Educating Health Professionals in Teams

Current Reality, Barriers, and Related Actions

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Introduction

In March 2001, the IOM released *Crossing the Quality Chasm*. The report emphasized that health care today harms too frequently and routinely fails to deliver its potential benefits. In short, "between the health care we have and the care we could have lies not just a gap, but a chasm." The report shows that during the last decade alone, more than 70 publications in leading peer-reviewed journals have documented serious quality shortcomings (2001).

There are a number of changes affecting health care delivery, including a shift from acute to chronic care, the need to integrate a continually expanding evidence base and technological innovations, more clinical practice occurring in teams, complex delivery arrangements, and changing patient–clinician relationships (2001).

In response to the changes underway, the health care workforce needs to be adequately prepared. Responding to the changing needs of the populations and making use of new knowledge requires that health professionals develop new skills or assume new roles.

At the same time, there is a need to modify the ways in which health professionals are accredited and regulated. Scope-of-practice acts and other workforce regulations need to allow for innovation in the use of all types of clinicians to meet patient needs in the most effective and efficient way possible. It also requires that training and ongoing licensure and certification reflect the need for lifelong learning and evaluation of competencies (2001).

The *Chasm* report calls for a major overhaul of the health care system. In the report's chapter *Preparing the Workforce*, there is an outline of the types of new or enhanced skills required by health professionals to function in this changing environment. These skills can be grouped under five main topical headings: patient-centered care, evidence-based practice, informatics, interdisciplinary teams, and quality improvement. The following outlines some of the basic skills required in each topic area (2001).

- ***Informatics*** - Communicate, manage knowledge, and support decision making using information technology.

- ***Interdisciplinary Teams*** - Cooperate, coordinate, communicate, and standardize care in teams to make care more patient-centered, continuous, and reliable.

- ***Evidence-Based Practice*** - Integrate best research with clinical expertise and patient values.

- ***Patient-Centered Care*** - Inform and involve patients and their families in medical decision making and self management; coordinate and integrate care; provide physical comfort and emotional support; understand patients' concepts of illness and their cultural beliefs; understand and apply principles of disease prevention and behavioral change appropriate for diverse populations.

- ***Quality Improvement*** - Continually understand and measure quality of care in terms of structure, process, and outcomes; design and test interventions to change processes and systems of care with the objective of improving quality; identify errors and hazards in care; and understand and implement basic safety design principles, such as standardization and simplification.

As the *Chasm* report outlined, there have been many prior examinations of clinical education, particularly medical education. The striking feature of these reform efforts is their similarity in the problems identified and proposed solutions (Christakis, 1995) (Enarson and Burg, 1992). As the *Chasm* report stated with respect to medical education:

Christakis (1995) reviewed 19 reports and found eight objectives of reform among them: serve changing public interest, address physician workforce needs, cope with burgeoning knowledge, foster generalism and decrease fragmentation, apply new educational methods, address the changing nature of illness, address the changing nature of practice, and improve the quality and standards of education.

Despite the changes that have been made, the fundamental approach to clinical education has not changed since 1910 (2001).

The IOM Health Professions Summit hopes to build upon earlier reform efforts by bringing together a multidisciplinary group of leaders to develop concrete strategies and action steps that they will take over the next 1-3 years. It is hoped that the combination of dramatic changes underway and anticipated in the health system, as well as the breath and scope of quality problems that exist will serve to motivate these leaders to move beyond professional and organizational turf issues and together create meaningful and realistic next steps for reform of health professions education. This summit starts with participants working on one of the five topic areas outlined above.

The following explores the existing evidence-base related to the education of health professionals in interdisciplinary teams, the educational and regulatory barriers to incorporating interdisciplinary teams in the academic and continuing education settings, proposed actions to overcome these barriers, and model schools or educational programs using interdisciplinary teams. Embedded in this paper are questions that will serve to initiate the development of strategies for reform of health professions education.

Definition and Vision of Interdisciplinary Teams

An interdisciplinary team includes members from different professions and occupations that work together closely and communicate frequently to optimize care for the patient. Each team member contributes their knowledge, skill set, and experience to support and augment the contributions of their team members (Hall and Weaver, 2001) (Ray, 1998).

