Allied Health Workforce and Services: Workshop Summary

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Steve Olson, Rapporteur; Institute of Medicine

ALLIED HEALTH WORKFORCE AND SERVICES

WORKSHOP SUMMARY

Steve Olson, *Rapporteur*

Board on Health Care Services

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Willing is not enough; we must do."
—Goethe

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[1] Institute of Medicine planning committees are solely responsible for organizing the workshop, identifying topics, and choosing speakers. The responsibility for the published workshop summary rests with the workshop rapporteur and the institution.

Reviewers

This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the process. We wish to thank the following individuals for their review of this report:

ALLYNE BEACH, Kaiser Permanente National Workforce Planning and Development
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THOMAS ELWOOD, Association of Schools of Allied Health Professions
GAMUNU WIJETUNGE, National Highway Traffic Safety Administration

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the final draft of the report before its release. The review of this report was overseen by **JACK C. EBELER,** Health Policy Alternatives, Inc. Appointed by the Insti-

tute of Medicine, he was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authors and the institution.

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1

Introduction

In 1989 an Institute of Medicine (IOM) committee released its report *Allied Health Services: Avoiding Crises* (IOM, 1989). Many of the issues discussed in that report remain relevant today, but the environment is very different. The demand for health care is growing as the nation ages and seeks to provide coverage for the millions of Americans who lack health insurance. At the same time, escalating costs have led to a variety of initiatives to make the delivery of health care more effective and efficient. The allied health workforce is critical to the success of these efforts.

Given the importance of allied health in health care reform, the Health Resources and Services Administration sponsored the IOM to hold a workshop in Washington, DC, on May 9–10, 2011, to examine the current allied health care workforce and consider how that workforce can contribute to improving health care access, quality, and effectiveness. Organizing questions for the workshop were as follows:

- What is allied health, and who is part of that workforce?
- What workforce strategies hold promise to improve access to selected allied health services across the continuum of provider professions?
- How can policy makers, state and federal government, and allied health care providers improve the regulations and structure of allied health care delivery to increase access to care?

Additional questions explored by presenters at the workshop included What is the demand for various allied health workforce professionals, and

how will demand change in the future? What are the most effective forms of training and education for allied health workers? What is the relationship between allied health workers and other health professionals? What is the effect of allied health workers on health outcomes? How do regulations governing allied health workers vary from jurisdiction to jurisdiction, and what are the consequences of these variations?

DEFINITIONS

The allied health workforce includes hundreds of professionals employed in different professions with different job duties and different levels of preparation, but there is no single definition of *allied health* or list of allied health occupations. All formulations exclude physicians and dentists, and most exclude nurses. Others exclude pharmacists, physician assistants, and more.

According to Title 42 of the U.S. Code,[1] an allied health professional is a health professional (other than a registered nurse or physician assistant) who has a certificate, associate's degree, bachelor's degree, master's degree, doctoral degree, or postbaccalaureate training in a science relating to health care and who shares in the responsibility for the delivery of health care services or related services, including

- services related to the identification, evaluation, and prevention of diseases and disorders;
- dietary and nutrition services;
- health promotion services;
- rehabilitation services; or
- health system management services.

The definition excludes those with a degree in medicine, osteopathy, dentistry, veterinary medicine, optometry, podiatric medicine, pharmacy, public health, chiropractic, health administration, clinical psychology, social work, or counseling.

Many of the presenters at the workshop used definitions of allied health that conflicted with this federal definition. Moreover, the definitions used by different speakers differed from each other. Presenters at the workshop also did not draw rigid distinctions between the terms *profession*, *occupation*, or *field*, and this summary does not attempt to regularize the usage of either *allied health* or *profession*.

In its 1989 report, the IOM's Committee to Study the Role of Allied Health Personnel stated

[1] 42 U.S.C. §295p(5).

> The committee chose not to join in the search for a definition [of allied health]. The benefits of making the term more precise are less clear than the benefits of continued evolution. The changing nature of health care makes some practices and practitioners obsolete at the same time it opens up opportunities for the formation of new groups. It is more important that pragmatism continue to prevail and that old and new groups draw what benefits they can from belonging to "allied health" than that a description of common characteristics defines the group. (IOM, 1989)

Presenters at the workshop opted for a similar approach.

ORGANIZATION OF THE REPORT

In this summary, the presentations at the workshop have been organized into eight chapters. Following this introduction, Chapter 2 considers several broad changes under way in the health care system and some of the implications of these changes for allied health. Chapter 3 provides a broad overview of several prominent issues in allied health, including the definition of allied health and the accreditation of educational programs. Chapter 4 looks at the supply of and demand for allied health workers, as well as examining the data needed to make useful projections of future supply and demand.

Chapter 5 explores several new issues that have arisen as a result of health care reform. Chapter 6 turns to educational issues, considering accreditation, community colleges in rural areas, and career advancement. Chapter 7 examines the future of team-based care in a changing health care environment. Chapter 8 presents perspectives from the representatives of several stakeholder organizations. Finally, Chapter 9 provides observations made during panel discussions at the end of each day's presentations along with observations from other speakers and workshop participants.

The ongoing changes in health care have presented the allied health professions with a major opportunity. These professions have always been a critical component of the health care workforce, and their importance will grow as policy makers emphasize the need for efficient and effective health care services. The IOM workshop explored many of the ways in which the allied health workforce will influence the health care that all Americans will receive in the future.

2

The Ongoing Transformation of Health Care

Charles de Gaulle once asked, "How can you govern a country in which there are 246 kinds of cheese?" Allied health may be in a similar position, said Edward O'Neil, director of the Center for Health Professions at the University of California, San Francisco. With more than 200 occupations included within the term *allied health*, it is a somewhat artificial grouping without a clear center or cohesiveness. Yet allied health is a critical component of health care reform.

TRANSITION OF THE CURRENT HEALTH CARE SYSTEM

O'Neil listed eight features of the current health care system that are undergoing major change, all of which have direct implications for allied health.

From Acute Treatment to Chronic Prevention and Management

Although the population is increasingly burdened by chronic disease and disability, health care remains oriented around acute care, O'Neil observed. In the long run, prevention will be emphasized. But the largest returns in the immediate future will be from managing chronic disease and disability more effectively without relying as extensively on the expensive institutions used to manage care today.

From Cost Unaware to Price Competitive

Despite all the efforts made to manage costs over the past 2 decades, most people are still unaware of the expenses associated with health care. The health care system has been "abjectly unresponsive to the consumer," said O'Neil. As a result, consumers have a tendency to go elsewhere for care that they find compelling, whether to Walmart or to Costa Rica.

From Professional Prerogative to Consumer Responsive

Because of the inpatient orientation of health care, the prerogative of the professional still reigns, whether the professional is a physician, a nurse, a dentist, or a community health worker. Health care professionals train for acute care settings and make much of their money in those settings. Even the cultural icons of health care, such as Dr. House from the television show *House*, remain focused on acute care. "When Dr. House puts a preventive strategy in place and breaks into the patient's house to monitor that patient's exercise and medication, we'll know" that change has arrived, said O'Neil.

From Inpatient to Ambulatory—Home and Community

Part of the health care reform movement today is focused on building the patient-centered medical home. "But that's just a way station to locating primary care in the home using new technology," said O'Neil. New arrangements will be made for the provision of emergency care, the storage of medical information, and services such as health coaching.

From Individual Professional to Team

In the past, large teams of providers with many different areas of expertise have managed individual patients, but that approach was too expensive, says O'Neil, and evidence is scarce that large and diverse teams functioned well. New technologies make it possible for teams to work together without gathering everyone around a large table. The challenge for team members now is to know that information about a patient exists and how to access it. "I love the Fred Hutchinson Cancer Institute," said O'Neil, "where you can't really tell who is the oncologist, the housekeeper, the nurse, or the nutritionist, because they all respond in a consumer-oriented way."

Other Trends

O'Neil mentioned, but did not discuss in detail, three other trends which move the health care system:

- From traditional practice to evidence-based medicine
- From information as record to information as tool
- From patient passivity to consumer engagement and accountability

LEGISLATIVE DRIVERS

Two major pieces of federal legislation are driving changes in health care—the Patient Protection and Affordable Care Act and the Health Care and Education Reconciliation Act. O'Neil said that he views these acts as a framework that can be used to produce a better health care system.

The two pieces of legislation are reasonably well aligned with the directions in which external forces are pushing the health care system, said O'Neil, including demographic forces and technological changes. Nevertheless, the form change takes will be created by plans, practices, professionals, and schools—not by legislation. The hard work will be done by the people and organizations that create accountable care plans, integrate care, think differently about primary care, relate differently to each other, and create more deeply innovative systems. The policy environment now supports and encourages their efforts, but it does not dictate what they should do.

The alternatives to change are limited and unpleasant, said O'Neil. The health care system could limit the access of patients to things they want, but he noted that we have been doing that for a while and patients are not going to stand for that much longer. Everyone in medicine could take a large pay cut, but O'Neil labeled that idea a nonstarter and said that it is not going to happen. The only other way to change health care is to change the practice model, he said. "How is it that we deliver a unit of care? Where does that take place? Who are the professionals that provide it? How is it financed?" Once these changes begin, they will be the vehicle by which allied health care professionals can transform their professions. "Strategic success comes with how well you understand this and move forward."

DEMOGRAPHIC CHANGES

O'Neil pointed to three broad demographic changes that will have a profound effect on health care. The first is the aging of the population. Between 2010 and 2025 the over-65 population will grow from about 12 percent of the population to 17 percent of the population (U.S. Census Bureau, 2008b). This change alone will drive many of the dynamics in

the health care system. The second broad change is increasing diversity. By 2040 the United States will not have a majority ethnic or racial group. This trend has already started on the coasts and is moving into the interior, though the interior already has many pockets of change and diversity. The third trend is simply population growth. By 2025, the United States will have grown by 15 percent (U.S. Census Bureau, 2008a). The health care system will need to become a more effective and efficient system, but it also will need increased capacity to provide services for a larger population. "Demography does not always mean destiny, but it's pretty close," O'Neil stated. "This means there is another opening for us to think about the practice model. How are we going to go about altering the practice model and utilizing allied health workers in new kinds of ways?"

THE END OF THE FLEXNERIAN PARADIGM

In 1910, Abraham Flexner published a report that transformed medicine by calling for substantially upgraded educational standards for physicians (Flexner, 1910). Future doctors got university degrees rather than professional training, medical schools were accredited, and doctors were licensed by the state. This transition led to an alliance between medicine and government that has strengthened over time, according to O'Neil. The growth of federally sponsored research after World War II created a need for even more training, both for researchers and for specialists. Specialists in turn advocated for their own research institutes, resulting in multiple institutes for various organs and diseases. Reimbursement became tied to accreditation and to research. "Every profession over that time has taken that as the model—higher and higher credentials for entry, more and more specialized knowledge," said O'Neil. "It is the model we still operate on." For some professions this model never worked very well, according to O'Neil. There may be other and better ways for people to be trained and enter into practice. The current time of change may be an opportunity to reexamine that model.

A prominent feature of the allied health professions is that they are heavily dependent on state-subsidized education. But the states are "broken financially," O'Neil said, and even if they do recover eventually, the allied health professions will not be high on their agendas. "It was hard enough to make [the case] when there were lots of resources."

Allied health needs a better model for the location and financing of allied health education and for the reintegration of allied health into the care delivery system. Many if not most of the allied health professions are driven and defined by technology. Allied health education typically has been one step removed from the parts of the system that own and operate these technologies. The allied health professions need to think about involving

the manufacturers of technologies in new ways, said O'Neil. "There are some conflicts," he acknowledged, "but I think those conflicts are exactly where we need policies to help us understand. I am not suggesting this as an exclusive option. I'm suggesting that we have a richer set of balances between where schools are organized and structured and who is interested in having them that way."

Proprietary education also is in serious need of regulatory structure, O'Neil said. Proprietary schools sometimes prey on the students who are most ambitious and least sophisticated, and the professional lives of these students can be put in jeopardy because of a lack of effective policy. Private capital needs to be available within a regulatory frame that makes sense.

DISCUSSION

During the discussion period, O'Neil was asked if disparity is another demographic characteristic that should be on his list. He acknowledged that the health care system has considerable disparities, though disparity has different sources. One complication in addressing disparities is that health care programs for diverse populations tend to be oriented toward middle-class majority populations, but some people are much more concerned about feeding their children than they are about typically middle-class concerns. The health care system needs to be concerned about disparity, but it also needs to look critically at its efforts to address disparity.

In response to a question about the obesity epidemic, O'Neil called obesity a good example of why the health care system needs to change. The system will not be able to address obesity by putting more money into health care delivery. "We will amputate some more feet. We'll treat some chronic obstructive pulmonary disease. We'll treat congestive heart disease. But we won't address obesity." The cause of obesity is outside the health care system.

Variations in state and institutional licensure are important issues and will require thorough data on the people being trained. Changing practice acts through political action is a long, hard road. But large integrated health care systems have considerable political power, and they can use their understanding of technology to demonstrate how improvements are possible. A low-cost way to rationalize health care is to lower the boundaries around practice, O'Neil observed. Demonstrating the advantages of such a step at the state level will be critical, after which it may be possible to standardize policy at the national level.

3

Allied Health: An Overview

In 1966 the deans of 13 university-based schools of health professions met in Washington, DC, to discuss possible federal actions to bolster the health care workforce. According to David Gale, Dean of the College of Health Sciences at Eastern Kentucky University, a persistent story that has emerged from the meeting is that a secretary at the meeting suggested using the term *allied health* to refer to the professions and occupations other than medicine, dentistry, and nursing that are essential to health services—and the name stuck.

That meeting contributed to the passage of the Allied Health Professions Personnel Training Act of 1966[1] just 8 months after legislation was introduced in the House and Senate. According to data presented by Gale, the next year Congress appropriated $3.735 million under the act to increase the number of allied health personnel and to improve and expand allied health education and training. Between that year and 1979, more than $276 million was appropriated under the act, which is the equivalent of more than $1 billion today. Appropriations were zeroed out in 1980, reappeared in the years 1990 and 2005, and have been zeroed out since.

While the term *allied* health has been successful in unifying very different occupations and professions, it is not a popular designation, said Gale. Only a small percentage of schools of allied health professions uses the term. However, it is tolerated, Gale added, when federal money is available.

Today the term is used in different ways by different organizations.

[1] Allied Health Professions Personnel Training Act of 1966, Public Law 751, 89th Cong., 2nd sess. (November 3, 1966).

For example, the American Medical Association (AMA) recently published a survey of allied health professionals conducted by the AMA Organized Medical Staff Section in association with the National Association of Medical Staff Services (AMA, 2010). The professionals included in that survey were clinical nurse specialists, nurse anesthetists, nurse practitioners, nurse midwives, counselors, physician assistants, chiropractors, podiatrists, and dentists—not all of whom would commonly be considered allied health professionals, as Gale observed.

The following definition of allied health is generally used:

> Allied health professionals are involved with the delivery of health or related services pertaining to the identification, evaluation, and prevention of diseases and disorders; dietary and nutrition services; rehabilitation; and health systems management, among others. Allied health professionals, to name a few, include dental hygienists, diagnostic medical sonographers, dietitians, medical technologists, occupational therapists, physical therapists, radiographers, respiratory therapists, and speech-language pathologists. (ASAHP, 2011; DOL, 2010)

In its *Occupational Outlook Handbook*, the Bureau of Labor Statistics lists *health diagnosing and treating practitioners* as audiologists, chiropractors, dentists, dietitians and nutritionists, occupational therapists, optometrists, pharmacists, physician assistants, physicians and surgeons, podiatrists, radiation therapists, recreational therapists, registered nurses, respiratory therapists, speech-language pathologists, and veterinarians (BLS, 2011). It lists *health technologists and technicians* as athletic trainers; cardiovascular technologists and technicians; clinical laboratory technologists and technicians; dental hygienists; diagnostic medical sonographers; emergency medical technicians and paramedics; licensed practical and licensed vocational nurses; medical records and health information technicians; nuclear medicine technologists; occupational health and safety specialists; occupational health and safety technicians; dispensing opticians; pharmacy technicians and aides; radiologic technologists and technicians; surgical technologists; and veterinary technologists and technicians (BLS, 2011). These listings mix people with very different degree levels and include prominent omissions, such as physical therapists, Gale noted.

