

Preparing medical students for the changing healthcare environment in the United States

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Future graduates of medical schools in the United States will practice in healthcare environments increasingly predominated by managed care. Thus allopathic and osteopathic undergraduate and postgraduate residency training programs should begin to revise their respective curricula and conduct training in managed healthcare environments to prepare graduates for practice in managed care settings. The demand for curricular revision in medicine comes not only from prospective employers and government agencies, but from students and graduates. Educators, clinicians, and government officials have recently defined core competencies that are requisite to the education and preparation of future physicians through the work of the Council on Graduate Medical Education (COGME). This article discusses these core competencies and suggests strategies by which to implement them in undergraduate and graduate medical education.

(Key words: medical education, managed care)

Future graduates of medical schools in the United States will practice in a healthcare environment increasingly predominated by the principles associated with managed care. Yet few medical programs have embodied changes in their professional curricula to prepare graduates for the environment in which they will make their livelihood.¹ A recent report by the Council on Graduate Medical Education (COGME) revealed that although much debate and energy has gone into discussions related to this area, little has been implemented at the graduate level.²

By the year 2000, it is estimated that 40% to 65% of all Americans are expected to receive their healthcare through integrated health plans.³ Inte-

grated healthcare plans are characterized by the delivery of services through contracts with selected providers to an enrolled population in which financial arrangements and incentives are typically predetermined and prorated on a per member per month premium.⁴ There has also been a gradual transformation toward the preference of primary care services, as opposed to specialty services, in an effort to curb expenses. As a result of societal transformations in demographics, politics, and economics, the delivery of healthcare in the new millennium requires a fundamentally different set of skills than what has been traditionally taught in undergraduate and graduate medical education (GME).¹

Need for curricular revision

The COGME recommends that allopathic and osteopathic residency training programs in the United States revise their curricula and conduct training in managed healthcare environments to prepare graduates for practice in managed care settings.⁵ Some GME programs have

developed training initiatives to address the evolving needs of medical school graduates.⁶ Appropriately, some programs have developed innovative and fairly in-depth experiential programs at the GME level that are described in the literature.⁷ Due to the diverse knowledge and skills required to practice medicine, it is necessary to examine the entire educational process that medical students encounter in their training and make appropriate adjustments. Yet an area that needs significant attention remains the undergraduate medical curriculum as well as the pre-medical school prerequisites.

Critics of curricular change in direct response to the influence of managed healthcare argue that managed care is but a phase in the evolving healthcare delivery system and that drastic changes are not warranted. However, advances in artificial intelligence through the use of information systems and diagnostics to produce care plans or algorithms of treatment cannot be disputed. The managed healthcare environment assumes a population-based systems approach and requires individual physicians to be cognizant of the healthcare the entire group population receives. A focus on the "team approach" to healthcare continues to evolve when a division of labor and services is recognized and used.

Caution should be exercised to recognize that necessary changes in the medical curriculum extend beyond the principles associated primarily with managed care and include the indoctrination of new information technologies, medical ethics, interpersonal skills, a new focus on preventive and chronic care, and the role of the "healthcare team." As one educator describes, three significant changes in healthcare today—the predominance of chronic disease, the computer revolution in medical information, and fiscal constraints—must be reflected in the teachings of the contemporary medical curriculum.⁸

Deficiencies in the medical curriculum must be diagnosed and remedied. Obsolete information and skills must be purged. Present and future physicians will find these skills and acquired knowl-

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Checklist

■ Health Systems Finance, Economics, Organization, and Delivery

- ☐ Develop understanding of new economics of managed care; principles of cost-effective care and diagnostic services; risk management
- ☐ Demonstrate skills for resource allocation
- ☐ Understanding of evolving system within its historical context

■ Evidence-Based Epidemiologically-Based Medicine

- ☐ Community public health
- ☐ Epidemiology of illness and disease
- ☐ Emphasize population-based care; understand the health-related needs of a defined population
- ☐ Emphasize principles/practice that foster health promotion and deliver disease prevention services; focus on primary care
- ☐ Detect, understand, and manage health-risk problems of the home and workplace

