

Preparing the osteopathic academic health centers for healthcare reform

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Healthcare reform proposals introduced in the House and Senate, put forward by foundations, professional associations and study groups, all call for medical schools to train more generalists. As these agents make recommendations for change, they are studying the osteopathic medical education model with fresh interest because of its success in maintaining more than 60% of its graduates in primary care practice.

Most students of reform place the blame for producing too many specialists and subspecialists squarely on the academic health centers. The authors trace the development of academic health centers and compare and contrast the models developed in the osteopathic and allopathic medical settings. They enumerate the strengths in the osteopathic education model which have contributed to our favorable balance of generalists to specialists. However, they argue that specific changes in the osteopathic academic health center are essential if we are to retain leadership in generalist education under healthcare reform.

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Comprehensive medical education programs depend on a support structure that is commonly referred to as an academic health center. These academic health centers are organized around

medical schools, with faculty who also provide care to patients within the contiguous community. They typically have a teaching hospital where a significant portion of the training in graduate medical education (GME) is delivered. Academic health centers are based on a German model and address a three-pronged mission of research, education, and patient services.

As academic health centers evolved historically, the allopathic medical centers benefited from American medicine's increasing dependence on technology. Their growth was supported by clinical practice revenues, primarily generated by specialty physicians, and by public and private research dollars. Funding for GME reinforced and supported expansion of specialty hospital-based training through subsidies paid largely by the Medicare program. The osteopathic medical profession's isolation from public and private funding sources and the shortage of tertiary training facilities during most of our history resulted in a different academic structure—one with a focused emphasis on training primary care providers. Our academic health centers were not seduced or dissuaded from our philosophic mission. As a consequence, allopathic academic health centers have assumed one clearly identifiable burden as we all face a reformed healthcare delivery climate—the tertiary care center. It is recognized that maintenance of tertiary training institutions poses a real dilemma for policy formulation and implementation, particularly with an educational emphasis on the primary care specialist. Their burden is clearly a barrier to successfully addressing a policy mandate to train greater numbers of primary care physicians.

In counterdistinction, the osteopathic acad-

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emic health center has a heavy historic reliance on community-based programs and small to medium community-based institutions as part of its education infrastructure. However, community-based hospital linkages, which serve as a backbone of the osteopathic academic health center, will also be compromised without educational protections in the policy process.

Osteopathic medicine has evolved from a minority profession, with all of its attendant biases and stereotypes, to a model academic process for producing generalists, particularly family practitioners. The American Association of Medical Colleges (AAMC) recommended strategies for allopathic medical schools to produce more primary care practitioners, in effect, recommending adoption of the osteopathic academic health center model.

Evolution of academic health centers

The first medical schools in the United States were founded by private practitioners, owned by their faculty, and operated for profit. By 1870, 80 medical schools were in operation—65 teaching traditional medicine; 11, homeopathy; and 4, eclectic medicine.¹ After serving an apprenticeship, students enrolled in medical college to attend formal lectures and demonstrations. Most students spent only 4 months of each year studying in programs spanning 2 successive years. Emerging concurrently as an exception to this proprietary model, the University of Michigan Medical School was founded in 1850 and organized as an integral part of the university. This institution produced one of the first great voices for reform of medical education. Nathan Smith Davis, MD, worked to establish a graded, 3-consecutive-years' system of instruction that required clinical instruction in a hospital as well as practical work in chemical and histology laboratories. He also pushed to move licensing responsibilities to the government, leaving the teaching responsibility to the schools.¹

In 1874, Andrew Taylor Still, MD, established an approach to healing and health promotion based on manipulation of the musculoskeletal structure and founded the first college of osteopathic medicine in Missouri. A. T. Still trained at his father's side and studied texts in anatomy, physiology, surgery, and *materia medica*. His first patients were Shawnee, and their burial ground served as his anatomy laboratory.² At the time American medicine offered its poorly trained practitioners harsh modes of therapy

to combat diseases—oftentimes the treatment was worse than the disease.

