students will then constitute the team for that particular community, and will become the Farmington team or the Silver City team or the Roswell team. In the meantime, they stay together on the campus and work on these tutorial problems.

For the months of June and July, the students go off campus. They first meet with community representatives, meet their preceptors, and receive an orientation in the rural community, which typically conducts a banquet for the students. A large number of community people, including health providers, dignitaries, the mayors, in some instances legislators, are invited to this important social function to meet the students. These events are well attended and funded by the communities. In addition, the students look at opportunities for housing, often with the assistance of the community.

What is in it for the communities? There are many intangibles, but you can easily point to the fact that these communities spend a great deal of money to recruit health professionals. Some have spent as much as \$150,000 to \$200,000 a year to recruit physical therapists from Sweden or New Zealand. I have repeatedly told them that if they gave me one-tenth of that, I could guarantee them students from our program. It should also be noted that we do not go to communities unless we are invited to do so. The invitation to a community must emanate from that community. Upon invitation, we will sit down with them and work with them to fulfill their needs, with respect to both community projects and student involvement with those projects. We also explore with them the types of students that they would like to see in their community.

Most students are in the field for the months of June and July. Some must go a little bit earlier and some stay a little bit later, but for the most part, they are all together for the months of June and July. They meet as teams in their respective rural communities for four hours once a week; they are the ones now developing the cases. While on campus we use simulated cases to help students learn the process of

interdisciplinary, problem-based learning; in rural communities, the students can actually work up real patients' stories as their case studies. It cannot be overemphasized that problem-based learning in the community occurs primarily through the leadership that the students develop. It is student-centered. They determine what the cases will be and who will lead the group. The only requirement is that at least two or three disciplines must be represented in each developed case. Through this process, which devotes two weeks to each case, students gain new knowledge, but more importantly, begin to identify their role in the community, as well as their identity in relation to and their contribution to a team.

Rural health partnership development lies at the heart of our program. We have identified and work with six extremely important types of participants in community partnerships: state agencies, health care facilities, AHECs, educational institutions in rural communities, highly developed community organizations, and public and private foundations. All of these entities share a common, abiding interest in outreach in rural, underserved areas, and thus join in our outreach mission. For example, the state's rural health office identifies communities for us with specific needs and which seek involvement with specific health disciplines.

The state Department of Health has been a very powerful partner, providing funds to help meet some of the mandated objectives in rural, underserved areas. The Commission on Higher Education, which funds higher education in New Mexico, has been very responsive to a legislative mandate to do more in these rural communities, and a partnership with the Commission has also evolved. Six or seven years ago, the Commission on Higher Education instituted loan forgiveness and repayment programs for medical and nursing students, but these programs were not originally applicable to allied health students; now they are. For three years, they have given very substantial loans that can be repaid or forgiven for people who work in underserved communities, which strongly supports our purpose of recruitment and retention.

The state legislature has directed funding specifically toward rural and underserved communities. One recent legislative mandate provided \$600,000 to develop telemedicine in one year, and another \$400,000 in the following year to amplify demonstration projects. Planning money is going to the institution to develop programs for providers that rural communities lack, such as physician assistants. The legislature has also provided funding for distance education. In a state like New Mexico, rural legislators play a very important role in supporting funding for higher education, and often take the initiative to introduce bills on behalf of the university. Our program seems to be a favorite among this group. All in all, the state has played a very pivotal role in helping us to maintain and sustain what we began with the original HRSA funding.

When we go into a community, we deal actively with the health care facilities, including area hospitals, community clinics, rehabilitation centers, and extended care facilities. A key supporting role is played by a rural coordinator, who works with us throughout the year to address programs, housing, schedules for tutorials, and even social

events in the communities in which the students may wish to participate. The rural coordinator occupies a critical position, and is sustained entirely by the community. In addition, the area hospitals and other facilities on occasion provide student housing. In Las Vegas, New Mexico, for example, housing and two meals a day are provided.

The mission of the New Mexico AHEC is to enhance health education, to facilitate recruitment and retention (paralleling one of our programmatic goals), and to coordinate with the missions of our interdisciplinary programs. We have gone even further, having not only partnered with them, but having actually merged our offices. Thus, the interdisciplinary office, the AHEC office, and the preceptorship office all share space, have the same goals and work together in a coordinated fashion.

As previously indicated, some health profession programs that do not exist at our institution are taught at junior colleges or at Eastern University or Western University; we capitalize on that external activity as needed. We view it as an opportunity to expand the role of these health professionals in our program for the ultimate purpose of recruiting and retaining additional providers, who often return to those communities permanently. Examples of these collaborations include the B.S. program in nursing at Eastern and Western, and the social work program at New Mexico State and New Mexico Highland. Students from these schools commute to Albuquerque for our training sessions and then return to their respective communities. The partner institutions provide student access to Internet and telecommunication networks.

Let me share with you some examples of our community partnerships. In Torrance County, we are working with the Community Health Council to reduce teenage pregnancy. In Farmington, we are working with the Community Health Council to target alcohol abuse. We are collaborating with the Community Health Council in Las Vegas on mental health, and with Roswell on their Reach 2000 project. To accomplish this and other work, we have established relationships with the W.K. Kellogg and Robert Wood Johnson Foundations, and rural utilities, among others.