■ Ethics

- ☐ Values/ethics in changing healthcare system
- ☐ Medical ethics
- ☐ Death and dying counseling
- ☐ Providers understand multiple responsibilities and roles at multiple levels in the healthcare system

■ Development of Patient-Provider Relationships

- ☐ Patient education
- ☐ Ongoing treatment of common behavioral problems
- ☐ Communicate effectively with patients (and their care givers)
- ☐ Emphasize knowledge, skills, values needed for effective teamwork
- ☐ Engage in participatory decision making with patients, families, and other providers

■ Leadership: Promoting Teamwork and Organizational Changes

- ☐ Demonstrate leadership and team-building skills for effective practice in an organized healthcare setting

■ Quality Measurement and Improvement

- ☐ Understand and practice principles of effective quality/continuous quality improvement
- ☐ Understanding of utilization review/quality assurance

■ Medical Informatics

- ☐ Use of computer-based clinical and management information systems to analyze and improve practice and practice patterns
- ☐ Medical informatics/computer training
- ☐ Critical medical literature appraisal

■ Systems-Based Care

- ☐ Use of community resources
- ☐ Continuity of care with assigned patients
- ☐ Refer appropriately to other specialists for needed healthcare services and coordinate all aspects of care, including technology
- ☐ Emphasize knowledge and skills needed for comprehensive primary care

■ Competencies Relevant to Primary Care (Nonspecific to Managed Care)

- ☐ Competencies related to common prevailing conditions/diagnoses: categories of prenatal care, acute illness, ongoing treatment of common chronic conditions
- ☐ Manage common acute and chronic medical conditions
- ☐ Evaluation of undifferentiated problems
- ☐ Comprehensive assessment
- ☐ Interdisciplinary training
- ☐ Evaluation of occupational/school health-related illness
- ☐ Care of patients in multiple settings
- ☐ Care of the population

Figure 1. Core competencies identified as necessary in managed care settings and description of competency as discussed in the literature. (Adapted from reference 2.)

edge invaluable in their day-to-day functions in the healthcare system. Increasingly, employers of physicians are seeking individuals who are familiar with such knowledge and skills. Few physicians today are able to establish a private medical practice due to the administrative, legal, and contractual expertise required in today's complex healthcare environment. To survive, physicians must be cognizant of the environments in which they are practicing.

The first generation of physicians who

were involved in early managed care programs learned "on the job." Subsequent generations of physicians have supplemented their knowledge of leadership and managerial roles in short courses and master's degree programs. Many physicians have returned to classrooms across the country in pursuit of business knowledge and skills by earning master's-level degrees (for example, MBA, MHA, MPH, MM).⁹ Some allopathic and osteopathic medical schools offer students the opportunity to pursue mas-

ter's degrees concurrent with their medical studies.

Due to the intense permeation of managed care principles into the healthcare environment, all future graduates of medical schools need to be familiar with these principles in the environments in which they will practice in the United States.¹⁰ The demand for education of medical students in this area comes not only from prospective employers and government agencies, but from students and graduates themselves. Finocchio and



Checklist

■ Health Systems Finance, Economics, Organization, and Delivery

- ☐ Interactive seminars can be used and center around debatable issues (eg, point-counterpoint format).
- ☐ Use of early visitations to integrated health systems and managed care environments, where possible visitations to non-physician–predominated settings/services should be encouraged (eg, long-term care, rehabilitation centers, pharmacies).

■ Evidence-Based Epidemiologically Based Medicine

- ☐ Use of quarterly journal clubs from primary literature sources including the weekly *Morbidity and Mortality Weekly Reports* produced by the Centers for Disease Control and Prevention.
- ☐ Have students identify a population and research the prevalence of the illness or condition and provide suggestions on how to address the issues from an integrated healthcare plan or public health position. Could be presented to a small group of peers.
- ☐ Cost-effectiveness of medical interventions, both pharmacologic and invasive as well as diagnostics, should be discussed with students.
- ☐ Devote a class to the principles associated with this area, though some could be integrated into other courses.