The AAMC was founded with 22 member-schools in 1876. That same year, Johns Hopkins endowed a modern hospital and blended it with a medical college following a German model. With this model, The Johns Hopkins University assumed the leadership role in medical reform for the next few decades and established the roots of the academic health center as it took form in the allopathic medical world.¹

Twenty years later, the organization that became the American Osteopathic Association (AOA) was established. From its inception, the AOA began the struggle to secure professional recognition on all fronts. On the academic front, it lengthened the undergraduate training program. However, most of its efforts were devoted to attaining licensure equity for the osteopathic medical practitioners. At the turn of the century, the central question for both osteopathic and allopathic medical colleges became whether the standards were adequate to ensure the production of qualified physicians and surgeons. The stage was set for a most unusual schoolteacher, Abraham Flexner, to tour the nation's medical schools, and thus become the catalyst for major reform of the entire system of medical education.

Compiled under the auspices of the Carnegie Foundation, Flexner's famous report recorded 457 medical schools that had been established in the United States and Canada between 1810 and 1910. During his research from 1908 to 1910, he visited the 147 schools remaining in the United States and 8 schools in Canada.¹ He decided to include the osteopathic medical colleges in his itinerary in spite of the espoused differences in philosophy; he argued that osteopaths needed to be trained to recognize and differentiate diseases as accurately as any physician.² His conclusion, that not one of eight osteopathic medical schools that he toured was delivering the training that osteopathy needed, brought hot and angry protests. The AOA Committee on Education, however, agreed that the problems of low entrance standards, poor science laboratory instruction, lack of clinical facilities for bedside training, and inadequate instructional staff should be remedied. The allopathic medical schools did not escape Flexner's censure either. He encountered many of the same deficiencies among allopathic medical schools. Most pronounced among all the schools was an industrywide lack of standards. His survey and the vivid descriptions of individual schools made

good copy for a sensationalist, muckraking press and mobilized public opinion.

Reform took its toll so that in 1929 only 76 of the surveyed schools still existed.¹ Two of the eight osteopathic medical schools, the Los Angeles and the Pacific schools, agreed to merge, and accreditation of the Massachusetts College of Osteopathy was withheld in 1926–1927, leaving only six osteopathic medical colleges. Most of the remaining schools were reorganized into functioning medical schools, often as programs within university curricula. At the same time, the concept of full-time clinical faculty was more widely accepted. As full-time faculty grew, medical schools had phenomenal growth in medical research, and the research component of the academic health center of today fell into place. Medical teaching began to take second place to research in the allopathic medical schools. As late as 1954, 15 of 80 medical schools reported no full-time faculty. Between 1961 and 1981, the number of schools increased 47% while the number of full-time faculty increased 350%.¹

The mechanism that made possible the rapid growth in full-time clinical faculty was the faculty practice plan. Faculty practice plans are organizational mechanisms that identify, document, use or distribute (or both) all specifically identified portions of the professional-fee income generated through clinical practice activities in a medical school environment. Income from the faculty practice plans began to play a more important role in funding the total program as well, accounting for 4% of total medical school income in 1968 and spiraling to 30% in 1990.¹

The other component of the typical academic health center—the teaching hospital—was also in place. By the mid-1930s, most allopathic medical colleges easily surpassed the minimum of 200 beds available for teaching purposes under guidelines set by the American Medical Association. Meanwhile osteopathic medical colleges in Chicago, Des Moines, Kansas City, Kirksville, and Philadelphia averaged 66 beds each. By 1959, though, osteopathic medical colleges were able to increase their clinical training hours from an average of 862 (1935) to 2214.² They accomplished this increase through creation of the model that serves them to the present; they made arrangements with other osteopathic hospitals for the training of externs.

Today's academic health center

Medical education is now provided by 142 allo-

pathic and osteopathic medical schools and also incorporates more than 1500 institutions and agencies. Many of the teaching hospitals, particularly in the allopathic medical world, are attached to academic health centers with at least a school of medicine and another health profession school, often nursing.³

To provide an actual count of the number of academic health centers, it is necessary to agree on a definition of the term, as the variations that have grown throughout the history of medical education are considerable. The core ingredient is a medical school. In addition, the faculty provide medical care to some group of patients based on the mission of the center. Some have additional schools of health professionals—such as pharmacy or nursing. Most include at least one teaching hospital, but some are linked to a hospital operated by the Veterans Administration or affiliated with one or more community hospitals (or both). All but one of the osteopathic medical schools have affiliated with community hospitals rather than maintain teaching hospitals themselves. The exception is the Chicago College of Osteopathic Medicine of Midwestern University (CCOM), which maintains two hospitals in addition to having community hospital affiliation (*Table*).