Since the inception of this program, we have trained more than 180 students, approximately 30 percent of whom elected to return to rural communities to practice. That figure excludes medical students, because those medical students who were in the program six years ago are just now completing their residency requirements; we do not know what the outcome will be for them.

Where do we want this program in particular, and interdisciplinary education in general, to go in the future? Although we can demonstrate certain kinds of positive outcomes, we still must wrestle with the questions of managed care, managing costs, and whether interdisciplinary programs do, in fact, make a difference in health care delivery. This is an area that will require further study, but I am hopeful that, with experiments such as ours providing some guidance, the future will see clearer demonstration of the value of interdisciplinary education.

Educating Health Professionals in Teams: Perspectives from the Health Professions

A View from Allied Health

Barbara Kopp Miller

I will offer a perspective on interdisciplinary education, with particular emphasis on two allied health programs and a few of our school's other programs, specifically occupational therapy, physical therapy, occupational health and physician assistants. I would like to caution everyone that allied health, as you know, covers more than 200 disciplines. I hope that my remarks will be transferable to any other discipline.

The objectives of this presentation are fourfold. The first is to address interdisciplinary education from the view of allied health, or at least from my limited view from the School of Allied Health at the Medical College of Ohio. I will also discuss our current allied health training grant, funded by HRSA, to show you how we have done interdisciplinary training at our institution. Third, I will offer suggestions for replicating and expanding the training program to different health care professionals, including medical students, nursing students, dentistry students, and so on. Finally, I will review different ways to support interdisciplinary training once the funding is withdrawn.

I will briefly discuss one major barrier to interdisciplinary education: institutional culture. Institutional culture has a tremendous impact on the effectiveness of interdisciplinary training, and may be especially important for an allied health program, since it can sit in any of various locales within an academic institution. It may be within a school or within a college, depending on the "ladder" of the institution. We have a variety of examples within this room of where the allied health programs are housed.

Here is how we handled the issue of institutional culture. We are the newest school in the Medical College of Ohio, which began as a medical school and has grown into an academic health center. As other schools were added, there was no emphasis on interdisciplinary training. The College has added a graduate school, a school of nursing, and the allied health school. However, very few outside individuals knew much about the School of Allied Health -- exactly what we did, who we trained, and how we trained them. The medical school did not know that we existed, other students didn't know that we existed. In fact, some of the programs within allied health did not know each other really existed. We found that simply being advocates for our allied health programs helped us within our institution. We educated the institution about allied health, and we educated our Congressmen and Senators. That proved to be very, very beneficial, because when the president of our college went out to speak with the political figures within Ohio, they knew of our program, they knew of allied health, they knew of the grants that we were bringing in.

Another step that we took within the institutional culture to help allied health establish a presence in the interdisciplinary arena was to work with our research and grants department. That sounds quite simple, but the research and grants department was

not aware of allied health and the training programs that were available to allied health. Once they learned about those training programs, they then hooked us up with all of these other schools and programs within the Medical College of Ohio, which then gave us recognition across campus and within the institution.

We all know that medical schools are coming under increased scrutiny, that some are at risk of closure or being reduced in size. We routinely point out to our president and deans that while the Medical College of Ohio was established as a medical school, the other schools are the reason why we will stay in Northwest Ohio. That is what makes us unique. If we have something unique and interdisciplinary across the institution, we will be seen throughout Ohio as unique, which can potentially shield us from some of the problems that other schools are having.

We are a college, not a university per se, and we have schools within the college. We have found that the School of Allied Health is interdisciplinary by default. I know many of you experience that as well, because there are so many disciplines within allied health, and because of a shortage of faculty. Due to an inability to recruit allied health faculty and an inability to replace faculty who leave, we tend to draw on each other's expertise.

I am a psychologist who teaches in the physician assistant program, in the physical therapy program, and in the occupational therapy program. Faculty from these other fields also teach in our program. It is expected. When you start as a faculty member in the School of Allied Health, you are expected to teach within other programs.

That is one part of interdisciplinary education. I would like to see allied health grow by not only having the teachers move from room to room, but having the students move within those rooms. We tend to do a very good job within allied health to bring in other professionals to teach our students. Bringing our students together to teach each other and to present before allied health faculty as a team is something that we strive to do. Dr. Baldwin talked about the different types of interdisciplinary education, and we would like to cross over into those different versions.

In order to do that, we sought and received funding from HRSA. We received an allied health training grant that is funded from 1994 to 1997. That grant is currently in its last year. We have reapplied for another grant which I will discuss briefly later.

The grant, Gerontologic Initiatives for Visionary Education, or GIVE, covers geriatrics, rural and allied health, and health promotion. GIVE provides a common core of gerontological content for occupational therapy and physical therapy students. It brings together students, instructors and regional clinicians from the three Northwest Ohio Area Health Education Centers to design strategies for the rural elderly. GIVE stresses health promotion and disease and dysfunction prevention goals based on Healthy People 2000 as well as on the White Papers on geriatrics. We decided that we were going to "give" for a couple of years, and that is what we have been doing, quite literally. The

objectives of the grant can be readily applied to other programs; there is nothing magical about this. It is just something that we wanted to do within our program that we felt could be transferable to other allied health programs and other health professional programs.