ACCREDITATION OF EDUCATION AND TRAINING PROGRAMS

According to Gale, the AMA began overseeing allied health education in the 1930s. In that decade, the American Occupational Therapy Association, the American Society for Clinical Pathology, and the American Physical Therapy Association all began working with the AMA Council on Medical Education on educational standards. Health information adminis-

trators began working with the council in 1943, and radiographers in 1944. In 1957 the AMA did a study of 50 educational programs combined under the term *paramedical education*. In 1969 the AMA House of Delegates defined allied health professionals as those who exercise independent judgment within their area of competence. In AMA documents, allied health was called ancillary and paramedical.

"In the early 1970s, the AMA Council on Medical Education and the Association of Schools of Allied Health Professions conducted a major study of accredited schools of allied health, in which it identified seven prominent dilemmas," said Gale (Rees, 1973). The first was "Should there be accreditation?" to which the report replied that educational programs require some type of monitoring. The second dilemma then became "What form of monitoring is appropriate?" with the ancillary questions of "How shall the monitoring be conducted?" "Who should be responsible for the monitoring?" and "Who will finance this system?" The report did not reach conclusions in any of these areas, according to Gale. The third dilemma—"What are the functions of accreditation?"—was the most contentious. Issues of control and of authority over methods were prominent. Again, the report did not arrive at conclusions or recommendations in this area.

The fourth dilemma involved the structure of accreditation. Until the 1950s, groups formed their own accreditation organizations. In that decade the National Commission on Accreditation noted that this practice tended to make professions, including medicine and dentistry, into monopolies. The fifth dilemma turned to the financing of accreditation. The question of whether funding for accreditation should come from the schools or from government still has not been answered, Gale noted. Dilemma six pointed to the validity of accreditation. The study observed that regulatory agencies tend to have a life cycle from gestation to youth to maturity to old age, connoting a sense of deterioration. Finally, the seventh dilemma asked whether the expansion of accreditation groups should be controlled or restricted. Since 1935, according to data gathered by Gale, 24 accreditation groups were formed. In 2008 he sent a survey to the ones he had identified. According to the survey, of 9,000 accreditations that were performed in 2008, only 20 found that programs did not meet standards, with an additional 86 programs put on probation.

ISSUES IN ALLIED HEALTH

Based on his 40 years of being a dean, Gale drew several broad conclusions about allied health. First, institutions of higher education tend to "like" their allied health programs, even though they are expensive. Second, career ladders in the allied health professions tend not to be available. They

work best in nursing, but he said that even in nursing only a small number of people who earn an associate's degree go on to earn a bachelor's degree.

Each accreditation body operates in a silo around its discipline with little regard or even awareness of other professions. Third-party accreditation processes and a national accreditation board could help break down these silos, Gale said.

The term *allied health* covers everything from 1-week laparoscopic training to Ph.D. research and postdoctoral education. But most allied health workers are educated in community or technical colleges. The professions generally are at the bachelor's level or higher. For example, the clinical laboratory field has associate's, bachelor's, and master's degrees and a handful of clinical doctoral programs. However, it also has a crisis in preparing enough doctoral-level faculty and program directors. Gale advocated "letting the body of knowledge do what it needs to do." Governments, regulators, and administrators need to be flexible to let professions change.

The reimbursement systems for many allied health professions are flawed and fragmented, as are scope of practice regulations. When a patient is in need of, for example, rehabilitation services, those professions should direct patient care, Gale said. He also observed that most of the hospital patient record is from the laboratory, yet these workers generally are unable to discuss results with patients.

Finally, he listed several pressing questions involving allied health:

- What is the available workforce in each profession, including age, education, income, and length of time in the profession?
- What reimbursement mechanisms can appropriately reward practitioners for a highly demanding education?
- How can state practice acts be made current and relevant to the practice of each profession?
- How can the education system help graduates move up an educational ladder?
- How can an accreditation program recognize a "school of allied health" rather than duplicating all materials for each program?
- How can more faculty be better prepared for allied health programs?
- With professions that have changed to graduate-level entry, how can broken educational ladders be fixed?

4

Supply and Demand

Good information about the allied health workforce is critical to good decision making, and three speakers at the workshop looked specifically at data issues as they relate to the supply and demand for allied health workers. Harold Jones, dean of the School of Health Professions at the University of Alabama at Birmingham, examined federal data sources and some of the limitations of those data in projecting supply and demand. Erin Fraher, director of the Health Professions Data System at the University of North Carolina at Chapel Hill, described the data collection and analysis system in North Carolina, which serves as an example for health care workforce planning. Finally, Jennifer Nooney, management analyst within the Health Resources and Services Administration's (HRSA's) National Center for Health Workforce Analysis, outlined the effort being undertaken by HRSA to develop a minimum dataset that can help harmonize data collection and analysis.

DATA FROM THE BUREAU OF LABOR STATISTICS

High-quality data are needed for policy makers at the federal, state, and local levels and for leaders in the education sector to make informed decisions. However, the allied health disciplines have a dearth of systematic data collection and integration of that data, said Jones. Some data are available, but they have significant limitations.

Every 2 years the Bureau of Labor Statistics (BLS) issues 10-year workforce projections. Data collection and analysis occur about 6 months before the report comes out, and the last publication was in November 2009, with

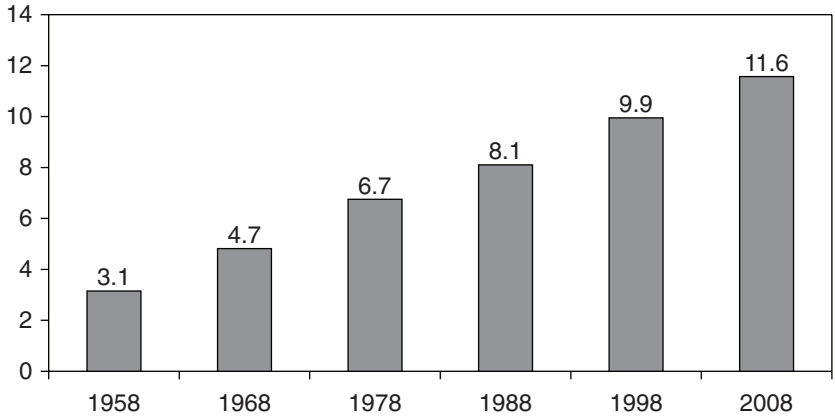

FIGURE 4-1 Percentage of total private-sector employment in private-sector health care industries: 1958–2008.
SOURCE: BLS, 2009b.

a new publication planned for November 2011. The report provides anticipated job openings based on the creation of new jobs and projected retirements and attrition. These projections are most useful for career guidance and some long-term planning exercises, said Jones. They identify industries expected to undergo growth, so that an individual can consider a career in those industries or policy makers can invest in workforce development. For example, as seen in Figure 4-1, the BLS data show health care occupations have grown rapidly as a percentage of total employment in the past: from about 3 percent in 1958 to almost 12 percent today. Further, Table 4-1 shows that BLS projections also forecast strong growth in the future for health care professionals.

Projections are also available for individual occupations (see Table 4-2), but the data become less reliable at smaller scales for several reasons. First, the model assumes full employment, but that assumption has not held for the past several years and is unlikely to do so for the next few years at least. According to a report from the Center on Education and the Workforce at Georgetown University,

> The recession that began in December of 2007 is already 30 months old, but the U.S. economy will not recover its prerecession employment levels for at least another 2 years. From there, it will take an additional 3 years to make up for lost growth and create a job market strong enough to employ both the casualties of the recession and the millions of new workers who will stream into the workforce from schools across the country. (Carnevale et al., 2010)

For example, even though the profession of nursing is projected to undergo strong growth as the U.S. population ages, newly admitted resident nurses have had a hard time finding jobs as the economy has struggled.

Also, the BLS data generally do not anticipate trends well within an industry. For example, with the Patient Protection and Affordable Care Act slated to provide insurance for millions of additional people, several major questions arise: Will those people receive the majority of their care from primary care physicians, nurse practitioners, physician assistants, or others? What kinds of diagnostic testing will grow most strongly? Will accountable care organizations or other kinds of institutions have increased control over health care spending? Will projected growth in the number of physicians increase the demand for people in allied health, as it has in the past? These questions do not yet have answers, but those answers will have a powerful effect on workforce trends within allied health.

The biggest problem with the BLS data, said Jones, is that they only address demand, not supply. Matching demand to supply requires knowing the capacity for production in any given discipline. A cautionary tale from pharmacy is a good example. The BLS data (see Table 4-2) show the

TABLE 4-1 U.S. Workforce Employment, 2008 and Projected 2018

Occupation	Employment numbers (in thousands) 2008	2018	Change (percentage)	Total job openings due to growth and net replacements, 2008–2018 (in thousands)
Community and social services occupations	2,724	3,172	16.5	1,033
Education, training, and library occupations	9,210	10,534	14.4	3,332
Health care practitioners and technical occupations	7,491	9,091	21.4	3,139
Health care support occupations	3,982	5,130	28.8	1,595
Sales and related occupations	15,903	16,883	6.2	5,713
Office and administrative support occupations	24,101	25,943	7.6	7,255
Installation, maintenance, and repair occupations	5,798	6,238	7.6	1,586
Production occupations	10,083	9,734	–3.5	2,156

SOURCE: BLS, 2009a.

TABLE 4-2 U.S. Workforce Employment, 2008 and Projected 2018 by Detailed Occupation

Occupation	Employment numbers (in thousands)		Change (percentage)	Total job openings due to growth and net replacements, 2008–2018 (in thousands)
	2008	2018		
Physicians and surgeons	661	806	21.8	261
Pharmacists	270	316	17.0	106
Registered nurses	2,619	3,200	22.2	1,039
Occupational therapists	105	131	25.6	46
Physical therapists	186	242	30.3	79
Physician assistants	75	104	39.0	43
Speech-language pathologists	119	141	18.5	44
Athletic trainers	16	22	37.0	12
Medical and clinical lab technologists	172	193	11.9	53
Medical and clinical lab technicians	156	181	16.1	55
Dental hygienists	174	237	36.1	98
Radiologic technologists and technicians	215	252	17.2	68
Respiratory therapists	106	128	20.9	41
Home health aides	922	1,383	50.0	553
Medical assistants	484	648	33.9	218

SOURCE: BLS, 2009a.

demand for pharmacists growing by 17 percent from 2008 to 2018, with 106,000 new jobs over that period. For the past decade, pharmacy schools have responded to these projections by increasing enrollments and opening new programs. Now there is great concern about an overproduction of pharmacists. Similar mismatches are occurring in other fields.

Data Needs

Jones cited several factors that need to be taken into account in establishing workforce development policies. First, many important data are unavailable. What percentage of people trained in an area actually enter

that area, how long they stay in a profession, and how many people reenter a profession after time away from it are all uncertain. The geographic distribution of workers is another issue, particularly as it affects care in underserved areas. Finally, unforeseen policy or economic shifts can dramatically and quickly affect both workforce supply and demand.

Workforce projections in allied health face particular challenges. Allied health education is offered in almost every type of postsecondary educational institution. The professions that fall under the label of allied health have different sizes and structures, different education requirements, and different infrastructures for data collection. No one group has the responsibility to provide the needed data, said Jones. "The federal government does play a pivotal role in helping us to devise common ways to define the data and then serves as a nonbiased source to integrate that data that we collect, but this is something that we all have to share."

ALLIED HEALTH WORKFORCE PLANNING IN NORTH CAROLINA

In 1979 the North Carolina Health Professions Data System (HPDS) began maintaining data files containing complete licensure data for a variety of health professions (HPDS, 2011). A collaboration between the University of North Carolina and the health professions licensing boards, the HPDS seeks to provide timely, objective, and evidence-based analyses to inform health workforce decisions. Data are provided voluntarily by the boards—no legislation requires them to do so. "They do it because they know it helps them and it helps the state," said Fraher.

These data make it possible to do longitudinal and interprofessional comparisons that can greatly improve statewide planning. For example, in examining the data, Fraher found that the per capita population of physical therapists in North Carolina grew almost fivefold from 1979 to 2009. The population of physical therapy assistants has grown even faster, and both grew faster than the supply of physicians, nurses, and pharmacists. However, the population of physical therapists grew most dramatically in the areas of the state that do not have shortages of health care professionals. Programs exist to get physicians and nurses into shortage areas, said Fraher, but far less attention has been directed toward allied health professions.

The data also reveal that many allied health professions are less diverse than the North Carolina population. "What are we doing to get underrepresented minorities into the allied health professions and build career ladders?" Fraher asked.

The HPDS also collects demand-side data by tracking the number of vacancies in online sources and newspapers. For example, data from 2010 (Kimball et al., 2011) show that occupational therapy assistants are in the

highest demand relative to the size of the workforce. With 121 advertisements and a workforce of about 900, about 13.4 vacancies exist for every 100 people in the workforce. Educators can use this information to set enrollments in state programs, and workforce development boards can use them to allocate efforts, Fraher said. Demand varies by location in the state. About 30 percent of the allied health job vacancies in North Carolina in 2010 were for physical therapists, but this number varies from almost half in the southern portions of the state to about a quarter in the western parts of the state.

The data collected by the HPDS reveal that allied health is "a job machine," according to Fraher. As seen in Figure 4-2, employment in health care and social assistance has steadily risen while manufacturing employment has fallen. "This is the graph that made the governor sit up straight and say we need to be concentrating on health jobs." Even in the recent recession, Figure 4-3 shows that health care employment stayed fairly constant, while employment in areas other than health care plummeted. Health care has the potential to sustain local economies, particularly rural ones, and is less vulnerable to outsourcing, Fraher said. Job growth in these fields is also likely to continue given demographic changes, population growth, and the expansion of insurance coverage.

The workforce development commission in North Carolina has created an allied health regional skills partnership that includes community colleges, local government, health care employers, and other regional stake-

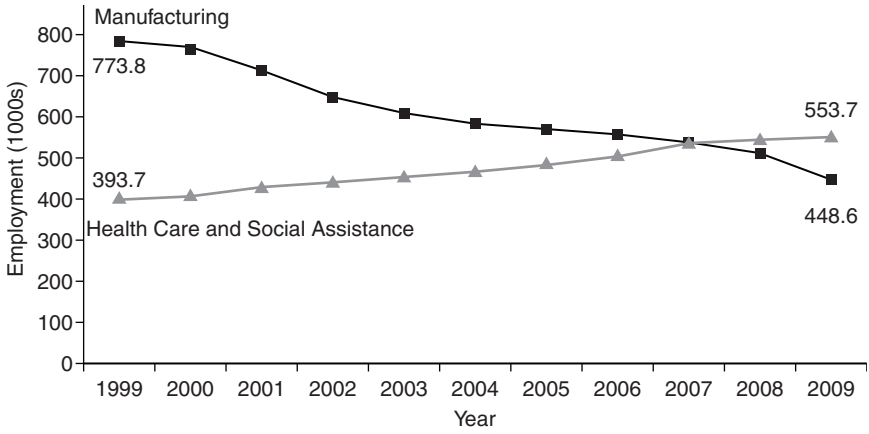

FIGURE 4-2 Health care and social assistance employment vs. manufacturing employment, North Carolina, 1999–2009.
SOURCE: Reprinted with permission from Erin Fraher, North Carolina Health Professions Data System.