Authors of *Crossing the Quality Chasm* envision a future where clinicians "understand the advantage of high levels of cooperation, coordination and standardization to guarantee excellence, continuity, and reliability. Cooperation in patient care is more important than professional prerogatives and roles. There is a focus on good communication among members of a team, using all the expertise and knowledge of team members, and where appropriate, sensibly extending roles to meet patients' needs (Institute of Medicine, 2001)."

In addition to the term *interdisciplinary*, the literature refers to *multidisciplinary* and *interprofessional*. Multidisciplinary education and practice often is described as disciplines working in parallel, frequently with diverse goals (AACN, 1995) (Ray, 1998). While the term *interdisciplinary* is arguably the most common in the literature and will be used throughout this paper, the term *interprofessional* is gaining currency, perhaps because medicine often uses interdisciplinary to describe collaboration between medical specialties.

State of Interdisciplinary Teams in Practice

Interdisciplinary teams are becoming a more common way to organize work groups and are most prevalent in primary care practice, in practices that care for those with chronic conditions, in critical acute care, in geriatrics, in mental health settings, and in care at the end of life (Institute of Medicine, 2001). The role of institutional accreditators in fostering interdisciplinary teams needs further exploration (Hall and Weaver, 2001).

Teams that collaborate and function smoothly are needed to deal with the increasing complexity of care, to coordinate and respond to multiple patient needs, to keep up with the demands of new technology, to respond to the demands of payors and clinicians outside of

medicine, and, in some cases, to deliver care across settings (Bluml et al., 1999) (Hall and Weaver, 2001) (Institute of Medicine, 2001).

Although limited, there is evidence suggesting that interdisciplinary teams enhance quality and lower costs (Shortell, 1994) (Baldwin D., 1996) (McDonough and Doucette, 2001). More specifically, a multi-year effort by the Institute of Health care Improvement brought together interdisciplinary teams from numerous health care organizations to work on specific health issues, for example, reducing C-sections, improving outcomes and reducing costs in adult cardiac surgery, and improving asthma care for adults and children. In the case of asthma care, interdisciplinary teams from 12 medical centers came together, and within 15 months, 9 of them had achieved positive results including sizeable reductions in hospital and ER visits (Headrick et al., 1998).

Research focused on team interactions indicate that interdisciplinary teams often fall short of the expectations of their members, clinical leaders, and managers (Pearson, 2001). The result is a practice environment that too often exhibits a lack of cooperation with disciplines defending their authority at the expense of the overall system—a process characterized as suboptimization—resulting in patient suffering due to the lack of care continuity, redundant and wasteful processes, excess costs, and miscommunication (Larson, 1999) (Institute of Medicine, 2001).

State of Interdisciplinary Teams in Education

The unfortunate reality is that this lack of cooperation among team members starts early on. Health professions education emphasizes a priority on doing one's own work rather than working collaboratively to meet patient needs—the ideal work of the team. In the vast majority of educational settings, health professionals are trained and socialized in isolation, hierarchy is fostered, and individual responsibility and decision making is relied on almost exclusively (Hall and Weaver, 2001).

And while there are many examples of successful efforts, interdisciplinary education has not become the norm despite efforts over the last 50 years on the part of foundations, private organizations, and government agencies. Enthusiasm has waxed and waned, often in relationship to funding support (Hager, 2002).

In 1995, less than 15 percent of U.S. nursing and medical schools had any interdisciplinary programs (Larson, 1995) despite the increased call for this approach to education for decades (Stumpf and Clark, 1999). The situation in medical schools that offer some type of rural training or public service activity is somewhat better, with 21 percent of such schools sponsoring an interdisciplinary student health team program (Hamilton et al., 1997).

Educational accreditation organizations include the ability to practice in an interdisciplinary team as a competency but appear to be silent on what that might require in terms of training environments. In 1997, the American Council on Pharmaceutical Education (ACPE) adopted a series of accreditation standards focused on 18 professional competencies, with 3 of them related to interdisciplinary practice (American Council on Pharmaceutical Education , 1997). One of the six competencies required by the Accreditation Council for Graduate Medical Education (ACGME) focuses on interpersonal and communication skills that "result in effective information exchange and teaming with patients, their families, and other health professionals (ACGME, 2002). The National League for Nursing Accreditation Commission (NLNAC) competencies for 2005 include effective interdisciplinary team practice and ask that each nursing program interpret this and other competencies and related skills in the content, function, and structure of their program (NLNAC, 2002).