■ Ethics

- ☐ Use faculty and residents to present interesting ethical dilemmas encountered in practice in a seminar format.
- ☐ Have a panel consisting of representatives from managed care, medicine, clergy, the lay public, and other healthcare providers debate an ethical issue in a seminar.
- ☐ Have medical students spend time with the pastoral services in a hospital where the issues of death and dying are often handled in a spiritual way.

■ Development of Patient-Provider Relationships

- ☐ Have individual students assigned an elderly person in an assisted-living center and make them responsible to visit the person monthly for possibly the first years of their education.
- ☐ Have students and residents review patient satisfaction surveys from various settings.
- ☐ Have a panel of patients describe to the students what they expect from their physician-patient relationship.

■ Leadership: Promoting Teamwork and Organizational Changes

- ☐ Early interdisciplinary interactions are to be encouraged in the classroom setting as well as clinical sites.
- ☐ Add other healthcare students (if available) to the situation with the aforementioned elderly person to form a student-healthcare team.
- ☐ Have other providers critique the student when at the clinical sites.
- ☐ Involve other healthcare professional in various portions of the curriculum.

■ Quality Measurement and Improvement

- ☐ Provide more in-depth lectures on this topic (could be tied into the evidence-based medicine course offerings).
- ☐ Have students visit the information system department of an integrated healthcare organization and review the systems in place to track and monitor practitioners, services, patients, finances, etc.

■ Medical Informatics

- ☐ All learners must have computer literacy before entrance to medical school.
- ☐ Expose students to the Internet and demonstrate how this technology can be used as a resource for information and continuing education.
- ☐ Show students that the Internet opens the door to medical information, and thus patients will have access to much more medical-related information than in the past.
- ☐ Require students to perform medical literature appraisals with critiques of their search strategies conducted.

■ Systems-Based Care

- ☐ Introduce students to the various community resources available to patients.
- ☐ Continuity of care with the assigned elderly patient would assist in this area.

■ Competencies Relevant to Primary Care (Nonspecific to Managed Care)

- ☐ Encourage interdisciplinary training across the health sciences.
- ☐ Have students visit a school and meet with an occupational professional.

Figure 2. Strategies to implement core competencies for managed care in the medical curriculum. (Adapted from reference 2.)
Note: Unless specifically mentioned, it is assumed that didactic lectures and background readings will be used to provide information in courses where appropriate.

colleagues¹¹ report that in a survey of 87 physicians, 70 rated the adequacy of their undergraduate medical education in the area of managed care as fair to poor.

In 1997, Midwestern University conducted a survey of students enrolled in osteopathic medicine, physician assistant, physical therapy, and pharmacy

studies at its Illinois campus.¹² The purpose of the survey was to assess the level of interest of its student body in taking courses in medical management and possibly enrolling in a certificate program in medical management. Overall, 86% (n=175) of the first- and second-year medical students indicated a need for

such courses. More students (72%) were inclined to take a few courses as opposed to enrolling in a formal certificate program (49%). Eighty-four percent of those in all disciplines (first- and second-year medicine and physical therapy students as well as first-year physician assistants and pharmacy students) indicated there

was a need for business and management courses.

Evolving medical competencies

Educators, clinicians, and government officials have attempted to define what core competencies are requisite to the education and preparation of future physicians.^{1,2} The COGME Report identified nine core competencies (*Figure 1*) for medical education with respect to the managed care environment.² In their survey of 91 US allopathic medical schools, Meyer and coworkers¹ also identified nine elements that should be included in medical school curricula.

Traditional content areas in medical education that are important to practicing in managed care settings were likewise identified and included: clinical skills, interpersonal skills, and clinical epidemiology. Additionally, the concepts related to quality assurance/assessment, risk management, and utilization management were identified as important, but more applicable in residency training in which application of skills is more easily accomplished.

The work by Meyer and colleagues,¹ the COGME Report, and the primary literature identify consistent themes related to the emerging curricula in medical education at the undergraduate and graduate levels. Many of the competencies identified in these reports apply to other health science disciplines (for example, nursing, pharmacy, allied health) as well as to the osteopathic medical profession. All health science educators' disciplines must be cognizant of the ever-changing environment and must be vigilant in adjusting their respective curricula to maintain the integrity of the health professions they seek to educate.