The project is divided into two phases. While you cannot force students or faculty to be interdisciplinary team players, phase I has a required interdisciplinary educational component for all occupational therapy and physical therapy students. We provided instructional contact within their curriculum, whereby faculty went from classroom to classroom with the geriatric content. Students stayed within their respective disciplines; the faculty were the interdisciplinary part. Phase I also had workshops one day per quarter, when we brought all students together on an interdisciplinary basis. We talked about a variety of topics, including health promotion, interdisciplinary training, and the rural elderly. We discussed health assessment, how to run programs, how to evaluate programs, how to work as a team. Students had six workshops throughout their time at the Medical College of Ohio.

Phase II of the GIVE program was the clinical component, whereby selected occupational therapy and physical therapy students were placed in underserved areas to work with the rural elderly. Students were taught how to work specifically with the rural elderly. If they chose to do so, students could pursue six credit hours of independent study, in which they were broken up into teams of occupational therapy and physical therapy students with faculty members as mentors, and with community clinicians as liaisons. They also developed, marketed, implemented and evaluated health promotion programs for the rural elderly, based on community needs assessment and focus groups that we had conducted. We studied the effects of health promotion programs on both the participants and the students, seeking the same primary, secondary and tertiary performance outcomes measures Dr. Fox discussed.

We found that the program has produced community as well as allied health outcomes. More than 400 older adults participated in needs assessment; 30 older adults participated in focus groups concerning health promotion needs, and 75 have participated in health promotion programs thus far.

Of the students who have participated in the project, 70 to 80 percent who go out into the communities to do their clinical training stay in those communities. I am not sure if that is the chicken or the egg. It may be that we are tracking those students who wanted to go back to that area in the first place, or they may be people who, after their exposure to the area decide to stay. However, the communities do embrace the students; they provide meals and housing. In fact, the house in one of our Northwestern areas where the students stay is partially government funded, so we call that the White House. Some students stay right in the hospitals, and that has also proved to be an interesting experience for them. Further, in the rural communities, students get additional interdisciplinary training. They work with a nutritionist, with administrators, and with our partnerships, including the Area Office on Aging and senior centers.

What does such a program do for the School in particular, and for allied health in general? What does my dean want to know about? One frequent question concerns how many people we have trained; in Phase I, we trained 123 students in general geriatric rural assessment outcomes. In addition, we have trained 13 students in the field in Phase II so far. As I said, the vast majority of those, I think all but two, have gone back to the rural area upon completion of their studies. Just having one physical therapist or occupational therapist in an area makes a huge difference.

The GIVE resource library contains over 300 books, 50 videotapes and other resources for students, clinicians and the community. That resource library has proven to be a major asset. We are finding that more and more students, whether or not they are in the GIVE program, are choosing to do research projects, papers, and public presentations on geriatric topics that deal with health promotion and disease prevention. That is also something that we wanted them to do.

One of our most exciting activities has been the development of a computer simulated aging project. This interactive program, Studies in Health Assessment for the Rural Elderly, or SHARE, permits the student to experience what it is like to be visually and hearing impaired. I am interviewing an elderly woman who lives in rural Northwest Ohio. We have videotaped the interview from both my perspective and hers. She is legally blind, and she cannot hear. Within this computer program, the student can switch from first person to third person. It is very exciting to be able to see what Donna sees. We hope to have this program on the market in about a year. It will be designed for use by all different types of health professionals, as well as by caregivers and faculty. The simulated computer program has been very, very exciting.

We have a quarterly newsletter, the GIVE Gazette, with a wide circulation in Northwest Ohio. If people know us, they should remember the name when we ask for support. We have received tremendous verbal and written support from our political folks in Ohio, which can be very, very helpful when you are looking for extra funds.

We now have another grant, entitled REAP, which stands for the Rural Elderly Assessment Project. We decided that since we had been "giving" for a couple of years, we now would like to "reap" for a couple of years. It is doing what many of you have been doing, sending highly interdisciplinary teams out into the community. We will include the physician assistant and occupational health students, as well as the occupational therapy and physical therapy students, in the next round.

What do you need to do to replicate training programs such as GIVE and REAP? From an allied health perspective, you first need a content expert, preferably a faculty member who can usually be found right in your own department. Unfortunately, we tend to think we need to bring outside experts, that people are only experts if they have to travel 60 miles or more. Locally, you have a lot of experts. We had two content experts:

our project director, Dr. Stephen Heater, who is in health promotion and occupational therapy, and I brought in the geriatrics and psychological component.

Second, all of us have clinical coordinators and field work educators within our programs, and it is very, very important to include them from the outset if you intend to have a clinical component. Tapping their expertise from the beginning and keeping them involved can help the entire program run smoothly. Two other elements, which we have already discussed, are the much-needed administrative and institutional support.