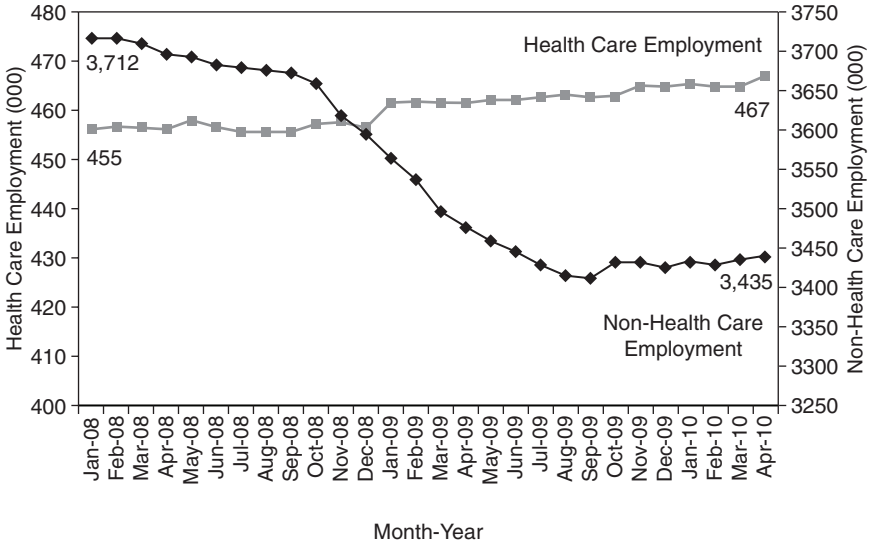

FIGURE 4-3 Health care and non-health care employment during recession, North Carolina.
SOURCE: Reprinted with permission from Erin Fraher, North Carolina Health Professions Data System.

holders. The partnership addresses allied health workforce issues in the region with a special focus on the sectors' competitiveness and creating employment and career advancement opportunities for unemployed and dislocated workers. This is a great story, said Fraher, of "how you use data to implement change."

Data and Health Care Reform

As health care reform progresses, workforce planning will become even more important, according to Fraher. Economic trends are of course influential, but large-scale policy change is needed for the next generation of workforce planning. In a new world of patient-centered medical homes (PCMHs) and accountable care organizations (ACOs), the emphasis will be on how care is delivered, not who delivers care.

Full implementation of the PCMH and ACO models will require shifting workforce planning away from specific professional groups or employment sectors toward planning for the health service needs of defined populations. Different models of care and configurations of skills will

need to be evaluated for cost and quality. For example, one practice might rely more heavily on medical assistants, while another uses more physical therapy assistants than physical therapists. Much better and more data will be needed on the effects of these differences on outcomes.

North Carolina has received a state health care workforce planning grant from HRSA and has used it to assess the key health care services provided by PCMHs, the number and types of professionals needed in PCMHs, and how well supply matches the needs of the population. It also is using the grant to identify the need for new programs, mechanisms to retool the existing workforce, and the need for new professionals to meet the needs of PCMHs.

Care in medical homes can be distinctive because of its reliance on coordination, case management, and linking the health care system with the community. But who does care coordination, Fraher asked. It could be a nurse, a social worker, a medical assistant, or another health care professional. Similarly, patient education can be done by medical assistants, registered nurses, primary care physicians, or others. "Let's open the patient-centered medical home box and understand who is in there and what they're doing . . . and then think about what that means for new programs," Fraher said. Change will often require retooling the existing workforce rather than relying on new graduates and being open to new health professions that emerge as a result of change.

Lessons Learned in North Carolina

Fraher pointed to several lessons learned from experiences in North Carolina. First, we plan, she said. Having better information enables employers, educators, practitioners, and students to make better decisions. For example, Fraher noted that workforce planning saved the state $80 million when it decided not to open a pharmacy school because data showed that it did not need another pharmacy school. Instead, the data pointed to serious oral health disparities in the eastern part of the state, and eastern North Carolina now has an innovative model of dental education. "We actively engage in using our data for workforce planning." An inventory of existing datasets could show what data are not collected that need to be, what the strengths and limitations of existing data are, and what the barriers to getting data are. Also, if a minimum dataset is defined, it should expand to cover all valid health professions, said Fraher.

Another lesson learned is to cultivate a role for professional associations and licensure bodies. The licensure bodies in North Carolina have been "fantastic," said Fraher. "They are as actively involved in understanding health workforce planning in the state as we are."

The balance between the state and federal roles is still in flux. What is

the national role in health workforce planning, what is the state role, and how can the two best work together?

National data comparable to the North Carolina data are not yet available. National data would benefit North Carolina as well as other states, because then state data could be compared with numbers in other states and with data for the nation as a whole. One impediment is that different states and the federal government have different ways of collecting and analyzing data. "Let's get together and learn how to speak the same language," Fraher stated.

Finally, continued investments are needed to build and maintain these datasets, and states will need technical assistance to get them up and running. "Be inventive," said Fraher. "It's not just federal resources; there is foundation funding and other funding."

A UNIFORM HEALTH PROFESSIONS DATASET

Health workforce data serve several important uses, said Nooney. First, they make it possible to understand trends in workforce supply, demand, distribution, and shortage. "You have to know where you've been and what types of conditions occur alongside shortages to be able to predict when this is going to occur again," Nooney said. Second, workforce data collected across time, place, and profession enable benchmarking against other professions, geographic areas, and baseline levels. "We have lots of workforce data, but one of the problems is it is all a little bit different from place to place and profession to profession. That hampers our ability to make these comparisons." Third, data are a needed input for projections of supply and demand. Good projections provide detailed information about, for example, career transitions, the aging of the workforce, and when workers tend to retire. Without this information, it is difficult or impossible to project workforce supply in a particular area. Fourth, workforce data guide the development and evaluation of policies and programs to enhance the health workforce. Good policies are data driven. When something is going wrong, the data indicate ways to fix the problem and monitor progress toward a solution. "They allow course corrections through policies and programs," said Nooney.

Sources and Limitations of Workforce Data

Many different entities collect workforce data in the health professions, and data are plentiful, but the quality of the data ranges widely. Many professional associations collect supply-side information on their workforce during membership renewal and at conferences. Many professional associations also attempt to survey all licensed professionals within an

area, but because they generally do not have the ability to mandate completion of the surveys, the data are incomplete. Regulatory and certification organizations, including state licensure boards and national certification and credentialing organizations, collect data during the registration and licensing processes. In this case, they are able to reach all of the licensed professionals in an area every several years. "That's a great opportunity to collect information," said Nooney. State workforce planning agencies, such as the HPDS in North Carolina, collect workforce data. Many researchers also collect workforce data, though their samples are often small and their topics narrow. However, these data can be useful for digging deeply into some of the complex questions that surround the workforce. Finally, the federal government collects data, both through federal-state collaboratives and through primary data collection. For example, HRSA has supported the National Sample Survey of Registered Nurses quadrennially since 1977 (HRSA, 2011b).

Despite all these sources of data, the information available is not sufficient to meet many policy objectives, Nooney said. As Fraher observed, the wide variation in approach is a major problem. The items in surveys, the wording or response options, the populations being sampled, and other factors vary from source to source. "This is problematic because we can't put all of this together and make the comparisons that we need," said Nooney. "Differences in data collection hamper comparisons across professions, area, and time."

A Minimum Dataset

The purpose of the minimum dataset project at HRSA is to standardize data collection to improve workforce planning and policy development. As a first step, HRSA is focusing on supply data, with plans to apply lessons learned in that area to demand data and education program capacity and output. It also is collecting data initially for a limited number of health professions: physicians, nurses (including advanced practice nurses), physician assistants, dentists and dental hygienists, pharmacists, and physical therapists. These professions are some of the largest in health care and also reflect the priorities of HRSA, which is focused on primary care and health profession shortage areas.

Datasets will be harmonized through standardized questionnaires or instruments. A meeting of researchers was convened to discuss which items are essential, which are not essential, and the purposes of data collection. Items for a minimum dataset have been drafted, and at the time of the workshop they were being circulated for internal review and revision. The next step is to convene stakeholder meetings to gather feedback from the community about the items and about implementation. Documentation and

guidelines will be drafted to help in the collection of data, and outreach and technical assistance will promote implementation.

The broad areas in the minimum dataset include education and training (e.g., degrees earned and types of training and certification); basic demographic data (e.g., age, gender, and race); and practice, activity, and employment information (e.g., numbers of hours worked, activities conducted, and where those activities are conducted).

Nooney emphasized the word *minimum*. HRSA is not trying to collect detailed data for each profession. It is seeking to develop a core set of essential items that can be implemented with limited resources. "We are trying to keep it small and focus on standardizing a small subset of items that we can't live without." HRSA also will be building on the many entities that have well-developed data collection infrastructures. For example, professional associations and state licensure boards are in a unique position to support this endeavor because they collect data every time a licensed professional reregisters. Licensed professions such as medicine and nursing have available sources of data, but allied health is a bigger challenge since it is populated with many unlicensed professions. Also, some allied health professions have a lower rate of professional identity or membership in professional associations, which reduces the potential for data collection. And allied health professionals tend to practice in a wide variety of settings, so trying to reach them at their place of employment or through employers is a challenge. HRSA hopes to work out some of these problems before expanding to many of the allied health professions.

The benefits of a minimum dataset in the allied health professions will be similar to the benefits for medicine, nursing, and other professions, said Nooney. It will support the ability to assess trends in supply, distribution, and practice patterns; enable more accurate projections; guide the development of programs and policies; and improve understanding of workforce aging and retirement patterns. In fact, concluded Nooney, data for the allied health professions will be even more useful than in other areas because so little data are available today.

DISCUSSION

During the discussion period, the moderator of the session on data needs, Edward Salsberg, director of the National Center for Health Workforce Analysis, said that HRSA was open to talking with other allied health professions, in addition to physical therapy, about the minimum dataset. "One of the challenges, as you've seen from this morning's discussion, is who we should sit with if we want to talk about allied health professions as a group."

He also discussed possible ways to motivate organizations and states to

collect data. One approach is simply to emphasize that it is in an organization's or state's interest to do so. Another argument is that better data can help with the credentialing process.

He mentioned that HRSA is working with the BLS on demand-side issues. One complication is that the Standard Occupational Classification (SOC) is only changed once every 10 years, and the most recent change was in 2010. Because of the lead time involved in making changes, people who want to add an allied health profession to the next release of the SOC should start working with HRSA and BLS now.

Jones emphasized that the allied health professions cannot expect HRSA to collect all of the data that are needed. States, professional organizations, and educational institutions all need to collect data in a useful format and combine their efforts. These organizations also have much to gain from participating in this effort.

A workshop participant observed that standards, licensing, and credentialing requirements (e.g., requirements for higher educational levels) are often used to control the number of people in a workforce, and Jones agreed, saying that economic realities are inevitably a factor. But he also noted that health care reform is seeking to change some of these forces. Some activities carried out only by physicians in the past may move into the allied health professions. Activities such as coordinating chronic disease management could be handled in many different ways, and health care reform will influence the decisions that are made.

Fraher brought up the divide between advanced educational requirements and the activities actually performed in some allied health fields. For example, physical therapy contains two groups of practitioners: a more advanced group for whom higher educational levels are appropriate, and a more assistive group. Also, high educational levels can contribute to a lack of diversity and geographic disparities, she said. For example, community colleges tend to pull from their local communities and produce graduates who go to work in their local communities, which results in a more diverse and distributed workforce. Nursing deals with many of the same kinds of issues as allied health and could provide a model for allied health fields, she said.

Nooney observed that demand projections depend heavily on the age, size, and shape of the population. Also, surveying employers is a way to get demand-side information not available in other ways. "Employers see what's happening on the ground," she said. "They have vacancies or they don't. They have trouble recruiting or they don't. They have plans to expand their practice or their facility or they don't."

In response to a question about whether the professionals delivering care have the body of knowledge, accreditation, or certification needed to do so, Fraher said that much better data are needed on the outcomes of

using assistive personnel. "What are the implications for cost and quality of substituting an assistive person for someone else—we don't know." Certification limits supply, but better evidence is needed on skill mix configurations and what they mean for cost and quality.

Salsberg responded that a challenge in the workforce planning community is to understand both short- and long-term trends. In the recent recession, the job market was soft even for nurses and allied health professionals, but that does not say much about what the job market will be like 10 years from now. "It is critical that we do the analysis . . . so we can advise the community." A focus on the short term can lead to overproduction and temporary surpluses followed by underproduction and shortages. "Getting better data and looking at the long-term needs is going to be critical for the future."

5

New and Changing Needs

The dramatic changes going on in health care today will have an equally dramatic effect on allied health, and these effects will play out directly in the ways care is delivered in communities and to individual patients. Three speakers at the workshop discussed these real-world effects in the context of health care reform. Cathy Martin, director of Workforce for the California Hospital Association (CHA), talked about a survey of allied health workforce needs that coincided with the passage of health care reform legislation. Mary Anne Kelly, vice president of the Metropolitan Chicago Healthcare Council (MCHC), described what health care reform will mean for metropolitan Chicago. Finally, Jason Patnosh, associate vice president and national director of Community HealthCorps for the National Association of Community Health Centers, Inc. (NACHC), explored how the expansion of health care coverage will affect community health centers.

AN ALLIED HEALTH WORKFORCE SURVEY IN CALIFORNIA

In 2007 the CHA created the Healthcare Workforce Coalition to create and lead a statewide, coordinated effort to develop and implement strategic, long-term solutions to the shortage of nonnursing allied health professionals. At the time, before the economic recession that began in 2008, the CHA was worried about increasing retirements among allied health workers and an aging population, said Martin. Since then the economy has changed dramatically, but concerns about the allied health workforce remain, especially as the California budget crisis has reduced funding for educational institutions that educate health care workers.

Martin said the Healthcare Workforce Coalition conducted a survey in 2007 of hospitals and found that imaging, laboratory, and pharmacy personnel were among the top positions that affect hospital efficiencies and access to care when vacancies exist. In 2009 the CHA decided to conduct a follow-up survey to understand how the economy was affecting demand for allied health professionals currently and to assess hospital concerns regarding workforce in the future. The survey was distributed to 200 hospitals, and 125 responded. The response was strongest from northern and central California, yet was generally representative of the CHA membership overall. Martin noted that rural hospitals were slightly overrepresented, which was a positive because that "was a critical component that we wanted to capture."

The survey asked about 14 occupations chosen by the CHA Workforce Committee:

1. Clinical laboratory scientist
2. Medical laboratory technician
3. Radiologic technologist
4. CT technologist
5. PET technologist
6. Cardiovascular and interventional radiology technologist
7. MRI technologist
8. Ultrasound technologist
9. Nuclear medicine technologist
10. Pharmacist
11. Pharmacy technician
12. Physical therapist
13. Physical therapy assistant
14. Respiratory therapist

Not all of these occupations would be classified as allied health (e.g., pharmacists), but the survey results nevertheless provide useful and valuable information about allied health professionals.

The survey showed that respiratory therapists are the largest of the 14 occupations at the hospitals surveyed. The top five occupations—respiratory therapists, pharmacists, pharmacist technicians, radiological technologists, and clinical laboratory scientists—make up 76 percent of the total full-time equivalent (FTE) positions reported by the survey respondents.

The occupation with the highest vacancy rate was physical therapist. Smaller hospitals had higher vacancy rates than larger hospitals. Also, rural communities are in greater need of physical therapists than urban communities, Martin said. "It's tough for students to get education and training in this area in rural communities, and it's tough to attract them to practice

in those communities. It is something that we definitely see on the horizon and is a concern for us, especially with the aging population."

One survey question asked about the impact that vacancies have on access to care and hospital efficiencies, with a rating of 1 denoting no impact and 5 the greatest impact. The profession with the highest impact score was pharmacists, followed by physical therapists, respiratory therapists, and clinical laboratory scientists.