There is limited research related to the impact of interdisciplinary training on interdisciplinary practice and patient care. A 1999 review of the literature on effectiveness of interdisciplinary education found no evidence that met the Cochrane Collaboration methodological criteria (Zwarenstein M., 1999) (Ruebling et al., 2000). A 2001 study of the evidence base related to interdisciplinary education identified 141 relevant studies, but only

about 20 percent were included in the analysis because of lack of methodological rigor in the research and poorly developed outcome measures. The study concluded that student health professionals benefited from interdisciplinary education with outcome effects primarily relating to changes in knowledge, skills, attitudes, and beliefs. However, effects upon professional practice were not discernible (Cooper et al., 2001). Also, many questions about when to educate, who to educate, and how to educate remain unanswered and open to future research (Hall and Weaver, 2001).

In addition to the formal curriculum, the culture or "hidden curriculum" is important, particularly with respect to training environments. The culture of educational settings often emphasizes hierarchy, frowns upon challenges to authority, and discourages admitting fault; thereby undermining collaborative teamwork that can enhance patient safety and quality (Institute of Medicine, 2001).

Whether or not interdisciplinary education is again gaining currency is an open question. The Association of Academic Health Centers (AAHC) has been tracking such efforts on the part of its 105 members over the last five years and reports that a growing number of institutions are designating individuals within their institutions to provide leadership in this realm (Holmes, 1999) (Hager, 2002). Also, in a select but growing number of institutions there are now individuals at the executive level, e.g., vice president for health affairs, that have demonstrated a strong commitment to interdisciplinary education and are in a position to drive such efforts across the various health professional schools (Holmes, 2002).

In any event, there remains a disconnect between role-oriented, isolated academic preparation and visionary practice environments that rely on teams or wish to do so. In this case, the demands of the workplace are not driving the curriculum (Stumpf and Clark, 1999). This emphasis on individual roles is further reinforced by scope of practice acts, certification, and licensure as well as boards that regulate practice.

Innovative Programs in Interdisciplinary Teams

The following selected educational programs were identified in the literature. Most of the evaluative information included is descriptive in nature and based on faculty and student input, not a more rigorous evaluation of effectiveness. This is not an exhaustive list – it is largely made up of programs that took the time to document, evaluate, and publish their efforts.

American Health Education Consortiums (AHEC). 37 AHEC project directors were surveyed about the frequency in which dental and dental hygiene students are learning alongside other student health care professionals in an interdisciplinary training environment. Close to two-thirds of these directors responded, indicating that the vast majority of programs are incorporating problem-based learning, interdisciplinary learning, and reflective sessions (Roe et al., 2001).

College of Health Professions at Armstrong Atlantic State University. The university has offered an interdisciplinary core educational curriculum since 1996 taught by interdisciplinary teams. The curriculum consists of electives and is part of major requirements in nursing, health science, physical therapy, dental hygiene, medical technology, radiologic sciences, and respiratory therapy. A survey of student and faculty perceptions of the experience shows that both groups agreed that the experience has had a positive impact on the students' professional performances, patient interactions, understanding of the health care delivery system, and health career preparation. Faculty agreed that teaching in an interdisciplinary team was a positive experience despite the additional workload and said they would be willing to continue to teach interdisciplinary courses (Buck et al., 1999).

Department of Mental Health, University of Bristol Medical School, UK. Interprofessional education for final-year medical students and fourth-year undergraduate BSc nursing students included communication between nurses, doctors and patients, and ethical issues in clinical care. A comprehensive evaluation of the effects of the program on one cohort of 39 participants revealed that overall attitudes towards the other profession had improved. Participants reported increased understanding of the knowledge and skills, roles, and duties of the other profession. The program was positively evaluated by both groups of participants (Carpenter, 1995).

Department of Orthopaedics, Faculty of Health Sciences, University Hospital, Linkoping, Sweden. A multi-professional training ward, and since January 1996, a student-manned training ward where the care, treatment, and rehabilitation of patients is performed by students from all the disciplines trained at FHS. Current experience shows that a training ward seems to be an efficient way of improving the ability to work as a team with real patients, and is an inspiring and efficient means for learning skills essential in future professional work (Wahlstrom et al., 1997).