Finally, it is important to consider carefully how to institutionalize the project from the outset. Creativity and planning are crucial. While short-term goals are necessary for implementation, long-term goals are required for sustainability. When we decided to apply to HRSA, our dean, Dr. Christopher Bork, who was extremely supportive of interdisciplinary education, said, "You can apply for it for three years, but how are you going to keep it? If you're going to do it, you need to keep it." We devised a number of different ways to be self-sufficient and to support the interdisciplinary programs. Key personnel salaries were only covered in a minor way. For example, a very small portion of my salary is covered by the grant, but Dean Bork contributes 50 percent of my time for managing the grant. If funding is pulled, I am not. That was very, very important for him.

Sustainability also means that you have to give a lot of in-kind support, and I recognize the many problems involved with that. Certificate or other degree programs are common outcomes of projects like GIVE. We are developing a certificate program on interdisciplinary education, health promotion and geriatrics that will bring in tuition to help subsidize the grant programs.

We are also engaged in computer software development. It is important to check on the legalities of your grant, whether you can market products. It may be a boon if you can develop these and other educational materials, based on your grants, that you can then sell and thereby support the programs.

A View From Behavioral Health

Robert G. Frank

I have been invited to speak about mental health, which in the current jargon is frequently called behavioral health. I will also address financing, which has been a covert theme through much of our discussion. My personal thesis is that we should start these conversations with financing.

As anyone with health insurance can tell you, behavioral health is funded very uniquely. It is funded almost exclusively through carveouts, by which we dedicate a certain fund -- usually a per-member, per-month charge, and usually from one to four dollars -- to behavioral health services. We have carveouts because so many providers work in the behavioral health arena and compete heavily for exclusive provision of services. One way that insurers can handle that is to carve the area out and let folks go at it behind closed doors; the insurers simply provide the capitation rate. This carveout nature of behavioral health has very important implications for designing and staffing any clinical program. It also has implications for the way in which we teach these programs.

The opposite or other model, a "carve-in," is one to which we all aspire. This is the integration of health and behavior, hence the name behavioral health. Unfortunately, it is aspirational at this point, and in only a very few places do we have functioning carve-ins.

It is interesting to note that the other area in which carveouts are common is chronic disorders. We see this very commonly right now under the Medicaid provisions for children with disabilities. I believe that one of the great opportunities for behavioral health services in the future, and the road we should be following, is to integrate behavioral health services into the area of chronic health care. I will revisit that theme.

We now see an interesting pattern in behavioral health services. When HMOs come in, they immediately go to exclusive carveouts that deny self-referral opportunities. Previously, patients could self-refer to the therapist of their choice. Insurers are now able to control costs simply by mandating that patients go through their primary care doctors, who act as gatekeepers and thereby control the cost of behavioral health services. Only 22 percent of HMOs in operation for two years or less allow self-referral for behavioral health. As the consumer movement has increased over the last few years, more well established HMOs began to realize that this practice might not be as good a system as it seemed at first blush. Saving some money meant losing some quality. Increasingly, we see a trend to allow self-referral; 51 percent of those HMOs operating for more than five years allow this. That is important for understanding the design of service packages as well.

One goal of any type of behavioral health service, whether a carveout or a carve-in, is to reduce health care costs. I believe that all programs should target the cost of chronic health problems. For example, since depression can increase medical utilization up to 2.5 times, its detection will dramatically reduce utilization. Addressing and effectively treating behavioral health disorders will substantially decrease medical costs.

Further, compliance, the number one problem in American health care today, is really a behavioral health problem. As such, it should be addressed in conjunction with an entire health care team focused on changing behavior, so that the patient follows health care instructions to completion. Both of these thrusts -- one, detecting behavioral health disorders that increase cost utilization through doctor shopping and second, assuring that patients follow their treatment regimen in a behaviorally effective manner -- are critical to behavioral health interventions.

The whole nature of the medical cost aspect is critical. During the health care reform debate just three years ago, there was much discussion about the true cost offsets of behavioral health services on physical health care. Emerging data are very scattered, and it is very difficult to resolve the cost offset issue, but by looking within each disease approach, one can find cost offset literature.

The goal of a behavioral health program, if we are going to focus on chronic illnesses, is to reduce utilization for complex medical care. One classic example now receiving much attention is asthma. Many HMOs have created behavioral health carveouts focusing on asthma, because the prevalence of this disorder is increasing. The behavioral components of asthma treatment are critical, since effective behavior management can preclude many asthma episodes and thereby save enormous amounts of money, creating a true offset. We also have the opportunity to avoid duplicative or incompatible treatments which may exacerbate the condition.

The critical issue in any behavioral health intervention is to look at the long term. Because most people change health plans every 1.6 years, it is very difficult for health plans in a very competitive market to really take the long view, to focus on the health of the community. They are forced to focus on the short term. The vision is that these plans will be able to care for entire communities and impact overall health status.