Clinical laboratory scientists had the highest average age across all of the selected surveyed professions. Using 62 as the age of retirement, the survey showed that 844 clinical laboratory scientists are eligible to retire between 2010 and 2015 in the 125 hospitals that responded. Yet programs in California currently produce only 100 to 125 clinical laboratory scientists per year. "This is important, because this does not include outpatient settings [or] public health," said Martin. Also, becoming a clinical laboratory scientist requires a bachelor's degree and an additional year of training. "These folks take a long time to train, and we need many of them."

Radiological technologist is fourth on the list of pending retirements, which would seem to indicate that training more of these individuals is less important than for occupations higher on the list. But hospitals strongly refute that conclusion, said Martin. The supply-and-demand data for radiological technologists is misleading. Although we produce more than demand suggests is needed, radiological technologists are not static in their practice. "Imaging department directors take their best and most promising rad tech, and train them to be their next MRI, cardiovascular tech, or what have you, because those are where your real critical needs are, in the subspecialties," said Martin. "This is where bringing employers to the table is critical when we have these discussions because they are the ones who have to get these folks into the positions, and they are the ones struggling to find them."

Health care reform legislation was passed in the middle of the 2010 survey. If health care reform increases the need for primary care professionals, it may be necessary to expand the definition of primary care, Martin said. Chronic care management and community-based care also may grow in importance, as well as the need for health information technology (HIT) skills among clinical workers and HIT workers who understand clinical workflows. Other workforce needs cited by hospitals responding to the survey were for direct care workers, including home health aides and long-term-care professionals, and social and health case management for behavioral health patients.

The CHA plans to continue to use information generated by the survey to inform regional and statewide efforts, Martin said. It also will participate in the planning and implementation stage of the California Workforce Investment Board's Health Workforce Development Council. It will develop

and maintain a repository of promising practices on CHA's website. And it will continue to coordinate and collaborate with other statewide efforts to ensure that strategies are responsive to industry's needs.

NEW AND CHANGING NEEDS IN CHICAGO

Chicago provides an excellent example of the changes being created not just by health care reform but also by education reform, said Kelly.

Information Technology in Health Care Reform

The Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009[1] drives electronic health record adoption in several ways. First, HITECH calls for the formation of health information exchanges (HIEs) at the local, state, and national level. The major functions of HIEs are to enable the sharing of clinical information; to coordinate care, quality, and health status reporting; and to promote the use of shared platforms. The patient is at the center of the HIE, said Kelly, not the technology. "It's about building the social capital to create a robust information exchange that will lead to quality outcomes and improved patient care. The technology is the underpinning to achieve that."

The HITECH Act calls for the "meaningful use," as the act puts it, of patient information through electronic medical records. As David Blumenthal, then the national coordinator for Health Information Technology for the U.S. Department of Health and Human Services, said in 2009, "We recognize that better health care does not come solely from the adoption of technology itself but through the ongoing private and secure exchange and use of health information to provide the best possible information at the point of patient care" (HHS, 2009). This new capability in turn requires workforce development to make this happen, said Kelly.

A health information exchange connects many stakeholders, including hospitals, physician offices, laboratories, pharmacies, long-term care providers, imaging centers, other HIEs, behavioral health providers, and consumers to enable the meaningful exchange of information. As an example, Kelly cited the exchange of clinical data in the emergency room. If someone is in an accident and is taken to a hospital where that person does not normally receive care, with access to an HIE the emergency room physician and staff can access medical information under a secure framework. A second example Kelly cited is public health data reporting to improve population health.

[1] Health Information Technology for Economic and Clinical Health Act, Public Law 5, 111th Cong., 1st sess. (February 17, 2009), §§ 13001 et seq.

A second component of the HITECH Act is the creation of regional extension centers (RECs) to provide support to primary care providers in small practice settings as they move toward the goal of meaningful use. The MCHC serves as a satellite office of the Illinois Health Information Technology Regional Extension Center to such services as practice assessments, vendor selection, purchase facilitation, workflow redesign and preparedness, quality reporting assistance, HIE interoperability, and privacy and security considerations.

A third component of the HITECH Act is developing the workforce to achieve and support electronic health records and their meaningful use. This includes such means as curriculum development centers, a community college consortium, competency exams for individuals, and university-based training. For example, the community college consortium trains people in 3- to 6-month certification programs to provide assistance to physicians and to other practice settings in implementing electronic medical records. Careers in this area include implementation support specialists, practice workflow specialists, information management design specialists, clinical consultants, and implementation managers. "These are going to be the first responders to this large-scale implementation of HIT," said Kelly. More long-term careers for health care delivery and public health sites include clinical IT leaders, technical and software support, trainers, HIE specialists, and privacy and security specialists. Positions for health care and public health informaticians include research and development scientists, programmers and software engineers, and subspecialists in such fields as ethics, human factors interfaces, and industrial/systems engineering.

To fill these positions, health information technology education must be offered to the current workforce and incorporated into the curricula of all health professions. "Work is going to change," said Kelly. "If we don't get the workflow issues right, we are not going to be moving this forward successfully."

Education Reform

Education reform will have a big effect on the health professions, said Kelly. Although Illinois was not selected for a Race to the Top award, the process of applying for the award led to considerable planning among a wide group of stakeholders who remain committed to moving forward. The initiative to reform science, technology, engineering, and mathematics (STEM) education has been led by the Illinois Department of Commerce and Economic Opportunity, with strong support from the Department of Education and higher education. Illinois is scaling up its programs of study around STEM education, and health care is at the top of the list.

Several pilot projects under way are focused on health care as a career

cluster. To accomplish its goals, Illinois envisions the creation of a health education learning exchange that would enable the sharing of resources, curricula, space, and laboratories. Participants in the education exchange would include integrated education systems, employers, unions, and professional associations, with the health professions providing advice on curricula. "Educators [could] pull together and not reinvent the wheel for schools of allied health," said Kelly.

Finally, Kelly briefly described a school that is a microcosm of education reform. Instituto del Progreso Latino is a community-based organization in metropolitan Chicago that has been working for 35 years in adult education. Upon successfully receiving approval to create a charter high school, in September 2010 the Instituto opened the Instituto Health Sciences Career Academy, a 600-student high school focused on career education and college readiness in the health sciences. "Just in the first 163 days of the school, these children have come so far in their understanding of the world that's available to them in health careers because we've really focused this year on career exploration," Kelly observed.

COMMUNITY HEALTH CENTERS AND THE ALLIED HEALTH WORKFORCE

Federally qualified health centers (FQHCs) were founded more than 40 years ago in Boston and Mt. Bayou, Mississippi, by Jack Geiger and Count Gibson in collaboration with the federal Office of Economic Opportunity. They are consumer oriented and directed, are located in medically underserved areas, provide primary and preventive health care, and are open to all regardless of ability to pay. Patnosh noted that according to estimates performed by the NACHC, FQHCs see more than 22 million patients annually across 1,200 grantees and more than 8,000 locations.

The NACHC was founded a few years later to serve as the voice for health centers, provide technical assistance and support, and develop programs for FQHCs, said Patnosh. Its overall mission is to promote the provision of high-quality, comprehensive, and affordable health care that is coordinated, culturally and linguistically competent, and community directed for all medically underserved people.

The Patient Protection and Affordable Care Act (ACA)[2] provides $11 billion in dedicated funding for health center operations and capital for FY 2011–FY 2015. This amount includes $9.5 billion to support health center operations and $1.5 billion for capital needs. These funds are meant to serve additional patients by expanding current service capacity, including

[2] Patient Protection and Affordable Care Act, Public Law 148, 111th Cong., 2nd sess. (March 23, 2010).

adding providers and staff and increasing hours of operation. Increased funding also provides for new or expanded oral health, behavioral health, pharmacy, and enabling services.

The funding in the ACA was enough to increase the number of patients seen in community health centers to 40 million. Many of these additional people seen would be among the 32 million uninsured individuals in the United States. However, in the FY 2011 budget deal, funding for FQHCs was reduced by $600 million, affecting the ability of FQHCs to reach this number.

"Where are these patients going to go?" asked Patnosh. "If you're working in the hospitals, they'll still be showing up to the emergency rooms. If you're in the community health centers, they are still going to be showing up. We're still going to be seeing them. [But] how far can we extend the already stretched load on the health care system?"

Many allied health professionals work in FQHCs, including dental hygienists, medical or dental assistants, health information technologists, health care administrators, medical coders, pharmacy technicians, phlebotomists, and community health workers. Some of these people can climb a career ladder or shift professions within allied health to fill needed jobs, such as a health information technologist who takes on other administrative roles. Also, health care institutions can compete among themselves for people in these positions, which raises the questions of whether FQHCs can keep allied health workers as they receive additional training.

Examples of Identification and Pipeline Programs

Patnosh briefly described several programs that serve as models for identifying, training, and retaining allied health workers.

The World Academy for Total Community Health in Brownsville, New York, has the mission of preparing high school students to make healthy choices, lead healthy lives, and advocate for the total health of their families, their communities, their nation, and ultimately their world (Brownsville Multi-Service Family Health Center, 2011). It exposes students to all aspects of the health care field and to the variety of career options the industry offers, creates a socially supportive learning environment, and offers an academically rigorous curriculum that prepares students for higher education. Lead partners are the Brownsville Multi-Service Family Health Center (an FQHC), the Long Island University School of Nursing, and the Sophie Davis School of Biomedical Education.

The Central Valley Health Network (2011), which is a network of FQHCs in the Central Valley in Sacramento, holds an annual conference for 400 to 500 local youth that highlights leadership and careers in health care. The biggest challenge in the Central Valley is not necessarily to get

individuals into a health career but keeping them in the Central Valley. "They are trying to figure out how do they develop their own and keep their kids there," said Patnosh.

The Area Health Education Centers are creating programs nationwide for youth as early as first graders to teach healthy lifestyles and spark interest in health careers (HRSA, 2011a).

High school dropout rates are critically important, Patnosh emphasized. "If there is any position in your agency or in a health care institution that does not require a high school degree, I would be shocked," he said. With dropout rates of 30 percent or more in some high schools, workforce development inevitably will be a challenge.

Community HealthCorps is one of NACHC's signature programs (Community HealthCorps, 2011). Its mission is to improve health care access and enhance workforce development for community health centers through national service programs. It is the largest AmeriCorps program in the country that is based in health care, with more than 500 full-time AmeriCorps members coming through the project every year. Many of them are in a gap year between an undergraduate degree and graduate school or medical school. But others have only a high school diploma or GED. By serving, they receive a $5,350 scholarship, and many 4-year degree schools are starting to match AmeriCorps scholarship money. More than 250 service locations now host AmeriCorps members.

Community HealthCorps has a standardized program design that works, said Patnosh (see Figure 5-1). Its benefits include a more skilled workforce, increased engagement of community volunteers, greater advocacy for community residents and community health issues, increased third-party health insurance and other revenues, and increased funding diversification. Participants benefit through improved understanding of community health delivery, improved interest in high-need health careers, job skills, and workplace experiences that lead to living wage career opportunities, reduced debt burden, encouragement for further education, and increased self-efficacy.

In 2009–2010, Community HealthCorps served approximately 1.2 million people who lacked access and inadequately used health services (NACHC, 2011). About $11 million was invested in the program—$6 million from federal sources and $5 million from local matches. The value of the service that members provided is estimated at $14.4 million, in addition to the $2 million in educational scholarships they earned. This represents a 145 percent return on investment, along with healthier children and families and the development of the workforce.

Health care reform will require a well-trained workforce to deliver more effective care. A major challenge, Patnosh concluded, is forming partnerships among academic institutions, hospitals, and community public

Recruit	Train	Serve		Transition
		Teams and Roles	Supervision	
Process: Members apply directly to program sites for Fall start Program coordinators screen and select applicants **Criteria:** High school diploma, GED or working toward GED; interest in health care; attitude; good work ethic of helping the community	**Initial:** Preservice orientation includes introduction to AmeriCorps/ HealthCorps, health center, basic first aid training **Ongoing:** Program coordinators and site supervisors continue to develop and train members for skills needed to perform day-to-day service duties	Each program hosts 5–25 members who meet as a team for training and peer support (avg. size around 12 members) and perform various activities, including but not limited to health outreach on health center services, education (i.e., tobacco cessation and flu vaccinations), enrolling kids and families in public health insurance, coordinating pediatric obesity intervention programs, and providing translations for limited English proficient patients	Members are supervised on-site by site supervisors, staff employed by the health center Members are also supported by program coordinators who source the positions, facilitate team interactions, and serve as liaison between the members and sites	**During Service:** Members learn goal setting, job search, resume writing, interview preparation to support their transition to future employment and higher education **After Service:** Some stay with HealthCorps for second year, others are hired by CHC or others to work in a health care field, pursue more schooling or employment

FIGURE 5-1 Community HealthCorps Program design.
SOURCE: Reprinted with permission from Jason Patnosh, National Association of Community Health Centers.

health departments to put the patient at the center of care wherever it is delivered.

DISCUSSION

In response to a question about integrating behavioral health workers into health care settings, Patnosh emphasized the importance of both reimbursement systems and innovation. Health care is a very regimented system that can be difficult to change. Change requires innovation, and one innovation that can help move the needle is the concept of team care. However, team care needs to begin not at the level of delivery but at the level of schooling. Individuals need to learn to understand the roles of different positions within the care team.

Kelly added that a growing issue in Chicago is the presence of comorbidities when a patient comes to a caregiver. A patient may have a medical condition, but a behavioral health issue exists as well, and a health care provider may not be equipped to deal with that comorbidity. On that point, Patnosh observed that the Veterans Health Administration (VHA) is particularly experienced at dealing with multiple health issues, including behavioral health issues. The VHA also instituted the use of electronic medical records very early, which has helped it integrate primary care and

mental health. In addition, as a workshop participant pointed out, allied health workers such as occupational therapists are positioned in the gap between physical health and behavioral health.

Nooney called attention to the fact that 62 is a young age for retirement, which raises the issue of how to retool an aging workforce as health care needs evolve. As one example, her hospital has been working to reduce the physical demands of nursing for older workers. If people choose to work past what was once considered retirement age—and many will, for economic reasons—how can they be used most effectively, she asked. Kelly observed that older workers also could play a valuable role in education, but programs need to be established to use their skills and experience for that purpose. Patnosh added that programs are starting to appear both within health care and elsewhere to bring older workers in as "encore fellows" where they contribute in a meaningful way to ongoing projects. "We have seniors within our AmeriCorps project, and starting this year . . . anybody 55 years or older can do a year of AmeriCorps and give that educational award to a child or grandchild." Older people tend to have specific reasons for getting involved and are often passionate about their work, he said.

6

Education and Training

Like allied health itself, the education and training of allied health workers are varied, complex, and changing. Three speakers addressed components of the education and training system while acknowledging that many things must change in parallel to respond to changing needs. M. LaCheeta McPherson, executive dean of Health and Legal Studies at El Centro College in Dallas and president of the board of directors for the Commission on Accreditation for Allied Health Education Programs (CAAHEP), described the challenges and opportunities of accreditation in allied health. Susan Skillman, deputy director of the Center for Health Workforce Studies and the Rural Health Research Center (RHRC) of the University of Washington, presented preliminary results from a research project that is looking at access to allied health programs at community colleges and in rural areas. Maria Flynn, vice president of the Building Economic Opportunity Group for Jobs for the Future, described an effort to "grow your own" allied health workers by providing frontline workers[1] with on-the-job and classroom training.

[1] Frontline workers are those individuals who may serve as the first or most frequent point of contact for patients in the health care system, and provide direct patient care and client services (RWJF, 2007). Examples include home health aides, medical assistants, laboratory technicians, and substance abuse workers (Jobs to Careers, 2011a).