Academic health centers have developed a three-pronged mission, sometimes called the “iron triangle” by its critics who believe it has led to specialty medicine's domination of the health system.³ Research, education, and patient services maintain an uneasy balance in most centers. The Council on Graduate Medical Education (COGME) says seven times as many scientists and subspecialists as family physicians are trained in our schools.⁴

The missions of osteopathic and allopathic medical schools vary, but the differences existing between allopathic medical schools are dramatic. At one end of the scale, dominated by the allopathic medical schools, are the research-oriented medical schools. They seek to attract faculty with scholarship and research interests that bring national recognition. They train medical students, hospital house staff, and research fellows in specialty and subspecialty care. They have few primary care trainees and rarely include strong departments of family medicine or community medicine. Their faculty practice plans are usually large and successful because specialty and subspecialty care by renowned physicians leads to a large referral base. In 1989, 25

schools, representing less than 20% of all schools, amassed 53% of the research income (\$2.032 billion), and 36% of the clinical income (\$1.68 billion).¹

At the other end of the scale, encompassing most osteopathic medical schools, are the practitioner-oriented medical schools. Most of them were established in the 1970s and 1980s under government initiatives with an emphasis on primary care education. Many were sponsored by states and encouraged by the granting of federal capitation funds. For the 25 schools with the least income from research funds, clinical income averaged only \$10 million per school in 1989. A large family medicine department is the most definitive litmus test for this type of school. Several of the public osteopathic medical schools were established as prototypes of these initiatives.

Many of the schools that fall between the two extremes—the balanced schools—are the larger state medical schools with established academic health centers including hospitals. Practice plans generally account for 30% to 40% of the income to the schools.¹

At the same time that undergraduate medical schools were developing and restructuring to become the key components in the academic health centers of today, postdoctoral training programs were developing in the teaching hospitals. Though nearly all allopathic academic health centers include at least one teaching hospital, not all 1300 teaching hospitals in the United States are part of the academic health centers. Each teaching hospital contains at least one approved residency program.

The major teaching hospitals associated with academic health centers in the allopathic medical world have the following characteristics:

- medical students,
- full-time faculty,
- no base of primary care or community physicians,
- higher costs for medical services,
- a disproportionate amount of uncompensated care,
- administrative complexity, and
- a public image as a teaching hospital.¹

It is the teaching hospital that receives graduate medical education (GME) funds from the federal government and other payers and provides patient services, many times offered by residents.

In a major teaching hospital linked to schools of medicine, the revenue streams come from

research grants, GME funds, and payments for patient services (generally through faculty practice plans). The mix that results is so intricate that it is extremely difficult to analyze it in policy terms.³ The teaching hospitals have much to lose in the current systems reform debate. They are attacked as an anachronism because care has largely shifted from acute care to ambulatory care settings while they are seen as perpetuating specialty inpatient medicine.

As a dozen groups call for a move to general practice in support of health systems reform, their absence of Goliath teaching hospitals positions the osteopathic academic health centers to lead academic medicine in the shift to primary care.⁵

Reform and the academic health center

Changes in the skill-base, numbers, types, mix, and distribution of the healthcare workforce are fundamental to national reform. With healthcare reform proposals coming from the White House and both houses of Congress, change is perceived by all healthcare stakeholders as inevitable. The education and training systems for healthcare professionals, as presently configured, will not produce the types of professionals—primary care providers—that the new system of healthcare will require.