Recommendations to implement core competencies

It can be argued that physicians must be able to learn how to manage resources through health services research, participate in clinical epidemiology, make evidence-based decisions, and function as a member of the healthcare team while practicing as a professional.¹³ As described by Meyer and colleagues,¹

many of the medical schools that responded to their survey recognized the importance of modifying their curricula to prepare graduates to practice in the managed care arena. That said, the real challenge to the competencies/core areas is less in their identification and more in their implementation in the professional curriculum.

Whatever competencies are implemented in a medical school's curriculum, they must be systematically taught across the entire spectrum of medical education. Medical education and managed care must work together to ensure that future physicians are trained and accomplished in the requisite competencies for practice in the managed care arena. The incorporated competencies must become a part of the culture of medical education.

As pointed out by the COGME Report, not only is identification of content and competencies important, but the "who, what, when, and where" must be determined by individual educational institutions (no two curricula are the same). For example, "who" are the kinds of patients to which students will be exposed; "what" is the core knowledge, skill, or competency to be acquired; "when" focuses on the logistics of delivery; and "where" relates to the types of settings that may convey the most meaning to students.

Some content areas can be readily incorporated into existing courses (for example, clinical epidemiology, biostatistics, communication skills) and focus on their relation to the managed care environment, while other courses may need to be created in the undergraduate medical education curriculum. Still other courses (for example, computers/technology, management, health systems, ethics) may become prerequisite to admission to medical school. There is a finite amount of coursework that can be used to convey the knowledge and skills considered requisite in the medical curriculum.

Medical school faculty at all levels of education and training need to be keenly aware of pedagogy and assessment/evaluation techniques that are most

appropriate for the teacher and the student in the delivery of these new course materials (as well as existing courses). The use of problem-based exercises, projects that foster group interactions and communication skills among students, application of technology in the classroom, and interdisciplinary interaction with other healthcare students early in formal education may enhance the delivery of these competencies. The standard lecture, seminar, and laboratory sessions will most likely remain a cornerstone in the medical curricula. Potential strategies to aid in the implementation of the core competencies are described in *Figure 2*.

Faculty issues

Attention must be paid to the preparation of faculty to teach new competencies emanating from managed care. It has been argued that faculty are not engaged in practice in the community, but rather at academic-based medical centers or government institutions where they are somewhat isolated from the economic forces shaping the healthcare community. Many osteopathic medical schools have traditionally used volunteer faculty in community-based practices¹⁴ where marketplace influences are most often felt; thus, graduates of osteopathic medical programs may be more keenly aware of managed care. Faculty must be knowledgeable of the forces shaping the healthcare community in which their graduates will practice. As the COGME Report stresses: "The faculty must reinforce the curriculum with words and deeds, or it will fail. Thus, we must begin to prepare faculty who can teach and role-model the content and practice with regard to the domains discussed [within the report]."²

As the medical school curriculum is adjusted, so too must the faculty adjust. Schools must provide opportunities for their faculty to become more familiar with the principles, actions, and philosophies of the managed care environment. For example, faculty may want to participate in "mini-internships" in various components associated with managed healthcare settings. Preceptors of such

internships may be ideal candidates for guest lecturers or adjunct faculty in the curriculum.

Discussion

When evaluating and reforming medical school curricula, radical change or unnecessary emphasis in a particular area is typically not warranted. Education as described by the 18th century Swiss educational philosopher, Johann Heinrich Pestalozzi, must be viewed in its totality in the curriculum: "Education is nothing more than the polishing of each single link in the great chain that binds humanity together and gives it unity. The failings of education and human conduct spring as a rule from our disengaging a single link and giving it special treatment as though it were a unit in itself, rather than a part of the chain. It is as though we thought the strength and unity of the link came from its being silver-plated, gilded, or even jeweled, rather than from its being joined unweakened to the links next to it, strong and supple enough to share with them the daily stresses and strains of the chain."¹⁵

If faculty and administrators keep this underlying principle in mind when making changes to their respective medical curricula, the end result will be a more unified and comprehensive educational process that benefits many stakeholders, including students, faculty, employers, colleagues, and patients.

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