ACCREDITATION OF ALLIED HEALTH PROGRAMS

CAAHEP was organized as a separate organization in 1994 after originating in the Committee on Allied Health Education Accreditation of the American Medical Association (AMA). It is the largest programmatic and specialized accreditor in the health sciences field in the United States. McPherson stated that CAAHEP currently accredits more than 2,200 programs across the country in 1,300 sponsoring institutions, including colleges and universities as well as technical schools. CAAHEP accredits programs in 23 health sciences occupations:

1. Advanced cardiac sonographer
2. Anesthesia assistant
3. Anesthesia technology
4. Cardiovascular technology
5. Cytotechnology
6. Diagnostic medical sonography
7. Electroneurodiagnostic technology
8. Emergency medical technician–paramedic
9. Exercise physiology
10. Exercise science
11. Kinesiotherapy
12. Lactation consultant
13. Medical assisting
14. Medical illustration
15. Orthotic and prosthetic technician
16. Orthotist and prosthetist
17. Perfusion
18. Personal fitness training
19. Polysomnographic technology
20. Recreational therapy
21. Specialist blood bank technology/transfusion
22. Surgical assisting
23. Surgical technology

This is a very diverse list, which creates both advantages and challenges, observed McPherson. First, the diversity of the fields accredited by CAAHEP is reflected in the diversity of the commission itself, which includes educators, professionals from societies and organizations, representatives of the Department of Defense, members of the general public, and recent graduates of allied health programs. The 15 members of the board of directors, who establish policies for the commission, are drawn from the more than 250 commissioners.

Each profession has a committee on accreditation consisting of people who represent that profession. These committees work directly with the individual programs to develop and enforce standards based on the CAAHEP model. CAAHEP is a third-body accreditor with a board that is independent of the committees of accreditation. The board looks carefully at recommendations made by the boards of the committees on accreditation, raising questions about issues. CAAHEP also draws on its diverse membership to maintain standards. For example, it holds two workshops a year to bring the professions together and address common issues.

Though the professions represented through the programs it accredits are very different, they have common concerns, said McPherson. For example, they have many of the same legal and organizational issues. They also are addressing new questions raised by distance education and the increasing number of programs that are online. "How are they different from a brick-and-mortar program?" asked McPherson. "Should there be any difference, and how do we measure those differences? It's not unique to just one profession. It spans all of these professions." The professions may not always agree on outcomes, McPherson emphasized. But they listen to each other and have the option of using each other's models, so they do not have to reinvent the wheel.

CAAHEP encourages collaborations among levels of education. Some of the programs it accredits are at the associate's degree level while others are at the master's degree level. Also, representing multiple educational levels can promote career pathways, said McPherson. A student who starts off as a medical assistant might eventually want to move into sonography or nursing, and the common focus and common voice provided by CAAHEP can help that process.

Several years ago CAAHEP decided to focus on emergency preparedness. Using a government grant, it asked how emergency preparedness can be included in the curricula of all the programs it accredits. "One may think that emergency preparedness may not always be applicable to all 23 professions in the programs we accredit. For example, one of the professions is a medical illustrator. How in the world could a medical illustrator work in emergency preparedness within the curriculum? In fact, the medical illustrators were the first people to write that particular topic into the curriculum and get it approved." CAAHEP provides a template with which programs can write their own standards, and it was within the standards template that member professions addressed emergency preparedness. "We saw that emergency preparedness was, indeed, an obligation of all people in health careers and all phases of health readiness."

CAAHEP also provides training for site visitors. Accreditors' greatest impact is at the program level during a site visit, said McPherson, "and it can be really great or it can be absolutely horrible." CAAHEP provides site

visitors with the information and background they need to be effective. It also offers assistance to program directors, information on outcome measures, and grants to improve the accreditation process.

CAAHEP faces several challenges, said McPherson. The first is that allied health is like an iceberg. People see a small portion of it, but it has a huge part that people tend not to see. The commission is also struggling with the problems uncovered at some for-profit schools. CAAHEP offers only programmatic accreditation. Institutional accreditation is typically performed by a national or regional accreditor. Many for-profit schools use national accreditation as a way of becoming accredited and recognized to get federal funding. Unfortunately, said McPherson, some national accreditors are not as strict in their requirements as other accreditors. The Department of Education and the Council for Higher Education Accreditation (CHEA) have issued calls for accreditation to become more transparent, and "If we don't do it, it's going to be forced upon us," said McPherson. For example, the CHEA is asking to see the reasons for accreditation decisions. "That's going to be a challenge for accreditors in trying to explain why accreditation decisions were made," said McPherson.

The allied health professions can come together to achieve mutual benefits. They also need to be more stringent in the requirements for their programs, and CAAHEP can help them achieve both goals, McPherson concluded.

COMMUNITY COLLEGES AND THE EDUCATION OF ALLIED HEALTH PROFESSIONALS IN RURAL AREAS

The RHRC at the University of Washington, with support from the Health Resources and Services Administration's Office of Rural Health Policy, has been studying

- why community colleges are important to the allied health workforce and to rural communities,
- which allied health occupations are most relevant to rural areas and can be educated in community colleges,
- how many allied health programs are (and are not) located within commuting distance of rural populations, and
- how many small rural hospitals are located near allied health education programs.

The yet-unpublished study has drawn expert input from the American Association of Community Colleges, the National Network of Health Career Programs in Community Colleges, and the Rural Community College Alliance. Its main data source has been the U.S. Department of Education's

Interdisciplinary Postsecondary Education Data System, and it has used definitions of allied health programs from the U.S. Department of Education's Classification of Instruction Programs.

Community colleges are extremely important to rural economic development, said Skillman, and in many rural communities they are the only higher education institutions accessible to their populations. "They work generally with their communities, so to the extent to which rural folks can train in their own communities, it will greatly increase the likelihood that they will work in those communities," said Skillman. Furthermore, many students in allied health education programs can be job ready after completing community college programs. For this reason, many rural health care programs use a "grow your own" approach. They attract people from rural areas and train them in rural areas to increase the chances that they will stay in those areas.

Skillman and her colleagues developed a list of 18 "rural-relevant allied health occupations" that can be job ready after training at a community college:

1. Dental assistant
2. Dental hygienist
3. Health information/medical records technician
4. Medical assistant
5. Occupational therapist assistant
6. Pharmacy technician/assistant
7. Physical therapist assistant
8. Veterinary technician/assistant
9. Cardiovascular technologist
10. Electrocardiograph technician
11. EMT/paramedic
12. Nuclear medical technologist
13. Radiation therapist
14. Respiratory care therapist
15. Surgical technologist
16. Diagnostic sonographer/ultrasound technician
17. Radiographer
18. Clinical/medical laboratory technician

Education for these professions can also occur at institutions other than community colleges, or training can be on the job for some. But community colleges play a major role in educating people in these occupations. For example, half of all medical assistants in 2000–2008 were educated in community colleges, while 72 percent of surgical technologists and 82 percent of physical therapy assistants were educated in community colleges.

Skillman and her colleagues mapped community colleges that had at least one of these rural-relevant 18 allied health programs to find areas that lacked access to these programs. Not surprisingly, large areas of the United States, especially in the Midwest and West, did not have community college allied health programs. Overall, they found, 78 percent of rural populations in the country are within a 60-minute drive of a community college program with at least one of those 18 allied health occupations, with a lower percentage in smaller towns. In isolated rural areas in the West, only 35 percent are within an hour drive of a community college allied health education program.

By occupation, 55 percent of rural populations nationwide are within a 60-minute drive of a program for medical assistants, but only 35 percent nationwide of rural populations are within a 60-minute drive of a dental hygienist program. "We are hoping that this can be used by individual programs and educators to make arguments for ways to expand education opportunities and identify gaps," said Skillman. As a proxy for demand data, the researchers looked at hospitals, since they are major employers of the health workforce. For critical access hospitals, 33 percent were within a 60-minute drive of a community college with a surgical technologist program. However, the percentages are lower for other programs, and in some parts of the country the percentages are quite low.

Identifying these kinds of gaps is essential for education program planning, according to Skillman. "We need data to begin getting the right people at the right places at the right times." Rural communities often struggle to get the health workforce they need. Working with local community colleges is one way for health care organizations to address these needs. But health occupations education is expensive, and most students need on-site clinical training, which is more difficult to arrange in rural areas than urban areas. Community colleges also must compete with health care institutions and with 4-year institutions and medical schools for faculty, which limits their ability to offer allied health programs.

Distance education could alleviate many of the problems of rural allied health education programs, said Skillman, but much more information is needed on online programs. Also, clinical training can be difficult to arrange with distance education. Simulations may be able to substitute for some clinical training, but more evidence is needed on its use in allied health education. Collaboration is needed among all of the different stakeholders in the system to address these and other issues.

CAREER ADVANCEMENT THROUGH WORK-BASED LEARNING

Frontline workers fill about half of all health care jobs and deliver most of the nation's direct care and health services. Leading-edge employers are

realizing the potential of this workforce to deliver more and better care, fill critical vacancies in professional positions, and meet the needs of today. Frontline workers tend to be female; they are often English language learners, especially in some parts of the country; they traditionally have high turnover rates; and, they tend to have little, if any, postsecondary education. "In fact, a lot of them may have had very difficult experiences with formal education in the past," said Flynn.

Employers tend to put most of their training resources into the higher rungs of the career ladder, so much more funding goes to physician training than to training for frontline workers, said Flynn. But training at the frontline level can reduce turnover and improve the quality of care. Such training "can make these frontline workers more a part of the care team and improve the quality of care as a result."

For example, Flynn noted the Virginia Mason Hospital and Medical Center in Seattle did an analysis of the high costs of training new medical assistants in their facilities. These costs were attributed to high annual turnover rates, the number of days to fill a single medical assistant position, and the costs related to the temporary employment of medical assistants during this process. The hospital found that a much more cost-effective way to meet this need was to work with a local community college using a "grow your own" model.

Flynn acknowledged that training frontline workers is not easy. Many of them have basic skill deficiencies, so they need assistance and remedial work to enter college-level courses. Also, many employers lack transparent career pathways, so individuals who come in at lower rungs of the career ladder do not know how to move up that ladder. Many educational institutions do not design their program offerings in ways that make them easy to access for adult learners or for people who are working full time, and many workers cannot afford to leave the workforce to pursue full-time education. Finally, some regulatory bodies have been reluctant to accept alternative ways of education and training.

Jobs to Careers

Flynn described in some detail the Jobs to Careers initiative, which was funded by the Robert Wood Johnson Foundation, the Hitachi Foundation, and the U.S. Department of Labor (Jobs to Careers, 2011b). They invested about $16 million over 4 years to promote skill and career development in frontline health care workers. At 17 sites around the country, the initiative served about 900 individuals. It worked with 34 employers, ranging from hospitals in urban and rural areas to community health centers, behavioral health facilities, and long-term care facilities. The initiative also worked with about two dozen educational institutions, primarily community col-

leges, along with local workforce investment boards or union training and upgrading bodies.

The key strategies were testing models of work-based learning, designing systems to support learning and career growth of frontline workers, and developing partnerships of employers, educational institutions, and others. "Employers or community colleges can't do this on their own," said Flynn. Through work-based learning, frontline employees master occupational and academic skills in the course of their job tasks and day-to-day responsibilities. The training model is based on the idea of clinicals, preceptors, and other methods common in health care education and training. It uses job responsibilities to achieve learning objectives and measured achievement of specific competencies. Supervisors took on the new role of coach and teacher to guide the workers through the learning process. Mastery was rewarded with academic or industry-recognized credentials. So far the credential attainment rate is about 60 percent, which for this population is fairly high, according to Flynn. Work-based learning is not enough in many cases, so the program included online learning and traditional classroom learning. It also promoted opportunity for reflection and critical thinking among both workers and supervisors. Competencies were drawn from evidence-based research and uniformly linked to workplace skills. They were standardized across diverse work settings—such as hospital settings and residential settings—as was the instructional methodology. Attainment of competencies was linked to college credits and career ladder advancement.

According to a third-party evaluation, the frontline workers involved in the program gained tangible benefits. They had access to a seamless educational pathway and to college credits and credentials. In Fall River, Massachusetts, for example, individuals going through the program were earning community college credits without having to take a class in the community college. They had increased confidence and job performance, understanding the "why" and not just the "how." In addition, cohorts of Fall River workers had 100 percent pass rates, and students had the highest test scores in the state of Massachusetts.

Employers benefit from the engagement of employees in improving competency-based skills and from increased employee effectiveness and performance. The initiative created a cohesive patient care team and maximized investment in training. Supervisors by and large found the training to be a satisfying and effective part of their job. In Medford, Oregon, Asante Health Systems was so impressed by the initiative that it redirected several hundred thousand dollars from recruiting to investing in its workforce.

Many of the hospitals involved with the initiative have changed their policy to pay for tuition for frontline workers, and studies have shown that they did not lose money by doing that. They also have created new positions that include wage increases to motivate workers. An Austin, Texas,

hospital, for example, created clinical tech assistant level one, two, and three. A person at level three has the option of staying at that level, going into other allied health professions, or following a prenursing track.

Interesting issues that arose in the initiative include how to award credit for prior learning, how to use supervisors from the work site as ad hoc faculty, and matching supply with demand for specific occupations. An underlying need is to learn how to offer core components of the curriculum, such as algebra, medical terminology, or anatomy and physiology, so individuals are ready to progress educationally regardless of how demand changes.

DISCUSSION

In response to a question about the mismatch between many educational programs and the scientific and technological sophistication of health care workplaces, McPherson observed that one response to changing technology is to require higher educational degrees of workers. Credentialing standards also must change as technologies evolve (e.g., transition in medical imaging from film toward digital technologies). Students must be able to pass their boards to get jobs, which means working with credentialing boards and professional associations to keep curricula up to date.

"Degree creep" can be a problem, McPherson said. When a program moves from the associate's level to the bachelor's level, entirely different institutions may be involved. On this issue, Skillman added that evidence is for the most part lacking about what degree level produces the best outcome. Furthermore, research will not be entirely sufficient to make these decisions, which means that common sense also must be used. The emphasis on interprofessional teams requires looking across the team to determine how one profession depends on others and what skill sets are needed.

Another workshop participant asked about the potential oversaturation of markets when programs produce too many graduates and people cannot find jobs. Skillman agreed that programs need to be flexible to adjust to regional needs. Working with hospitals, clinics, and other institutions can help them determine the demand for employees. Also, emphasizing core academic subjects can help people move in new directions if necessary. McPherson added that community colleges are very aware of the job demand and do adjust their enrollments based on the job markets, assisted by information provided by advisory committees. But the proliferation of for-profit institutions has complicated this process. For-profit institutions can flood a region with people trained in a particular area, particularly in lower-level programs, even when jobs are not available.

Flynn mentioned a new technology that can assess a regional labor market and provide up-to-date information on vacancies, required skills, and needed credentialing levels. Jobs for the Future is starting to test this

technology in partnership with community colleges to help them align their program offerings with demand. "It's very new, but I think it has a lot of potential," she said.

Finally, a question about guidance for students who do not know what kinds of programs and jobs are available led Flynn to mention two efforts: a program to train counselors to make them more aware of career opportunities, and a virtual career network for health care that will provide information about education providers and job opportunities. Skillman added that the Area Health Education Centers, which began in the 1970s to help support primary care physicians in underserved areas, have evolved to promote career pathways across the spectrum of the health workforce. "This is very much part of their mission."

7

The Future of Team-Based Care

Team-based care will be central to the future of the health care system of the future, and allied health workers will be essential members of those teams. But many questions still surround team-based care. Who should be on a team? Who should do what? Who should be the head of the team? What are the different roles of the members of a team? How can people best learn to work together as teams?

In a session of the workshop addressing these questions, Kevin Lyons, director of the Office of Institutional Research at Thomas Jefferson University, examined the potential of interprofessional education to teach the skills needed for effective teamwork. Joan Rogers, professor of occupational therapy, psychiatry, and nursing at the University of Pittsburgh, looked at the rehabilitation team as a model of team-based care. Jean Moore, director of the Center for Health Workforce Studies at the State University of New York at Albany School of Public Health, discussed the scope-of-practice issues that inevitably arise when considering who can do what in medicine.