The decline in the proportion of allopathic physicians who practice in primary care has been striking—from more than 80% in 1931 to 38% in 1970 to just 30% today.⁶

Many state and federal commissions and agencies, in addition to several foundations, have studied the situation and devised remarkably similar recommendations for change in the medical education process to provide the academic focus and infrastructure necessary to influence student selection of primary care as a career choice.⁵ The Pew Foundation, the Robert Wood Johnson Foundation, the Macy Foundation, the COGME, and the AAMC have all made specific recommendations for change strategies, which if adopted by medical schools, will facilitate the production of more primary care physicians. The specific strategies encompass the “osteopathic medical” education model:

- an admissions policy that preferentially accepts students who profess an interest in primary care;
- an admissions and recruitment strategy that accepts the nontraditional student who more frequently selects a primary care career path;
- an admissions policy that seeks to add minority representation;

Table
Clinical Components of Osteopathic Academic Health Centers

State and osteopathic medical school	No. of owned hospitals	No. of affiliated hospitals	Size range (No. of beds)	No. of adjunct volunteer faculty	No. of outpatient visits per year to ambulatory care facility	% of Undergraduate clinical curriculum in campus ambulatory care facilities
■ California College of Osteopathic Medicine of Pacific	0	27	75-556	833	9,500	2.1
■ Florida Nova Southeastern University of the Health Sciences/ College of Osteopathic Medicine	0	15	60-1485	0	2,500	40.0
■ Illinois Midwestern University/ Chicago College of Osteopathic Medicine	2	N/A*	183 and 197	202	285,424	15.0
■ Iowa University of Osteopathic Medicine and Health Sciences	1 divested in 1970	20	118-555	215	53,627	30.0
■ Maine University of New England College of Osteopathic Medicine	0	21	78-550	200	20,000	3.0
■ Michigan Michigan State University/ College of Osteopathic Medicine	0	12	81-556	785	21,588	Minimal
■ Missouri Kirksville College of Osteopathic Medicine	2 owned, leased out	38	104-458	730	N/A	N/A
University of Health Sciences (Kansas City)	1 divested in 1988 1 divested in 1991	27	55-1164	280	15,000 patients	10.0

*N/A = not applicable.

Table (continued)
Clinical Components of Osteopathic Academic Health Centers

State and osteopathic medical school	No. of owned hospitals	No. of affiliated hospitals	Size range (No. of beds)	No. of adjunct volunteer faculty	No. of outpatient visits per year to ambulatory care facility	% of Undergraduate clinical curriculum in campus ambulatory care facilities
■ New Jersey University of Medicine Dentistry of New Jersey/ School of Osteopathic Medicine	0	4	201-607	253	170,000	30.0
■ New York New York College of Osteopathic Medicine of New York Institute of Technology	0	14	120-1003	500	22,000	15.0
■ Ohio Ohio University College of Osteopathic Medicine	0	12	50-452	1028	110,000	10.0
■ Oklahoma College of Osteopathic Medicine Oklahoma State University	0	14	25-502	105	26,000	12.5
■ Pennsylvania Philadelphia College of Osteopathic Medicine	1 divested in 1993	38	150-1700	637	60,000	30.0
■ Texas University of North Texas Health Science Center at Fort Worth/ Texas College of Osteopathic Medicine	0	12	78-432	288	136,275	>50.0
■ West Virginia West Virginia School of Osteopathic Medicine	0	23	122-962	167	17,161	20.0

*N/A = not applicable.

- significant primary care representation on admissions committees;
- primary care included in the school or college's mission statement;
- establishment of departments of family medicine in parity with other traditional clinical departments;
- required curriculum courses and clerkships in primary care disciplines;
- increased training in nonhospital settings;
- increased emphasis on community-based training with community-based practitioners;
- tenure and promotion criteria that emphasize teaching;
- significant integration of biopsychosocial and prevention into the undergraduate curriculum;
- early and continuous clinical contact for undergraduate students;
- changes in the core curriculum; and
- the creation of community-centered partnerships.

It is clear that most, if not all, of the allopathic academic health centers have much work ahead to establish an educational infrastructure that reflects all of the recommended strategies. The intense scrutiny that the allopathic academic health centers are undergoing is making them uncomfortable, but most policy analysts believe that even without national reform the private marketplace is changing so rapidly that the teaching hospitals must reconfigure to compete in the new market of managed medicine.⁷

Challenge to osteopathic academic health centers

The osteopathic academic structure is unique in that many of the recommended strategies are integral to our educational process. However, significant deficits are identifiable and pose barriers to our maintaining a 60:40 balance favoring generalists among our graduates, or to attaining an even more desirable 70:30 distribution.