Perhaps the only way we can do that is through Medicaid, and perhaps through Medicare in the future. Nonetheless, we need to continue to address aspirationally the notion that commercial health plans will focus on the health of their communities. Perhaps the market will stabilize and allow us to do that. But without a focus on the long term health of the community, it is impossible to do any kind of cost offset. This is where teaching programs that focus on collaborative behavioral health interventions have real opportunities, because by obtaining external funding or convincing a teaching institution to commit to any kind of cost sharing, a very viable model is created.

The other key issue involved in creating a behavioral health payment stream is the need to align incentives. The primary care doctors must function under the same incentives as do the behavioral health providers. It is unworkable to offer the primary care doctors incentives based on referral or non-referral of cases to the behavioral health people. This will require a combined capitation rate. Using a carveout capitation rate will only lead to shifting patients out of the primary care cost pool into the behavioral health cost pool. Since the very nature of chronic illness means that nobody gets better, it will require shared capitation and accountability for outcomes that are merged. This is a very basic point, but an extremely difficult one to implement.

The process requires the use of historic mental health utilization to specify rates. It must, however, be realized that with initial intervention, utilization will increase, not decrease. This target will become your floor, not your ceiling, for health care costs. Changing to a behavioral health system, with an ultimate goal of decreasing medical utilization, means initially providing additional services, seeing people, having face-to-face contacts. Overall short-run costs will increase.

At the University of Florida, we have created an interdisciplinary primary care clinic on the east side of Gainesville, a working class neighborhood with notoriously poor health care services. Review of data showed that our ER utilization rate was extraordinarily high for residents of this area, so we had non-altruistic as well as altruistic motivations to serve this community more effectively. Such a project, which we call a zero cap program, has presented many challenges. I would like to share with you how we have solved some of the problems we faced.

One problem in such a program is how to provide services in poor areas, where it is impossible to create a revenue stream that offsets the cost of service. In Gainesville, we have been heavily pressured to be more responsive to the community. The dilemma we face is one which all similar institutions encounter on a daily basis: how to pay for this activity.

We have worked with politicians and the health science and university people to design an interdisciplinary program that will allow us to provide service to this poor community. One problem we faced as we undertook this task was that, like many other health centers, much of the apparatus for making clinical delivery services available resides into the College of Medicine. The University of Florida has six colleges in its health science center; it is an extraordinarily well developed model in the teaching sense. In clinical delivery, however, not all of those colleges have existing delivery systems, although all are working to create an integrated unified delivery system at this point.

As we approached this task, only the College of Medicine had the apparatus to deliver. They had the money, they had the wherewithal to purchase real estate, construction expertise, and billing capability. As other colleges joined in and sought true parity, it became extraordinarily difficult to separate out turf issues and the politics from the clinical delivery issues. It took, by a conservative estimate, two years of internal

struggle to address this issue. We have recently moved forward, largely through the dedication of Pat Winnig of the vice president's staff, who lives and breathes this project.

One major challenge of this project was that we had no investment capital. We did not know who would accept the downside risk. We knew that the College of Medicine wanted the upside, but they, like the other colleges, were not as accepting of the downside. The other major problem we faced, one that has been discussed in almost every presentation at this Congress, was that no college wanted to engage in interdisciplinary education if they had to change their own curriculum. They want everyone to come to their mountain, not to move their mountain to the others. We have struggled with those issues as all of you have, and we have resolved them in much the same way, by getting people together in a room and creating effective communication.

One issue we struggled with was the ascending parity for nurse practitioners. Are they real providers and not simply physician surrogates? Dean Long has had to negotiate strategically with several members of the College of Medicine faculty to do this, but we have made progress and now, nurses are seen as capable providers.

To make this project viable, we moved it out of any individual college into the University of Florida Health System, which is part of our clinical enterprise. The Health System is a corporate holding party for all of our cross-system entities within the health science center. By moving the project there, we avoided some of the college-based turf battles. That was the first helpful step we took. The second was having somebody on the vice president's staff supervise this project. Further, we convinced the hospital to agree to recognize the cost offset they would get out of decompressing the ER. We got the downside risk underwritten by the hospital; they put money on the line. In addition, we persuaded the state to recognize the needs of the underserved, poor community on the east side of Gainesville; the state gave us \$400,000. Last, we asked the state AHEC to see this as part of their goal. We have a very strong AHEC, led by Ocie Harris of the University of Florida; it did not take much to get them to sign on. Thus, we have brought all critical parties to the table.

We created a staff: a pharmacist, a physician, a nurse practitioner and three dentists. Unfortunately, there are no psychologists, no social workers, no psychiatrists, no counsellors, nobody even remotely connected to mental health or behavioral health. Therein lies a dilemma from my personal perspective, both in my role as vice president for behavioral health and as the dean of that college.

Why is that? Part of the problem is that in order to establish this project, we agreed to focus on acute screening test care needs and decompress the ER. Our aspiration is to focus on more chronic episodes of care over the long run. We believe that by designing a care system that focuses on bringing those individuals in as members of a chronic health care team, with cardinal symptom management (i.e., that focuses on the chronic symptom that prompts the patient to seek medical assistance), and then bringing these practitioners to bear on that system, we will create a system that allows behavioral

health practitioners as well as a whole array of rehabilitation providers into the fray. The system is evolving, but we compromised politically to forge ahead with the more acute, appreciated needs. We will return to this issue as we get this thing floating.