Division of Ambulatory and Community Medicine at the University of California, San Francisco. In 1975, the Division introduced a required core medical clerkship that is interdisciplinary and involves physicians, nurses, and pharmacists. Overall, students assessed the teaching in the program as moderately effective with the most positive ratings related to learning principles of teamwork, followed by gains in patient problem-solving skills. The average number of patients seen by student providers and the comprehensiveness of care provided was greater than during previous clerkships. Although no significant differences were found between student teams and individual providers, those teams with membership from medicine, pharmacy, and nursing delivered more comprehensive care (Dienst and Byl, 1981).

Eastern North Carolina Interdisciplinary Rural Health Model, NC. Begun in 1993, this effort involved students in health education, medicine, nursing, nutrition, pharmacy, and social work who were recruited for rotations in a community health/migrant health clinic in rural North Carolina. Researchers evaluated the effort in 1998 and noted that the educational strategies and curriculum evolved with community input (Lilley et al., 1998). A follow-up study showed that the program enhanced student learning, strengthened the infrastructure and commitment of the university for decentralized education, and led to the development of team-based care paths and changes in the attitudes of providers regarding interdisciplinary service-learning (Holmes, 1999) (Hager, 2002).

George Washington and George Mason Universities Washington, DC. The "George Team" spans two universities and integrates faculty, students, community sites, and clinical staff across the disciplines for select coursework and practice. Medical, physician assistant, nurse practitioner, and health services management students were provided training in quality improvement, community-oriented primary care, and teamwork. These students were then formed into 13 interdisciplinary teams to apply their knowledge in underserved areas ("service learning") under a community and faculty preceptor (Horak et al., 1998). The educational process and clinical outcomes improved as a result (Harman et al., 1996).

HealthEast, St. Paul, MN. This integrated care delivery system established a care management program in 1993 defined as "an interdisciplinary process of coordinating client-centered services across the continuum of care to achieve quality and cost-effective outcomes." The program included establishing a

	collaborative practice model that was used to drive the organization's improvement efforts. The use of this model has been instrumental in achieving significant improvements in financial and clinical performance. As a result, HealthEast received a leadership award for "Improving Clinical Effectiveness within a Health care System" from VHA, Inc., a nationwide membership alliance of approximately 1,700 community health care organizations (Green, 2000)
	University of Colorado Health Sciences Center (UCHSC), CO. The Office of Education supports efforts to provide interdisciplinary learning opportunities for health professions students and to conduct research and service activities related to interdisciplinary education and practice. Efforts are directed towards preparing a health care workforce capable of functioning in interdisciplinary team arrangements, designed to meet the health care needs of the public, and emphasizing high quality, cost-effective, integrated services.
	University of Washington, the Health Sciences Partnerships in Interdisciplinary Clinical Education (HSPICE). Supported by the University Initiatives Fund, this project brings together individual Academic Health Science Center schools and the Information School to provide experiential and classroom education opportunities related to interdisciplinary practice. The goal of the project is for all health sciences students to learn interdisciplinary skills, such as how teams can be used to improve the care of patients in different settings and is initially focused on caring for those under-served by traditional health care systems, for example in joint experiential learning in training institutions and community settings (beginning with the Salvation Army and the Lighthouse for the Blind).
	Veterans Administration, PACE Model of Primary Care. Shifts the focus from inpatient to outpatient settings and uses an interdisciplinary team focus. Emphasis is on a biopsychosocial approach, with problem-based learning for both undergraduate and graduate students in 11 disciplines (Cope et al., 1996).

Educational Barriers to Achieving this Vision

Unprepared and Unenthusiastic Faculty

Many faculty teach in a cloistered atmosphere and are more in tune to their profession's concerns than to the needs of the workplace or community (Holmes, 1999). Faculty also are often not adequately prepared to teach in an interdisciplinary setting, and to teach skills necessary to foster teamwork and collaboration, including negotiation, problem solving and joint decision making. Finally, faculty resists interdisciplinary education because they see it as more time intensive. (AACN, 1995) (Hall and Weaver, 2001; Hall and Weaver, 2001).

Differences Across Schools and Students

Schools have philosophical and cognitive style differences and there are demographic/ sociological differences across student bodies and faculty. There is a lack of mutual understanding and respect for the contributions of the various professions (AACN, 1995) (Hall and Weaver, 2001; Hall and Weaver, 2001) and fears that professional identity and power may be diluted through an interdisciplinary focus (Headrick et al., 1998). Finally, there is no clear consensus on when to incorporate interdisciplinary education into the curricula (Hall and Weaver, 2001).