INTERPROFESSIONAL EDUCATION AND TRAINING

In 1988 the World Health Organization defined interprofessional education as a process by which a group of students from the health-related occupations with different educational backgrounds learn together during certain periods of their education, with interaction as an important goal, to collaborate in providing promotive, preventive, curative, rehabilitative, and other health-related services (WHO, 1988). The Center for the Advancement of Interprofessional Education has described interprofessional

education as what "occurs when two or more professions learn with, from, and about each other to improve collaboration and the quality of care" (CAIPE, 2002).

This concept has gone through a series of boom and bust cycles, observed Lyons. At the beginning of the 20th century, physicians in Boston began moving into hospitals and brought together the community of educators, social workers, and others with whom they had worked outside hospitals. After World War II, multidisciplinary teams in hospitals worked on health issues among veterans and the rapidly growing U.S. population. During the Great Society era of the 1960s, community health centers played a role in fostering interprofessional education.

In the 1970s, federal support for federally qualified health centers echoed the themes contained in the 1972 report by the Institute of Medicine *Educating for the Health Team* (IOM, 1972). After another lull in the 1980s, a series of reports in the 1990s and first decade of the 21st century renewed the emphasis on interprofessional education. "We are seeing now a much larger effort from more people than there has been in the past," said Lyons.

Evidence of Effectiveness

Research has demonstrated that interprofessional education delivered in a variety of clinical settings is well received by participants and can enable students and professionals to learn knowledge and skills necessary for collaboration. There is also some evidence that team-based practice can have a positive effect on care. The research base is not yet as strong as it needs to be, Lyons stated, but it has steadily moved away from attitudes toward behaviors and outcomes.

At the same time, predictions of physician shortages, the aging of the health workforce, and growing recognition of the behavioral origins of illness have reemphasized the importance of interprofessional care. Lyons said that he expects this emphasis to endure. The federal government has again recognized interprofessional care as an important component of the health care system. Foundations such as the Josiah Macy Foundation and the Robert Wood Johnson Foundation are supporting investigations of interprofessional care. The Association of Schools of Allied Health Professions and professional associations are beginning to establish requirements for interprofessional education and practice. "The confluence is coming together so that it might last."

Interprofessional education is also becoming globalized, said Lyons, with many European countries involved. A major dialogue has been occurring through the World Health Organization involving people from developed and underdeveloped countries sharing ideas and program designs

with each other through electronic media. The United States and Canada have been engaged in international collaborations through the Canadian Interprofessional Health Collaborative and the American Interprofessional Health Collaborative. The World Health Organization's Framework for Action on Interprofessional Education & Collaborative Practice recommends changing health care practices on a worldwide basis (WHO, 2010).

Other groups are also paying attention to interprofessional education. The Interprofessional Education Collaborative (IPEC)[1] comprises six national education associations of schools of health professionals and is supported by three private foundations. On the very day of the workshop, IPEC released its national core competencies for interprofessional collaborative practice at the National Press Club in Washington, DC (AACOM, 2011), which Lyons termed a "major advance." The Association of Schools of Allied Health Professions also has been focused on interprofessional education. In particular, it has been looking at the barriers posed by faculty resistance that can make it difficult to offer interprofessional education.

Requirements for Successful Programs

Lyons pointed to three sets of factors required for successful programs: learner-focused factors, faculty factors, and organizational factors. In addition, the cultures of institutions need to change for interprofessional education to flourish. Students and clinicians need positive attitudes toward other professionals, knowledge about the contributions of other professions, skills in working with others, and behavior that is supportive of others. Several types of interactive learning methods can support interprofessional interactions, including seminars, patient visits, and role playing. Group dynamics work best with a balance of professions and stability so one profession does not necessarily dominate. To ensure that interprofessional education is valued, learning needs to be assessed in meaningful ways and have a clear clinical focus. Expert facilitation for faculty members is critical. "Putting three or four disciplines together in a room and assuming they are going to play as a team is not going to happen," said Lyons. Faculty need to be chosen who have the ability to facilitate small-group learning, resolve conflict, and know health professions relationships. Facilitators themselves need support and training. At the organizational level, there is some debate about whether interprofessional education should occur prelicensure or postlicensure, said Lyons. Prelicensure is more difficult because so many barriers to interprofessional education exist at universities. Organizations

[1] More information can be found about IPEC at http://www.aacom.org/InfoFor/educators/ipe/Pages/default.aspx.

need to be committed to interprofessional education and support it for success to occur.

The Jefferson Health Mentor Program

Most programs of interprofessional education are somewhat different, but Lyons offered the Jefferson Health Mentor Program at the Jefferson Center for Interprofessional Education as a brief case study (Thomas Jefferson University, 2011). The program seeks to change the attitudes, knowledge, skills, and behaviors of students and have them develop a patient perspective on care. The underlying philosophy is that students in the health professions need to understand that good chronic illness care requires expert interprofessional teams, and that professionals need to understand each other's roles in the health care team. To practice patient-centered care, students must understand the patient's perspective. They need to understand how a person's health conditions and impairments interact with other personal and environmental factors.

All students in medicine, nursing, occupational therapy, physical therapy, pharmacy, and public health go through the 2-year program, with the first cohort of students entering in 2007. Teams of three or four students that contain two or three different disciplines are formed. Each team visits and works with a volunteer living in the community who has one or more chronic conditions. Teams work collaboratively with this health mentor on such issues as access to care, expectations of health care providers, and health care services. Teams return after the visit to debrief and reflect, and the volunteer in the community provides feedback. By using participants in the health care system as mentors, the teams of students experience and come to understand the perspective of someone with chronic conditions in the community, said Lyons.

The curriculum includes modules on comprehensive life and health history, preparing a wellness plan, assessing patient safety, reducing medical errors, and evidence-based practice, with continual debriefing and reflection. Numerous evaluations have looked at such measures as attitudes toward chronic illness, readiness for interprofessional learning, perceptions of health, faculty attitudes toward interprofessional education, and attitudes toward health care teams. Outside evaluations of the program over the last 4 years have led to significant program modifications.

According to the evaluations, prior to 2007–2008 medical and nursing students had relatively negative attitudes toward chronic illness care. Those attitudes improved significantly by the conclusion of the program. Students reported a better understanding of the training and perspective of those in other disciplines and an appreciation for the health mentors as teachers.

Students need to be involved in interprofessional education from the beginning, Lyons emphasized, including the planning process.

The evaluations also showed that students lacked an understanding of the goals of the experience. Students were accustomed to lectures, and the administrative aspects of the program such as scheduling and traveling to meetings with mentors were a burden. There were some complaints that some disciplines were not contributing because they were not required to participate, and there was a lack of understanding of the implications for future practice. These negative comments appear to be lessening as a result of program modifications, Lyons said.

A recently completed baseline survey of graduates in practice for 5 to 10 years revealed positive attitudes about interprofessional education, good understanding of the roles of other professions, and inclusion of patients in setting goals. "These are self-reports, so take this with a grain of salt," said Lyons, but "there does seem to be more interprofessional care going on in practice than we thought." Future plans call for more qualitative analysis and assessments of graduates in practice. Surveys also will look at faculty attitudes, since there is a strong correlation between faculty attitudes and student attitudes toward interprofessional education.

TEAM-BASED CARE AND HEALTH CARE REFORM

According to Rogers, an interprofessional health care team can be defined as a group of individuals from different professions who collaborate effectively with the patient and each other to solve patient problems that are more complex than can be managed by the knowledge and skills of any one profession alone. The interprofessional team is interdependent, reliant on good patient-team communication, patient-centered, and comprehensive at multiple levels. Such teams cannot exist in isolation. They thrive in a context that supports their birth and nourishes their development, and context, in this formulation, "could well be translated into management," said Rogers.

Rehabilitation Teams and Geriatrics

Historically, the rehabilitation team was among the first in which allied health professionals made a contribution to team care. The team included occupational, physical, and recreational therapists, speech-language pathologists, and the patients along with physicians, nurses, and social workers. Evidence suggests that rehabilitation teams can produce positive patient outcomes. For example, a study of Veterans Administration hospitals found that 3 of 10 measures of team functioning were significantly associated with functional improvement: team orientation, order and organization, and

quality of information (Strasser et al., 2005). One measure, effectiveness, was associated with length of stay.

In a related study, the expectations of discipline-specific supervisors, hands-on leadership, and the involvement of the attending physician were associated with the extent to which the team reported functioning in a cohesive manner (Smits et al., 2003). The authors speculated that higher functioning on the cohesiveness scale indicated that patients' services were likely delivered with greater interprofessional communication and joint effort.

A third study examined whether a team training intervention improved outcomes in patients with stroke (Strasser et al., 2008). The intervention was conducted over 6 months and included such items as team dynamics, problem solving, use of performance feedback, and action plans for process improvement. Both the intervention and the control teams received site-specific team performance data. The results showed that patient outcomes on the Functional Independence Measure for the intervention teams were almost 14 percent better than for the control teams.

Geriatrics has many parallels with rehabilitation, said Rogers. In geriatrics, as in rehabilitation, the impetus for team care is the patient, and the team faces multifaceted problems that can include dementia, depression, polypharmacy, and falls. The Program of All-inclusive Care for the Elderly (PACE) provides an excellent glimpse of the future of geriatric care, said Rogers. PACE provides primary, acute, and long-term care services to frail, elderly individuals in the community. At a minimum, the PACE team includes primary care physicians, nurses and social workers, physical and occupational therapists, recreational therapists or activity coordinators, dieticians, and personal care attendants.

A study of PACE found that team performance was significantly associated with better functional outcomes in both the short and long term (Mukamel et al., 2006). PACE improved functional outcomes by improving the functioning of the team. As with the rehabilitation studies, this provides evidence of the relationship between team functioning and patient outcomes, but in this case the findings extend to primary care.

Team Care and Health Care Reform

Experience with rehabilitation teams can make several contributions to health care reform, said Rogers. Disease prevention and health promotion are major themes of health care reform. According to the Centers for Disease Control and Prevention, one of every 10 Americans, representing more than 25 million people, has a chronic, disabling condition sufficient enough to limit activities of daily living (CDC, 2011). As a result, disease management will be an essential component of health care reform.

Based on its experience with rehabilitation, allied health can form the

base of teams ready to help people exercise regularly, eat right, and incorporate these tasks into their daily living routines. Rehabilitation personnel have historically motivated patients to do for themselves, said Rogers. Rehabilitation teams that include allied health workers have a wealth of practical experience related to self-management of daily activities despite disease. Team functioning can be enhanced through the inclusion of health educators, who can develop patient education materials that meet the standards of health literacy.

A significant component of disease management is medication management, Rogers observed. Many allied health professionals contribute to the safe use of prescribed medications, assessing the functional implications of medications, evaluating cognitive and dexterity skills for manipulating medications, developing learning aids, and assessing polypharmacy and prescribing patterns.

Screening for early diagnosis is a major strategy of health care reform, and two examples provide a rationale for the inclusion of allied professionals in screening, said Rogers. First, evidence indicates that screening patients with acute stroke for dysphasia reduces hospital pneumonia rates (Doggett et al., 2001). Because the development of pneumonia prolongs hospitalization and increases costs, screening stroke patients and others who have diseases that include risk factors for dysphasia would promote health and be cost-effective.

Second, screening for declines in functional status may alert physicians to emerging medical issues and disability. People often go to their primary care physicians not because they realize that their lungs are not expanding and contracting as they used to, said Rogers, but because they are having difficulty going up and down the stairs due to huffing and puffing. By monitoring change in functional status, physicians can be alerted to changes in body structures and functions. A study in which a 4-minute screening tool was used to predict functional status supports this approach (Min et al., 2009).

A major concern of health care reform is managing the increasing numbers of patients who will have access to care, especially in the areas of mental health services. Allied health personnel who have typically been involved in mental health care include art, dance movement, music, occupational, and recreational therapists. Role responsibilities for these professionals may need to be extended as health care reform progresses, Rogers said.

The educational standards of Roger's own profession, occupational therapy, prepare occupational therapists to work in mental health. Yet occupational therapy is not recognized as a core mental health profession in the U.S. Code of Federal Regulations or as a qualified mental health profession, as defined by state statute and regulations, despite the close connection between psychiatric symptoms and dysfunctions in activities of daily

living. Ironically, occupational therapy had its origins in mental health, and therapists currently serve as mental health professionals in several federal settings, including the U.S. Army, where they are responsible for assessing soldiers for posttraumatic stress disorder and their readiness to return to the frontline.

As another example of the many regulatory constraints placed on the use of professional skills, dieticians who spend years learning about food science and diets generally cannot prescribe diets in many hospitals. Instead, it must be done by a physician. Similarly, in many states, dental hygienists require direct supervision from dentists, thus preventing them from independently practicing in nursing homes where oral hygiene needs are great.

The Potential of Telerehabilitation

Just as telehealth is extending medical services over land and sea, so, too, telerehabilitation can greatly extend rehabilitation services, Rogers observed. Telerehabilitation is projected to increase accessibility, improve continuity of care, and decrease costs. It also can be a way of facilitating assessment and intervention in a patient's home and work environments. "This is particularly important in rehabilitation because it negates the need to then transfer information that is gained in a clinic situation about activities of daily living to the home or work situation," said Rogers

These potential benefits of telerehabilitation will not be achieved unless patient outcomes are at least equivalent to what can be achieved in a face-to-face situation. Evidence of the effectiveness of telerehabilitation can be gleaned from a review by the Institute of Health Economics, which summarized 61 studies in 12 clinical areas, including cardiology and neurology (Hailey et al., 2010). Numerous studies demonstrated that in some clinical areas telerehabilitation was effective. However, the report concluded that compelling evidence of the benefits and impact on routine care for rehabilitation programs is still limited, and there is a need for more and better quality studies. Of the studies reviewed, 71 percent were deemed successful, 18 percent as unsuccessful, and 11 percent as having unclear outcomes.

Kairy and colleagues (2009) drew the same general conclusion. They ascertained that clinical outcomes were generally improved and tended to be similar or even better than alternative interventions face to face. Attendance and adherence were high. Consultation time was longer. Satisfaction was high, and it was somewhat higher for patients than it was for providers. Preliminary evidence also pointed to cost savings.

Schein and colleagues (2010) investigated the equivalence of in-person and remote assessment using video conferencing for patients needing a wheeled mobility and seating assessment. Their findings revealed no significant differences in the level of functioning that was achieved.

While telerehabilitation is technically feasible in remote clinic and home environments, more research is needed before it can be fully integrated into daily life in the clinic, Rogers concluded. In addition, there are some situations where patients and their caregivers may be able to manage the telesystem, but there might be others where they need an ancillary worker to manage the system.

Team-Centered Care

The increasing emphasis on accountability and data-driven patient outcomes has made health information managers essential members of the health care team, Rogers noted. For example, in recent years medical librarians have become essential team members. They have the needed experience in locating, evaluating, and summarizing information and alerting the team to relevant evidence. Also, computerization of health information has made it possible for the team to monitor a variety of information for numerous purposes.

"Collaborating effectively" is the operative phrase in the job description of teams, Rogers said, and communication is the essential ingredient of effective collaboration. Although allied health professionals have been team members, except for the rehabilitation team they have not been members of the core team. However, new technologies are changing the way in which teamwork is being done. Video conferencing and teleconferencing can enable allied health members to collaborate with other team members in real time for meetings, even if they are in remote locations. The virtual health care team holds promise for including allied health professionals in the primary care team as these emerge in medical homes and accountable care organizations.

Rogers concluded by addressing role competencies. Just as public health needs were served by empowering pharmacists to give flu shots, allied health professionals may need to be empowered with selected medical, nursing, or rehabilitation skills. For example, in their entry-level education, dieticians learn about special diets, occupational therapists learn how to facilitate hand-to-mouth movement, and speech-language pathologists learn about swallowing techniques. After working together as a team and taking specialized courses, each team member becomes more like the other team members, because at the point of care diet, feeding, and swallowing techniques are all needed, and the expert practitioner blends these patient care functions into one.