The nurse practitioner will clearly be a critical team member, playing a critical role in this more comprehensive chronic management, as will the pharmacist, who oversees a wide range of issues in chronic care. Obviously, the physician will be on the team as well.

In April 1998, this clinic will open. We are now looking to enhance and develop our relationships with the public health department. In an extremely innovative move, we have developed a zero cap model for this clinic, which is worth trying to develop into a more effective model and replicating. We recognize that this clinic will serve many of the working poor who have fallen out of our safety net programs. They make too much money for Medicaid, but most of them work at hourly wages in jobs that do not provide insurance. Thus, they are the people who tend to utilize the ER on an emergency basis, and who cannot ever get ahead enough to buy health care coverage. Our zero cap program is designed to recognize up front that we will have 100 families in this clinic, who will come in at zero cap. We will provide care for them in turn for our cost offset at the ER, and as part of our community-based service, in which we will use our educational providers to help offset.

If every program we establish has a targeted zero cap population, we believe that, over time, we could begin substantially to reduce the number of uninsured in our area. Thus, the zero cap model has tremendous potential. We hope to build that model, and intend to build some of our chronic care models therein.

A View from Nursing

Joann Kovacich

I have one of the HRSA-funded interdisciplinary rural training (IRT) grants, but unlike many of our funded counterparts, our interdisciplinary program is not stationed at a medical school or in an allied health center. This is because the state of Maine, where I live and work, is different. There is just one medical school in the state of Maine, the University of New England College of Osteopathic Medicine. Thus, our students have to train out-of-state if they want to obtain an M.D. Our IRT program is statewide and, therefore, has to rely on collaboration between many institutions. Our program is wide-ranging, and the University of Maine serves as an administrative point for all of the activities.

I will discuss how nursing fits into the interdisciplinary mix. By featuring our interactive study module for distance education, I hope to touch on several important issues, if only briefly: (1) providing some kind of cost comparative data, (2) addressing practical applications of our interdisciplinary education program, and (3) addressing self-sufficiency.

Our interdisciplinary courses are taught through the Internet; they are Web-based courses. A CD-ROM application, under construction at the moment, is interactive, and works together with our Web site. Our faculty, staff and advisory board are all interconnected through the computer, through the Internet, in sites as far-reaching as California. Maine has only one communication disorder program, which due to downsizing was unable to participate with us in the interdisciplinary program this year; we identified an alternate source in California. As we have no chiropractic program in the state of Maine, Palmer Chiropractic College in Iowa is one of our partners.

Maine is an extremely rural state. When we talk about nursing in our state, it must be remembered that, for quite a long time, nurses have had to assume quite a large role in the area of primary care. We do not have enough physicians so that each rural health care center has a physician there all the time. Physicians usually travel around in order to sign off on papers for reimbursement, as well as for oversight and supervision.

Our Web site includes a film clip of a nurse in a rural area, Princeton, that gives an idea of what nurses need to know in order to practice successfully in rural sites. It shows a nurse practitioner who for quite some time ran the rural health care center in Princeton because we were unable to retain any M.D. or D.O. to head that center. This is a very rural area in Maine, and one of the poorest counties of the state. It is 20 miles to Calais, where we have one hospital, but since there is no major, direct road between the two sites, travelling 20 miles can take two hours. The larger hospital is in Bangor, which is 110 miles away.

Thus, a rural nursing practitioner really needs to know everything and everybody in his or her community. It is rare to have the luxury of a physical team composed of all of the typical health care professionals that one might see in an urban, tertiary care facility. However, nursing becomes quite integral in any kind of an interdisciplinary practice in the rural area.

In addition, in a rural area, the definition of an interdisciplinary team does not simply encompass those whom we would assume are traditional health care practitioners. Rather, it also encompasses everyone else who makes the system function well, such as community representatives, the enforcement officer, even the U.S. Department of Health and Human Services.

At this Congress, we have been talking quite a bit about interrelationships between micro and macro variables that play a role in allowing interdisciplinary practice or education to occur. One such variable is a response to national and/or state workforce projections that suggest that we need more nurses quickly in order to deliver proper health care, particularly in the rural areas. From 1990 to 1997, we had quite a proliferation of nurses getting their degrees. In response to 1990 projections of a shortage of nurses, and in response to categorical grants that were made available, the state has now 14 different nursing programs. Maine does not yet have a comprehensive health work force plan. It is a project that we are working on now collectively, because the programs are too fragmented and are engaged in unhealthy competition with one another.

We cannot afford to continue with such a fragmented educational system, because when we talk about people going out to rural sites on rotations, that is a very narrow resource. Everyone is going to the same places to do the same rotations with the same preceptors. In New England, we also must have teaching sites available for people coming from the south, (e.g., from Boston), who are also doing their rural rotations in the state of Maine. You can easily flood a population with health care students of every nature if your population is only 2,000. It is difficult to ask such a small community to provide housing, to provide other resources, such as food, and otherwise to show these students what it is to live in rural areas. That becomes problematic, and we must address this in a much more comprehensive manner. It is not accomplished simply by one university or one college.