Structural Barriers

There are many structural barriers, including separately housed professional schools and separate clinical arenas where students get hands on experience. In addition to being

physically disparate, professional schools also each have their own separate faculty, school calendars, and different points of entry into the profession (Holmes, 1999).

Limited Research

Limited research has been conducted, consequently there is little evidence that interdisciplinary teams result in better care. This leads to maintenance of the status quo (Holmes, 1999).

Poor Track Record

There have been numerous educational reform efforts back to the turn of the last century stressing interdisciplinary education, but for the most part this approach has not become mainstream and exists mostly in primary and ambulatory care (Holmes, 1999).

Unsupportive Training Environments

Even where there is interdisciplinary curricula or teaching, students generally are trained in didactic settings that do not employ interdisciplinary teams. This is, in part, because teams are thought to disrupt existing power relationships and hierarchies and raise concerns about clinical responsibilities and authority (Headrick et al., 1998).

Overall Barriers to Achieving this Vision

Varying Practice acts

State professional practice acts varying from state to state and even region to region and define roles for all health professionals except physicians, making team work challenging (, 1997). Also, the overlap in practice acts may encourage competition instead of cooperation (Grumbach and Coffman, 1998).

Laws

Laws codifying clinical hierarchy related to supervision, collaboration, and joint practice may have a chilling effect on interdisciplinary teams (, 1997).

Boards

Professional regulatory boards with government authority represent a conflict of interest and focus on the professional rather than the team and where practice overlaps (, 1997).

Payment

Reimbursement policies and institutions reinforce a physician orientation to health care, allowing physicians to assert control over other health professionals with respect to admitting privileges, payment, and other areas (, 1997).

Actions Needed to Overcome Barriers

Develop Faculty

Change incentives to include rewards for teaching, train faculty, and provide role models in both education and training settings (Ruebling et al., 2000) (Hall and Weaver, 2001). Role blurring is necessary for interdisciplinary teams to function (Hall and Weaver, 2001).

Change Educational Approach and Leadership

A problem-based educational approach is less dependant on getting classroom and academic schedules across the professions to line up, and so may be a more appropriate way to teach interdisciplinary skills than a traditional lecture format. In addition, institutional leaders must

provide creative leadership to address scheduling and the other myriad structural issues that are a barrier to interdisciplinary education (Ruebling et al., 2000) (Hall and Weaver, 2001).

Change Training Environments

Training environments need to be more supportive of interdisciplinary teams, perhaps by locating more training in AHECs or by requiring changes to existing training environments. Mapping of care teams—along the lines of process mapping that takes place in other industries—may help to improve training environments (Galvin, 2002).

Conduct and Disseminate Research

Document and promulgate best practices and outcomes in interdisciplinary training and care, e.g., which patients benefit from such care, which professionals should learn how to practice in this manner, as well as the effects on quality and costs (Hall and Weaver, 2001).

Reform Regulations and Laws

Need to address where practice acts, laws, boards, and accrediting bodies impede interdisciplinary education and practice (Gelmon 1996). Consider evaluating teams rather than individual practitioners. Such an approach is now being pursued in Alberta through a group objective structured clinical exam.

Proposed Questions for the Summit

On day one of the summit, participants will work in small, interdisciplinary groups in drafting strategies around one of five topics—evidence-based practice, quality improvement, informatics, interdisciplinary teams, patient-centered care.

Based on the review of the literature, the IOM committee members have suggested that the following questions are the most important to be addressed for the interdisciplinary teams group. If you think there other important questions around this topic to address, you'll have an opportunity to refine or add to this list before the small group work begins.

Please consider the following:

- What are the actions needed to remove structural barriers (different schools, calendars, time needed, etc.) to educating health professionals in interdisciplinary team skills?
- What are the actions needed to design interdisciplinary learning experiences in both the academic preparation and continuing education of health professionals?
- What are the actions needed to expand and disseminate evidence around the effect of interdisciplinary teams?
- What are the actions needed to create financial incentives for interdisciplinary training in the academic and continuing education of health professions education?
- What are the actions needed to remove regulatory barriers to interdisciplinary training in the academic and continuing education of health professionals?

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