"At the point of care, it is not what profession has the expertise," said Rogers. "It is what professional has the expertise. At the point of care, more attention needs to be directed toward who has the qualifications needed versus traditional roles."

SCOPE OF PRACTICE AND TEAM-BASED CARE

Scope of practice sets the legal framework for service delivery by a specific health profession in a state. It defines the parameters of practice for a profession, specifies the required education or training, and restricts the use of a title to licensed holders. Based in state licensing laws and rules, scope of practice is designed primarily to serve consumer protection. Scope of practice is just one aspect of health professions regulation in a state, noted Moore. Other aspects include certification, licensure, license renewal, discipline and appeals, and education. Also, there is variation in scope-of-practice rules between states. Not all states license and define scope of practice for all health professions. Scope-of-practice rules can vary even within states for the same profession. In California, for example, the state defines a basic scope of practice for paramedics, but expanded duties can be approved at the individual county level.

Scope of practice can have substantial inconsistencies. It may be interpreted very broadly for some professions and narrowly for others. In some cases, *scope of practice* may not be particularly well defined. For example, scope of practice for auxiliary personnel is sometimes found under the delegation authority of other health professionals. These variations have important implications for cost, quality, and access to services. Restrictive scope-of-practice rules can create a mismatch between what a health professional is educated to do and what that person legally can do.

Some scope-of-practice rules have evolved considerably over the last decade for various reasons. One reason is health workforce shortages, which have been key to the development of new professions like nurse practitioners and physician assistants, according to Moore. A related reason is limited access to needed services. New York, for example, recently removed a requirement for midwives to have a collaborative practice agreement, so that midwives no longer need a collaborating physician to provide care. Emerging technologies can make health care easier and simpler or create complexities in the delivery of services that need to be reflected in scope-of-practice rules. Finally, controlling health care costs can be a factor behind changes in scope of practice.

Arrayed against these forces for change are forces for resistance. There can be concerns about quality or costs. An ever-present issue is the struggle over who can do what to whom and where. Furthermore, these discussions go on state by state, not at a national level, which can produce many additional complications. When changes do occur in scope of practice, they tend to be evolutionary and not revolutionary, said Moore. Many pieces need to be in place to effect a scope-of-practice change, and many stakeholders will be involved. For example, the steps involved in allowing nurse practitioners and physician assistants to write prescriptions included

a statutory change, an education component in pharmacotherapy, a process for certification and competency testing, changes in hospital agreements related to responsibility for standing medical orders, federal permission, and changes in insurance company procedures. As a result, there is often a time lag between the passage of a scope-of-practice change and the actual implementation of that change.

Team-Based Care

As patient-centered medical homes become more common, interdisciplinary teams will become central to the provision of health care services. The configurations of these teams will depend on patient needs. Team members will communicate and collaborate with each other in the delivery of care, and care will be coordinated among multiple providers and transitions. Efficiency will be a priority, and team members will be asked to work to their full scope, Moore said. Role overlap will be common in team-based care. Sometimes this will mean scope-of-practice overlap, as with physicians, nurse practitioners, and physician assistants. In the process, team-based care will uncover overly restrictive scopes of practice.

For example, diabetes self-management education helps people with or at risk for diabetes to manage the disease. Often, certified diabetes educators lead diabetes self-management education (DSME) teams, which can include dieticians, registered nurses, community health workers, and others. In a study of 1,000 certified diabetes educators in New York, Moore and her colleagues found that certified diabetes educators are drawn from a variety of health professions (Moore et al., 2010). Nearly all certified diabetes educators are either dietitians or registered nurses. Being certified requires meeting stringent standards, including 2 years of experience in the health profession, 1,000 hours of practical experience providing diabetes education, and passing a certification exam. Certified diabetes educators may head a team with other professionals and support personnel in the delivery of diabetes services. But despite their broad knowledge of diabetes, they sometimes are limited by scope-of-practice rules.

Scope-of-practice overlap is not always bad, said Moore. Provided the team members are comfortable with their limits and are willing to bring in the others that they need to provide care, it can facilitate better care. For example, a registered nurse who is a certified diabetes educator can counsel broadly on nutrition but may bring in a nutritionist if more detail and planning are needed. Conversely, if the certified diabetes educator is a dietician, the dietician may refer to a registered nurse for a medical problem.

States are developing strategies for examining and revising scope-of-practice regulations. Some require applications to be submitted for any effort to add a new profession or modify a scope of practice. Typical ques-

tions are What is the problem? Why is a change needed? What efforts have been made to address the problem? What are the alternatives? What are the benefits and risks? What are the costs?

Another approach has been to establish independent scope-of-practice review committees. Such committees can create much more systematic ways of assessing proposals related to changing the scope of practice. The composition of these committees can vary, but they generally are not limited to the health professions that are affected by the proposal. Also, once a change is made, impacts on cost, quality, and access to care need to be assessed.

At the national level, proposals have been made to provide uniform standards for educating and certifying health professionals in particular areas, such as those who administer radiation. A number of health professions have developed model practice acts, including national uniform scopes of practice to guide state legislatures. The most credible of these efforts are based on evidence, said Moore.

DISCUSSION

In response to a question about how best to evaluate changes in scope of practice as they relate to interdisciplinary education, Lyons pointed to the importance of randomized controlled trials to determine outcomes. Rogers added that inputs need to be measured as well. "Every medical technologist is not the same as every other medical technologist. We need to have some way of defining what that black box is," Rogers said. One possibility is to measure input differences state by state since the variability among states is substantial. Moore pointed out that programs also vary, and resulting outcomes could be measured.

Electronic health records could be used to do comparative effectiveness research on the health workforce, especially if programs were more standardized, Moore observed. This evidence should be communicated across states, since all states are facing similar issues.

In response to a question about techniques to build appreciation of other's roles in interprofessional education, Lyons said that he was not familiar with any. The bottom line is that the culture of an institution needs to be one of interprofessional respect. Once the culture changes, teams can work much more effectively. Rogers cited the example of interprofessional rounds as a way of building mutual understanding. Also, combining students from different fields during an internship increases exposure to other professions. Rogers added that not much is now known about outcomes of interprofessional education, but more will be learned over the next decade. It has worked in other professions, such as manufacturing. But it takes time for a team to develop, because it is a dynamic interaction.

In response to a question about the specific outcomes of interprofes-

sional education that should be studied, Lyons mentioned the recommended competencies for interprofessional education being released that day, which include measures like medical outcomes, patient satisfaction, and patient change of behavior. Moore added that an obvious metric would be turnover rates. Also, if people do leave a job, what are they doing afterward?

In addition, Moore emphasized the importance of career ladders in building professional responsibilities. An important question is, how much training would it take for a medical assistant to become a licensed practical nurse or a registered nurse? "While we want to create opportunities for people to do more, we also need to create opportunities for professional advancement. I am not sure we always think about those things together."

Roy Swift said that the American National Standards Institute would encourage a national effort to look at national competencies related to practice areas, regardless of profession. "There is no career pattern or laddering in health care," he said. "There are no standards related to health services moving into health care then into the subspecialties." He said he is an advocate for stronger accreditation to address this issue. Swift stated we are not doing a good job in this area, which is why there is often a wide variance of outcomes among academic programs in the same profession.

8

Perspectives from Stakeholders

In the final formal set of presentations of the workshop, four representatives of national organizations provided differing perspectives on the future of allied health.

THE NATIONAL SOCIETY OF ALLIED HEALTH

Allan Johnson, associate dean of the Division of Allied Health Sciences in the College of Pharmacy, Nursing, and Allied Health Sciences at Howard University and a professor in the Department of Nutritional Sciences, provided a perspective from the National Society of Allied Health (NSAH), which is a membership organization of historically black colleges and universities with programs in allied health. The NSAH's major goal is to improve the health status of African Americans and other economically disadvantaged groups through research, education, employment, and community services.

Johnson cited three obstacles that face the field of allied health. First, it lacks a cohesive identity. This is partly because of the large number of allied health professions, but it also has not succeeded in conveying to other health care workers and to the public knowledge of the roles of allied health professions. The wide variety of program names for these fields in educational institutions is an indication of this problem.

The name *allied health* is also a problem, Johnson admitted. The impression it can convey is that allied health professionals are not really health professionals rather, they are just "allied" to health professionals. Allied health professionals sometimes engage in counterproductive turf battles,

Johnson said. As examples, he cited tensions between physician assistants and nurses, between occupational therapists and physical therapists, and between certified diabetes educators and registered dieticians.

Finally, many allied health professions lack diversity. Yet minority health professionals provide the majority of health care to the poor and underserved. Diversity provides for greater access to care, greater patient choice and satisfaction, and better educational opportunities for health profession students, Johnson said.

To have a greater influence on health policy, the allied health professions need to develop a brand identity, Johnson concluded. There needs to be an atmosphere of respect and appreciation for the roles of allied health professionals among policy makers, the general public, other health professionals, and allied health professionals. Position papers on the impacts of new policies, testimony at congressional hearings, and a lobbying organization for allied health could all promote the causes of cohesion and advancement.

THE NATIONAL NETWORK OF HEALTH CAREER PROGRAMS IN TWO-YEAR COLLEGES

Many of the messages heard at the workshop resonate with the goals of the National Network of Health Career Programs in Two-Year Colleges, said Carolyn O'Daniel, dean of Allied Health and Nursing at Jefferson Community and Technical College in Louisville, Kentucky, and president of the network. Examples include the emphases on team-based care, chronic care, increased accountability, career pathways, and work-based learning. Many of the barriers discussed at the workshop also are of particular concern to community colleges, including scope-of-practice silos, definitions of professionalism, and the difficulty of identifying the optimal mix of health practitioners.

A unifying strategy, she said, would be the implementation of a core health care curriculum. An interdisciplinary core curriculum could streamline educational processes, improve efficiencies, promote teamwork, and prepare students for changing workforce demands. Similarly, effective partnerships and coalitions among educational institutions not only leverage resources but improve planning.

Career pathways offer the best hope for meeting the needs for various levels of care in a variety of settings, said O'Daniel. Community colleges need to work with partners at both the front end and the back end to create seamless articulation and transparent pathways. Also, work-based learning can increase diversity, promote job satisfaction, improve retention, and decrease costs, all of which will be necessary in the future.

Accountability measures for programs receiving public funds must be

extended if students are to be protected and if those funds are to produce the needed outcomes, said O'Daniel. In addition, interdisciplinary teamwork must be modeled by faculty and incorporated into programs, and clinical practice must include more than just acute care settings.

A unified voice that can promote recognition and influence policy requires valid and timely data. Also, job forecasting requires complex environmental scanning capabilities. Employers must be at the table and willing to share data.

Community colleges are critical partners in health care workforce preparation and particularly in establishing and enabling career pathways, O'Daniel concluded. In the process, they diversify health care, promote economic development, and improve the lives of their students.

THE ASSOCIATION OF SCHOOLS OF ALLIED HEALTH PROFESSIONS

Richard Oliver, dean of the School of Health Professions at the University of Missouri and chair of the Government Relations Committee for the Association of Schools of Allied Health Professions, made 18 points about the barriers and opportunities facing allied health.

1. State practice acts are wildly inconsistent and need to be reconciled.
2. Accreditation standards need to be driven by outcomes.
3. The current lack of diversity constitutes a crisis in public health.
4. Reimbursement needs to create incentives for team-based care, and education programs should create the skills to work on teams.
5. Inadequate health literacy among patients is a problem that extends across all health professions and must be addressed in part through what Oliver described as "stupid stuff," like calling patients after an appointment to make sure that they understood what was said, have filled a prescription, and have made another appointment.
6. Technology has the potential to transform both higher education and medicine, from courses delivered by cell phone to virtual physicians and professors.
7. The lack of doctorate-trained faculty in allied health is a major problem, especially in areas where related disciplines cannot fill vacancies.
8. Continual turf battles detract from the need to generate more primary care practitioners than there currently is capacity to generate.
9. Emerging professions, many created by new technologies, are a tremendous opportunity for students, both those in specialized programs and those in general health science bachelor's programs.

10. Change needs to occur at a much faster speed than is typically found in higher education to accommodate the pace of change in modern society.
11. The tendency for proprietary schools to pay for clinical training experiences is driving other students out of clinical sites.
12. Partnerships with community colleges need to extend beyond articulation agreements to genuine partnerships.
13. The extension of the electronic health record to the personal health record controlled by the consumer is an exciting area of growth.
14. The things industry expects of people with advanced degrees can differ from the skills developed in getting those degrees.
15. Career ladders need to become more transparent, more seamless, and easier to navigate.
16. Institutions need to identify needs and then develop programs to meet those needs.
17. Allied health professionals need to be more vigilant and vocal to avoid being like copilots who passively watch pilots fly planes into mountains.
18. Outcomes research, such as could be generated through a postacute care registry, could produce great efficiencies.

THE HEALTH PROFESSIONS NETWORK

The Health Professions Network, formed in 1995, comprises national leaders from allied health professional associations, all levels of educational institutions, accrediting agencies, and health care professionals with representation from each of the 50 states. The organization has two major goals, said its president, Lynn Brooks. It seeks to market careers in allied health, and it wants to address the barriers to advancement of allied health workers.

In part through biannual meetings of a very wide variety of allied health professionals, it has sought to institute an interdisciplinary dialogue to look for common ground in allied health. "We did not want to focus on the differences. We wanted to focus on what we could do to pull everything together," said Brooks.

The network also has increased its efforts to market health careers. "We do not want allied health to be the default job. We want it to be the first pick." Drawing inspiration from the Discover Nursing campaign supported by Johnson & Johnson, the network developed a program to refine its message, in part through focus groups that could identify perceptions of health careers. Seeking to brand allied health and articulate it as an industry, it outlined press releases, media training, talking points, brochures, presentations, a website, and other materials. However, the recession of

2008 made it difficult to find financing for the campaign. Instead, it began building a partnership that could take the marketing program nationwide. These partners, in turn, have many of the resources and capabilities called for in the promotional campaign.

In the process of developing the campaign, the Health Professionals Network was able to reidentify and specify many of the long-range barriers and opportunities that are factors in allied health, such as educational staffing and resources, recruitment and retention, the provision of accurate and timely data, economic support, the uneven distribution of workers and needs, inadequate diversity, and developing "clout" for allied health. To address these barriers and opportunities, the network is putting on a series of webinars, summits, and conferences. It also is collaborating with the Department of Labor to create a competency model for the different areas of allied health.

"We have the greatest industry going in the country," said Brooks. "We are hot. We have been for years. Our salaries, benefits, and opportunities are good. But our problems are immense, and we are not working through them as fast as we could." The Health Professionals Network is committed to overcoming these barriers, Brooks concluded. "We do not want the future to create us. We need to create the future."

DISCUSSION

During the discussion period, Johnson said that minority students need to know more about allied health. "Most of these students are interested in medicine, and sometimes dentistry. So I have to alert them to the fact that there are other health professions." Students also need better preparation in mathematics and the sciences to start taking college-level classes immediately.

In response to a question about why there has been so much reluctance among baccalaureate programs to accept credits from community colleges, O'Daniel said that community colleges have been working on this issue for many years, though success has been limited. In the state of Kentucky, she said, a recent initiative brought together 2-year and 4-year institutions to develop an articulation program. "We had statewide buy in for it. So I know it can be done."

Oliver, in answering a question about collaborations between universities and community colleges, pointed to the importance of trust. He also described how gratifying it is to see allied health programs in community colleges transform the lives of students, many of whom are from nontraditional backgrounds.

9

Open Discussion

On each of the 2 days of the workshop, the final session allowed workshop organizers, presenters, and participants to comment on the day's proceedings. This chapter captures many of those comments as a way of revisiting the major themes discussed at the workshop. Comments made by organizers and presenters are attributed to the person who made that comment. A final section compiles comments made by other workshop participants, who are not identified.