On May 4, 1996, the state legislature amended the Nursing Practice Act to allow advanced nurse practitioners to establish solo practices after they have practiced for two years under the supervision of a licensed physician. This means that our nurse practitioners will be able to set up their own businesses, and, for all intents and purposes, be in competition with the physicians. That is very interesting. It makes nurse practitioners even more integral to interdisciplinary practice, because they will be portals of direct entry into the health care system, and they will also function as gatekeepers.

The program is only one year old, but we already have three solo nurse practitioner practices. One is for a women's health center in the southern part of Maine,

the second is a center managed by a nurse practitioner, but which hires physicians to provide primary care, and the third, located in Bangor, is an interdisciplinary practice that not only has the nurse practitioner providing primary care, but also boasts a nutritionist, a massage therapist and counseling right there on site.

With respect to the next issue, the cost of education, we have some comparative figures. These are, of course, based only the state of Maine and not on any other state. We examined tuition costs, and assessed whether there were any residency costs and any graduate costs. To educate an advanced nurse practitioner, it costs \$26,000 compared to \$204,000 for a physician's education. So the amount of money that you invest is quite extensive, and then what do you get back? Nurse practitioners generally have five to ten years' worth of experience as R.N.s before they go on to get their N.P. degree. They also offer their services, such as for acute visits or chronic conditions and physical examinations, for far less than physicians typically charge.

One major problem, however, is reimbursement. So far, these practitioners cannot be reimbursed by Medicare. Nor have managed care systems yet begun to reimburse nurse practitioners practicing in solo practices.

Why are these practitioners so integral to interdisciplinary health care? First of all, because -- particularly in our state -- many of our rural health care practitioners come from the rural areas in Maine, and are gaining advanced degrees. So they already are a part of the rural practice. Further, they are educated in collaborative practice patterns. They work in and they understand the health care system. They educate patient-clients, and act as patient-client advocates. They are educated specifically in health promotion and health maintenance, in addition to health care. They have a holistic approach to health care across the life span.

With respect to the practical application, many people are very interested in looking at whether and to what extent interdisciplinary activities improve the quality of patient care. Because we train in community-based care, we are interested in learning how the community is served. We have service learning projects for students, similar to the activities that Joe Scaletti described. We go into communities and ask what they want. We need to know what kind of teams they want, and then students provide whatever services the communities would like to have. It is not a situation of going in for standard clinical practice. In fact, one of our service learning projects has just won a national award from the U.S. Department of Health and Human Services.

A View from Optometry

William A. Monaco

Approximately three years ago, the executive medical director of the Cherokee Nation approached me and indicated that he wanted to develop a managed care model to present to the 13-county area of Oklahoma that we know as the Cherokee Nation. Northeastern State University College of Optometry (NSUCO) was established in that area in 1979 specifically because of a defined, underserved need for visual health care. There were 35,000 people, but there was no health care, and people were unnecessarily going blind from such endemic problems as diabetes and glaucoma.

We started this program with a Kellogg grant. The grant allowed us to purchase a mobile van, to go into rural communities that were not previously accessible by our hospital-based program, and to assess and define the need. We found overwhelming needs in this complex environment. When the Kellogg grant ran out, our institution faced a huge responsibility. Having opened a Pandora's box, we had a continuing medical, legal and social responsibility to continue to provide care. We are not affiliated with other professional health care programs, but we had to translate our existing effort into a sustainable program despite the lack of visible local, state or national funding.

In developing our model, we concentrated on four issues: patient access and mix, the constituencies, cost effectiveness, and the student experience. We asked a number of questions: Are patient access needs met that were not historically met? Do the patients and the community view the service as filling an unmet need? If you go to the community without an invitation, it just does not work.

With respect to constituencies and local concerns, what is the community expense of the academic clinics? This incorporates those rural practitioners who have been there since graduation from medical school and residency, and who went into a rural community and said, "I am dedicating my life to this service." Then these practitioners see an academic institution penetrating that market, or penetrating that patient population. If you don't access that provider community and make them partners, make them compliant with what you are doing, with a common mission, you will have very worthy adversaries. Even if it is a single opposing practitioner, that person may well have the confidence of that community, to your detriment.

So what is the level of local practitioner involvement in your effort? What is the community perception of what you are doing? It could be the greatest idea in the world, but if they are not convinced that it will benefit them in a way that they can understand, you will not make a successful impact. How does your activity complement or compete with the other health professionals, local or statewide? State organizations are an awesome force in that. Further, where is the institutional support? It is interesting to hear what other health care centers do in a multidisciplinary interaction with colleagues,

when you have an academic and administrative support team that understands the importance of such interaction. But when only one professional program exists in an undergraduate school, it is a very unique challenge and this is a very unique question to ask.