First, we need to incorporate the most effective adult education techniques in our core curriculum. The explosion of knowledge in the medical sciences effectively precludes the detailed memorization of facts for later recall. Self-directed learning and problem-solving skills must be emphasized throughout the curriculum for students to learn to acquire detailed information and to apply such knowledge effectively. Students must also be invested with the skills to access data through the many technologies that are becoming

available on an almost daily basis. The curriculum should offer educational experiences that require students to be active, independent learners and problem solvers rather than passive recipients of knowledge.

Second, is a critical need to more effectively link the undergraduate and graduate medical training programs. The present osteopathic medical education structure is fragmented and inefficient in meeting the profession's training goals, as evidenced by the decreasing numbers of students selecting osteopathic residency training. The profession's resources for training have historically been limited. Our reliance on the use of small/medium community hospitals, with limited resources and scope of patient services, has compromised our ability to consistently deliver a high-quality comprehensive educational program for all of our students. To address this inefficiency, we must collaborate and combine all our educational resources in a structure designed to meet the immediate and long-term needs for osteopathic medical education centers with "consortium" relationships. These consortia must be designed to address specific educational goals and objectives. Inherent in consortium relationships is centralized data collection, administrative processing, collaborative marketing and recruitment strategies, and decision-making processes that will enable individual training facilities to function as collective units. Education must be an organized, active process to establish visible, measurable, performance quality standards.

Third, although the osteopathic medical profession involves large numbers of community-based physicians as preceptors, teachers, and role models for osteopathic medical students, interns, and residents, our faculty training/development support has been inadequate and inconsistent. In addition, our reliance on significant unsupported and unreimbursed voluntary teaching has compromised our ability to establish a clinical, level-appropriate, curriculum with performance and evaluation standards. The educational commitment of individual practitioners has been a strength of the osteopathic medical education process. The changing health service delivery environment, however, will require greater volume productivity by community providers and will thus compromise the commitment of volunteer faculty to dedicate/donate the time required to teach. It is important to note that it is this same reliance on volunteer faculty for osteopathic

medical teaching that has limited our GME indirect reimbursement from Medicare and precluded the development of more structured internship and residency programs. Although current healthcare reform proposals will favor primary care educational programs, our ability to be reimbursed at a more appropriate level as required for high-quality educational programs will depend on an academic structure with identified and trained faculty.

Finally, a new academic health center model must be established and emphasized in the osteopathic medical profession. This new model must integrate the three aforementioned points—

- a comprehensive core curriculum;
 - an educational continuum spanning the undergraduate and graduate years using GME consortia; and
 - professionalization of our faculty—
- with the recommended aforelisted strategies to produce more primary care physicians. This structure will become the identifiable method by which medical education in the United States will be most effectively recognized and receive funding support. It is important to note that in this era of healthcare reform, the Clinton Administration has given assurances that academic health centers will continue to flourish. Hillary Rodham Clinton promised that academic health centers “could look forward to a steady stream of revenue” and would not have to compete with nonacademic hospitals for patients on the basis of “the lowest common denominator.”⁸

All the major reform proposals have included language that provide protections for academic health centers. Because the new health delivery paradigms emphasize effective delivery to a defined population, rather than fragmented services, academic health centers are challenged to show that they have the flexibility to change: to develop managed care entities of their own or to cultivate them as partners, to offer primary care services and educate primary care practitioners, to shift the locus of care and training to ambulatory care settings, and to price their “products” more competitively.⁷ These trends toward vertical inte-

gration and managed care are tough challenges. The osteopathic medical education structure must also meet these challenges. Because we are “small,” we have an advantage.

Comment

The evolution of osteopathic medical education has left the profession with distinct advantages in the current healthcare reform climate. We have a proven education model in place for training the primary care physicians that the nation is calling for in great numbers and quickly. We are not saddled with the tertiary care center dinosaur that the allopathic academic health center is trying to lead to change. However, we will be able to emerge as a leader in medical education only if we create a new model of the academic health center that will continue to attract our students by improving the quality and continuity of our programs from entry to practice and beyond.

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