Many of these comments take the form of recommended actions, but these recommendations should in all cases be seen as those made by individuals at the workshop, not as recommendations from the Institute of Medicine or from the workshop participants as a whole.

DATA COLLECTION AND ANALYSIS

- Allied health needs to articulate the value it adds to the health care system in terms of outcomes, which requires the collection and analysis of data (Fraher).
- Allied health needs to demonstrate that the collection of more data can better inform workforce planning and allocation of resources in the states (Chapman).
- Developing a minimum dataset is vital for organizations that educate, license, and employ allied health professionals. Professional associations, licensure bodies, educational institutions, and other organizations all need to help build a strong data system (Fraher).

- The reestablishment of the Forum on Allied Health Data could bring together many groups to generate needed data (O'Daniel).
- An allied health research institute could focus on, among other things, the relationship between allied health education and patient-level health outcomes (Chapman).

EDUCATION AND TRAINING

- Better high school preparation, outreach to students, and articulation agreements among educational institutions can improve the creation of and movement up career ladders within and among allied health professions (Chapman).
- A core set of skills conferred by allied health education and training programs could give people the background to move up career ladders (Swift).
- Allied health personnel can be trained in innovative as well as traditional practice settings. Learning about case management, care coordination, patient navigation, and other innovative practice models can be very valuable for future allied health workers (Fraher).
- Allied health students, like medical students, increasingly will need to have soft skills that enable them to interact and communicate smoothly and professionally with each other and with patients in new team-based health care environments (Donini-Lenhoff).
- Young people are using new technologies to learn and communicate differently, yet these technologies have not been incorporated into education or practice (Salsberg).
- Accreditation of programs needs to be much tougher to ensure that education and training programs are up to date and relevant. Though standards exist for accreditation, no mandate exists for accreditation to be certified, and oversight of accreditation is lacking (Swift).
- Accreditation also needs to ensure that programs can evolve so people receive the training that employers need (Swift).
- Data are required to demonstrate that the balance between certification and flexibility is based on evidence and not on impressions or interest group pressure (Salsberg).
- The development of for-profit educational institutions is challenging the not-for-profit sector to become quicker and better (Salsberg).
- A study is needed to look at the barriers to diversity in the allied health professions and the roles of educational and professional organizations in increasing diversity (Fraher).

- The case for diversity rests not just on who is available to fill jobs but on better quality of care, better outcomes, economic opportunity, and job growth (Chapman).

PRACTICE ISSUES

- The balancing of flexibility with quality assurance standards and accreditation will be a continued challenge (Salsberg).
- Allied health professionals need to be at the table with doctors and nurses in making decisions about health care delivery (Swift).
- Allied health workers may need to be separated into a much smaller number of categories based on the nature of their relationship to the delivery of care, from those who are responsible for patient health to those who provide support services (Salsberg).
- Practice variations from state to state offer valuable opportunities for comparative effectiveness research. If one state gives prescribing privileges to psychologists and another does not, outcomes can be compared across those two states to learn what role workforce factors may play in patient care and quality outcomes (Donini-Lenhoff).
- The uniform processes being developed in some states to assess changes in scope of practice could be implemented much more widely (Salsberg).
- The distribution of allied health workers is an issue in many parts of the country and needs to be studied. Programs to change the distribution of other health workers should encompass allied health workers (Fraher).
- Allied health can be a leader in health care innovations, such as new models of team-based care, and emphasizing that point can be a uniting force across the allied health professions (Chapman).

THE FUTURE OF ALLIED HEALTH

- The contribution of the allied health professions has much more recognition and visibility than in 1989 when the National Research Council last looked at the issue. Allied health has changed substantially over the past 2 decades. It has grown much larger, and educational requirements have increased as health care has grown in scope and complexity (Chapman).
- The allied health professions need to educate administrators, payors, and other groups about the value of what they do and the opportunities they can offer to do even more (Donini-Lenhoff).

- Despite its varied representation, allied health needs to speak with a unified voice if it is to address crosscutting issues and influence health care policy (Chapman).
- Assessing the health care needs of the population would be a valuable way to establish the need for allied health services (Fraher).
- Decisions about the future of allied health will not be made in Washington, DC, but by the many thousands of individuals and organizations at the state and local levels and in the professions (Salsberg).
- The current time of change is an ideal opportunity to rethink what allied health is and what it can do differently.

OTHER INDIVIDUAL COMMENTS

- A careful analysis of the knowledge and abilities of different allied health occupations would likely reveal enormous overlap. Having such information could allow organizations to make hiring decisions based on what they need done regardless of a person's title or credentials.
- Defining the roles and responsibilities of licensed health science professionals could help make them accountable for self-regulation and for overseeing workforce issues. Such definitions also could allow for the specification of career paths into the health science professions.
- Complementary or alternative medicine needs to be considered in any discussion of allied health since Americans are spending billions of dollars on these forms of care every year.
- Real-time data are needed so young people being trained in allied health will be in a better position to secure jobs. Without such information, there may be a backlash at the state and federal levels as people who have been trained cannot find jobs.
- The use of unlicensed medical assistants will likely continue to grow as care moves into the community and reimbursement rates go down.
- Students and prospective students need to know about the roles and responsibilities of health care workers, including allied health workers, to have realistic expectations about future careers.

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Appendix A

Workshop Agenda

WORKSHOP ON ALLIED HEALTH WORKFORCE AND SERVICES

MAY 9–10, 2011
KECK CENTER OF THE NATIONAL ACADEMIES
500 FIFTH STREET, NW,
ROOM 100
WASHINGTON, DC 20001

SPONSORED BY: THE HEALTH RESOURCES AND SERVICES ADMINISTRATION

MONDAY, MAY 9

8:00–9:00	**REGISTRATION**
9:00–9:15	**Welcome and opening remarks** *Susan A. Chapman, UCSF Center for Health Professions, Planning Committee Chair* *Marcia Brand, Health Resources and Services Administration (Project Sponsor)*
9:15–9:45	**Allied Health, Workforce, and Reform** *Ed O'Neil, UCSF Center for Health Professions* *Q&A with Audience*
9:45–10:15	**The DNA of Allied Health Education and Practice** *David D. Gale, Eastern Kentucky University* *Q&A with Audience*

10:15–10:45 **BREAK**

10:45–12:00 **Gauging Supply and Demand**

Panel moderator: *Ed Salsberg, HRSA*

BLS Data
Harold P. Jones, University of Alabama at Birmingham

State-Level Data Collection (North Carolina)
Erin Fraher, University of North Carolina at Chapel Hill

Minimum Data Set
Jennifer Nooney, Health Resources and Services Administration

Q&A with Audience

12:00–1:00 **LUNCH BREAK**

1:00–2:15 **New and Changing Needs**

Panel moderator: *Erin Fraher, University of North Carolina at Chapel Hill*

Critical Roles in the Hospital Setting: Today and Tomorrow
Cathy Martin, California Hospital Association

Urban Planning
Mary Anne Kelly, Metropolitan Chicago Health Care Council

Staffing the Patient-Centered Medical Home
Jason Patnosh, National Association of Community Health Centers

Q&A with Audience

2:15–2:45 **BREAK**

2:45–4:00 **Ensuring Effective Education and Training**

Panel moderator: *Fred Donini-Lenhoff, American Medical Association*

Accreditation of Allied Health: Challenges and Opportunities
M. LaCheeta McPherson, Commission on Accreditation for Allied Health Education Programs (CAAHEP)

The Role of Community Colleges in Rural Areas
Susan M. Skillman, University of Washington

On-the-Job Training
Maria Flynn, Jobs for the Future

Q&A with Audience

4:00–5:00 **OPEN DISCUSSION**

Planning committee members will reflect on the day and engage in discussion with the audience.

Panel moderator: *Susan A. Chapman (Chair), UCSF Center for Health Professions*

- *Erin Fraher, University of North Carolina at Chapel Hill*
- *Fred Donini-Lenhoff, American Medical Association*
- *Edward Salsberg, Health Resources and Services Administration*
- *Roy A. Swift, American National Standards Institute*

Q&A with Audience

5:00 **ADJOURN**

TUESDAY, MAY 10

8:30–8:35 **Overview of Day**
Susan A. Chapman, UCSF Center for Health Professions, Planning Committee Chair

8:35–10:00 **TOPIC 4: The Future of Team-Based Care**

Panel moderator: *Susan Chapman, UCSF Center for Health Professions*

Interprofessional Education and Training
Kevin J. Lyons, Thomas Jefferson University

Team-Based Care
Joan C. Rogers, University of Pittsburgh

Scope-of-Practice Laws
Jean Moore, State University of New York at Albany

Q&A with Audience

10:00–10:15 **BREAK**

10:15–11:30 **TOPIC 4: Stakeholders Panel**

Panel moderator: *Roy Swift, American National Standards Institute*

What are the barriers to improving the use of the allied health workforce?
Is it important for the allied professions to have a unified voice?
How can professionals work together to influence policy?

Allan A. Johnson, Howard University, and National Society of Allied Health

Carolyn O'Daniel, Jefferson Community & Technical College, and National Network of Health Career Programs in Two-Year Colleges

Richard M. Oliver, University of Missouri, and Association of Schools of Allied Health Professions

Lynn Brooks, Health Professions Network

Q&A with Audience

11:30–12:00 **PLANNING COMMITTEE CONCLUDING REMARKS**

Panel moderator: *Susan A. Chapman (Chair), UCSF Center for Health Professions*

- *Erin Fraher, University of North Carolina at Chapel Hill*
- *Fred Donini-Lenhoff, American Medical Association*
- *Edward Salsberg, Health Resources and Services Administration*
- *Roy A. Swift, American National Standards Institute*

Q&A with Audience

12:00 **ADJOURN**

Appendix B

Planning Committee Biographies

Susan Chapman, Ph.D., RN, is Associate Professor in the UCSF School of Nursing, Department of Social and Behavioral Sciences, and Senior Research Faculty, UCSF Center for Health Professions. She is Director of the Masters program in Nursing Health Policy in the School of Nursing. Her scholarly work focuses on health workforce research, policy, program development, and evaluation. Her research projects include a multiyear effort to address allied health workforce challenges in California, evaluation of two California workforce initiatives focused on nursing and long-term caregivers, and state and national studies of individual allied professions including licensed practical nurses, certified nurse assistants, home health care aides, personal care aides, medical assistants, the clinical laboratory workforce, cancer registrars, EMTs/paramedics, respiratory care practitioners, and imaging professionals. Susan serves on a variety of state and local advisory committees for nursing programs, high school health professions, and vocational services career development programs as well as statewide workforce development initiatives. Susan received her B.S.N. from the University of Iowa, M.S.N. from Boston College, M.P.H. from Boston University, and Ph.D. from UC Berkeley.

Fred Donini-Lenhoff, M.A., is Medical Education Communications Director for the American Medical Association (AMA). He is editor of the AMA's *Health Care Careers Directory*, which lists more than 8,600 allied health educational programs, as well as the AMA's *Graduate Medical Education Directory*, a list of residency/fellowship programs for physicians, and the annual book *State Medical Licensure Requirements and Statistics*. He also

produces e-mail newsletters for the AMA on the topics of health care careers, graduate medical education, health care disparities, physician health, and healthy lifestyles, and directs the AMA's medical education Twitter page. Mr. Donini-Lenhoff also serves as secretary of Reference Committee C (medical education), which considers reports and resolutions that come before the AMA House of Delegates. In addition, he is on the board of directors of the Health Professions Network (HPN), a national group representing allied health professional associations. He is a graduate of DePaul University (M.A., writing) and Florida State University (B.A., writing).

Erin Fraher, Ph.D., M.P.P., has worked as a policy analyst and health workforce researcher in the United States, Canada, and the United Kingdom. She is currently the Director of the North Carolina Health Professions Data System (HPDS), at the Cecil G. Sheps Center for Health Services Research at the University of North Carolina (UNC) at Chapel Hill. For more than 10 years, she has led the work of the HPDS to provide timely, objective, and data-driven analyses to inform state and national policy makers wrestling with decisions about how to best educate and deploy health professionals. Dr. Fraher has led, and participated in, various studies of the allied health workforce in North Carolina including studies of the physical therapy, speech-language pathology, health information management, radiologic sciences, respiratory therapy and clinical laboratory science workforces. Working with the North Carolina Area Health Education Centers (AHEC) Program, the Council for Allied Health in North Carolina, the governor's office and the Department of Commerce, Dr. Fraher has led efforts to build the allied health workforce analytical infrastructure in North Carolina. These efforts have resulted in a rich source of data that are actively used by 2- and 4-year educational institutions to identify in which allied health professions and geographic areas they should develop or expand training; they are used by workforce development boards to determine the health care jobs for which they should be retraining laid-off workers; and they are used by health care employers and private foundations to identify mechanisms to improve the recruitment and retention of allied health workers. Dr. Fraher is also the Associate Director of the American College of Surgeons Institute for Health Policy Research. She holds joint faculty appointments in UNC's Departments of Surgery and Family Medicine. Dr. Fraher earned her Ph.D. from the Department of Health Policy and Management at the University of North Carolina at Chapel Hill, her master's in Public Policy from UC Berkeley, and her B.A. from Wellesley College.

Edward S. Salsberg, M.P.A., In August 2010, Mr. Salsberg joined the Department of Health and Human Services as the Director of the new National Center for Health Workforce Analysis established by Affordable

Care Act. The National Center, which is located in the Bureau of Health Professions (BHPr) within the Health Resources and Services Administration (HRSA) is responsible for providing health workforce information and data to assist national and state health workforce policies as well as health- and education-sector decision making related to the health workforce. The center will be a focal point for the collection, analysis, and dissemination of health workforce data. Prior to joining HRSA, Mr. Salsberg was the founding Director of the Center for Workforce Studies and a Senior Director at the Association of American Medical Colleges (AAMC). The AAMC Center was established in 2004 to inform the medical education community, policy makers, and the public as to the nation's current and future physician workforce needs. Prior to joining AAMC, Mr. Salsberg was the Executive Director of the Center for Health Workforce Studies, which he established in 1996 at the School of Public Health at the University at Albany of the State University of New York (SUNY). From 1984 until 1996, Mr. Salsberg was a Bureau Director at the New York State Department of Health. Mr. Salsberg is on the faculty at the George Washington University School of Public Health and Health Services. He is a frequent speaker across the country and has authored and coauthored numerous reports and papers on the health workforce. Mr. Salsberg has been a member of the U.S. delegation to the International Medical Workforce Collaborative since 1999 and was chair from 2003 to 2006. Mr. Salsberg received his master's in Public Administration from the Wagner School at New York University.

Roy A. Swift, Ph.D., FAOTA, is currently the Senior Director of Personnel Credentialing Accreditation Programs at ANSI. Prior to his current position, he was a consultant to educational, certification, licensure, and health care organizations. From 1993–1998 he was executive director of the National Board for Certification in Occupational Therapy (NBCOT). This appointment followed a 28-year career in the United States Army Medical Department. In his last position, he was Chief of the Army Medical Specialist Corps in the Army Surgeon General's Office with policy responsibility for Army occupational therapists, physical therapists, dietitians, and physician assistants throughout the world. He has served on many national committees, nonprofit boards of directors and federal and state government advisory committees. He has served as chair of the Assembly of Review Committee Chairs of the former Council on Allied Health Education and Accreditation of the American Medical Association, Chair, American Occupational Therapy Association Accreditation Committee, and on the Secretary of the Department of Veterans Affairs Advisory Committee. He also recently served on an Institute of Medicine panel dealing with provision of mental health counseling services under TRICARE. His educational preparation includes a B.S. in Occupational Therapy from the University

of Kansas, an M.S.Ed. from the University of Southern California, a Ph.D. in Continuing and Vocational Education with an emphasis in continuing competency in the professions from the University of Wisconsin–Madison, and he successfully completed the University of Chicago's 3-week Management Development course. He is a Fellow in the American Occupational Therapy Association.