Cost effectiveness is a crucial issue. How can we translate our students' educational experience in a way that a managed care organization can appreciate it in their business terms? I call that translating it into the language of business. We must learn to communicate better with the business aspect of the managed care organizations, so that we can speak their language and translate the unique contributions that we can make in that society. Finally with respect to cost effectiveness, who assumes the risk? The Pandora's box aspect of defining the risk, defining the demographics, is a crucial point in an undefined patient population. When that mobile unit went out to non-accessible, rural communities, we found that those patients were no longer travelling in excess of 11 miles for health care. We were seeing patients with blinding diabetic retinopathy for the first time. Many of them had already had an amputation. Many had never had an eye exam. So there are tremendous opportunities in these communities that can have a significant impact if we can present the ideas in an effective way. At the same time, however, we must tailor the educational experiences of our students in a way that translates effectively into their transitioning into that environment. It is an interesting challenge to ensure students' understanding of that environment.

Also with respect to student education, can we provide the diversity, complexity, and patient numbers sufficient to provide the educational experience to those students in a real-world setting? Will they appreciate the broad range of health care needs of those patients? Are the health care problems complicated enough that a multidisciplinary team can be working together?

Another key element is the faculty. Do they work side by side with the students? Are they seeing patients concurrently or are they sitting in another room, waiting for the student to struggle through the exam? This system will not work if the members of the implementation team do not support it. If they are not interested in what is going on, if they don't have ownership of this effort, of the good that it is doing and the positive impact that it will have on student education, the effort is doomed to fail.

Throughout this conference we have heard about leadership and management. I heard several times that we must be effective leaders. It brings to mind the quotation that managers do things right, leaders do the right thing. At this meeting, we are addressing doing the right thing for the future of all of our professions. But that, in turn, must be translated to a management team that can carry that forward and implement it in a way that demonstrates that it works.

Let me speak briefly about our program. To establish the NSUCO Rural Eye Program, we had to go through the wickets of local, state and federal government support. We had to get approval from the Indian Health Service and from the Cherokee

Nation, because that is our endemic population. We had to work with them cooperatively to make this happen. But it had never been done before. Billing, in particular, was alien. Unlike academic health centers, where billing is a crucial component, billing was alien to this rural community, because they had never had to do this.

Our program will follow the model in which a variety of health care providers are involved. As our program evolves, we are working with the statewide area health education center to bring students from all disciplines to these rural health settings. We anticipate that various students will work with a range of health care providers in the future.

Any program must address the key issues of student learning, patient access and expanded patient care services. Yet the first question that comes to mind, even before the demographics, even before defining patient population, is who assumes the risk? How can we assess the financial burden? To my mind, it must be balanced out somehow, so that both the institution and the provider assume some portion of the risk. They should work together to define the risk.

We set up the NSUCO system basically as a contract for eye care services. The tribe pays for the faculty member, the staff support and the physical plant. That part of it is their contribution. In this type of arrangement, it is possible to hedge on the risk, because both sides have a finite cost. Then you try to work backwards to reduce the costs that you incur up front.

The demographics have been phenomenal. Since the school's inception in 1979, when we had a patient pool of 35,000, the number has swelled to 70,000 patients. In return for the funds that we receive for the contract, we give all the money back for primary care. All of the primary eye exam work that we do, that we can bill for, we return to the tribe. We retain revenue for all specialty services rendered, which is a significant amount: of 25,000 patients seen, more than 6,000 require follow-up care for diabetes, glaucoma and other health problems. Ultimately, the goal in defining the demographics and defining the costs is getting enough of a handle on it so that we can capitate the whole system of vision care.

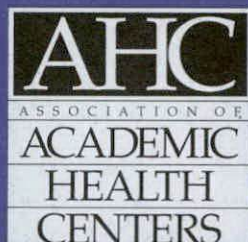
What are the good parts of this program? Obviously, the student learning experience has been phenomenal. Students see a variety of complex patients in a multidisciplinary team setting. There is better patient care in this process: there is early detection, there is treatment, there is a move towards prevention. There is improved access, and timely referrals are made to the appropriate health care subspecialist. The program was recently recognized by the National Rural Health Association, which presented us with the Lewis Gorn Award for national service in rural health.

On the other hand, probably the major frustration has been billing, trying to get reimbursed, particularly for the Medicare and Medicaid patients. Seeking broader student involvement from other health care disciplines is also a challenge, but we are making

some progress on that. Of further concern are the uncertainties of managed care, especially the impact that managed care is having on rural communities. Patient confidence and patient compliance will come with time and professional care.

When I conducted research in the military, we once met with an experimental psychologist who said, "Dr. Monaco, I understand that this has to do with airplanes and air combat, but what does it have to do with screening people in the real world environment?" That is what we were translating, visual standards. He said, "There is a simple translation for that, and it is called trans-situational reliability. What is the trans-situational reliability of this project?"

Well, the trans-situational reliability of my remarks today depends upon you. That is why I have not specified that this is an eye care or a vision care project. Instead, I have attempted to discuss a health care project that can be defined and tailored by the needs of the patients and the demographics of the community. It has the potential to provide unrivaled patient care experiences with unique student skills and insights and capability for a knowledge base. If other health care providers start incorporating the full gamut of allied health care teams into these concepts that we have been hearing for the past two days, then we will all win in this scenario.



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