

MD/MBA Programs in the United States: Evidence of a Change in Health Care Leadership

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ABSTRACT

Purpose. Managerial sciences are playing an increasingly prominent role in the organization and delivery of health care. Despite popular media reports that a rising number of physicians are acquiring a background in this discipline through MD/MBA (medical and master of business administration) programs, no recent study has verified this. This study measured changes in the number and nature of the affiliations between management and medicine in the form of MD/MBA programs in the United States.

Method. Surveys of admission officers of 125 U.S. allopathic medical schools and of the overseers of each joint MD/MBA degree program were administered in May–October 2001. Main outcome measures included program growth, curriculum and degree requirements, application and admission requirements, and program leadership and organization.

Results. The number of MD/MBA programs grew from six to 33 between 1993 and 2001, and 17 more medical schools were considering establishing the joint-degree program. Ten, 15, and 20 programs produced 27, 42, and 61 graduates in 1999, 2000, and 2001, respectively, and over 100 students were expected to graduate per year when all 33 programs matured. Program structures and oversight indicate a spectrum of philosophies regarding the appropriate level of integration of the two degrees. MD/MBA programs apparently attempt to complement medical education with management education rather than the converse.

Conclusions. The growth in the numbers of MD/MBA programs and participants indicates rising cooperation between medical and business schools and increasing interest in management education early in the careers of graduating physicians.

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Medical and other professionals increasingly advocate applying principles from the managerial sciences to the delivery

of health care. These efforts include principles meant to improve patient safety,^{1,2} health care quality,^{3,4} organizational design and effectiveness,^{5,6} and even clinical decision making.^{7,8} To acquire the skills necessary to undertake these efforts, physicians can take advantage of management-education opportunities at various stages of their careers.⁹ One option is to jointly pursue medical (MD) and master of business administration (MBA) degrees.

Joint-degree MD/MBA programs at U.S. medical schools have apparently increased in number and recognition in recent years. A 1996 study, based on 1993 data, reported the existence of five joint MD/MBA programs at U.S. medical schools¹⁰; since then, how-

ever, other media sources have reported substantially higher numbers of these programs.^{11–13} Several authors have previously discussed the dual MD/MBA degree, speculating about what attracts individuals to the degree,¹⁴ assessing degree-seekers' beliefs and expectations,¹⁵ and exploring the myriad roles such individuals might eventually expect to fill.¹⁶ Although these authors have sought to explain attributes of and opportunities for individuals who seek the joint degree, none has verified whether a significant shift is actually taking place, nor have they characterized the number and nature of the MD/MBA programs.

To evaluate the development of MD/MBA programs, we surveyed all

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Table 1

Characteristics of Medical and Business Schools Offering MD/MBA Programs in the United States, 2001				
Medical School	Business School	Year Established	No. of Students	Year(s) of Education Applications Are Accepted*
Baylor College of Medicine	Jones School of Management (Rice University)	1999	11	0, 1, 2
Boston University School of Medicine	Boston University School of Management	2002	0	0, 1, 2, 3
Brody School of Medicine at East Carolina University	ECU School of Business	1998	9	2
Case Western Reserve University School of Medicine	Weatherhead School of Management	1994	6	0, 1, 2
Columbia University College of Physicians and Surgeons	Columbia Business School	1996	9	1, 2, 3
Dartmouth Medical School	Tuck School of Business	1989	3	0, 1, 2, 3
Drexel University College of Medicine (formerly MCP Hahnemann School of Medicine)	Lebow College of Business (Drexel University)	1999	10	0, 1, 2
Duke University School of Medicine	Fuqua School of Business	1994	13	2
Georgetown University School of Medicine	McDonough School of Business	1997	6	0
Jefferson Medical College of Thomas Jefferson University	Widener University School of Business Administration	1994	8	0, 1
Keck School of Medicine of the University of Southern California	Marshall School of Business	2001	4	2
Northwestern University The Feinberg School of Medicine	Kellogg Graduate School of Management	1986	5	3
Texas Tech University Health Sciences Center School of Medicine	Texas Tech College of Business Administration	1998	33	0
Tufts University School of Medicine	Northeastern University College of Business Administration and Heller Graduate School at Brandeis University	1994	69	0
UMDNJ—New Jersey Medical School	Rutgers Graduate School of Management	1999	12	1
University at Buffalo, SUNY School of Medicine and Biomedical Sciences	University of Buffalo School of Management	1998	13	2
University of California, Davis School of Medicine	UC Davis School of Management	1999	5	0, 1, 2
University of California, Irvine College of Medicine	UC Irvine Graduate School of Management	1997	17	1, 2, 3
University of California, Los Angeles, David Geffen School of Medicine at UCLA	Anderson School of Management	1997	10	3
University of Chicago Division of the Biological Sciences Pritzker School of Medicine	University of Chicago Graduate School of Business	Prior to 1986	12	0, 1, 2, 3
University of Cincinnati College of Medicine	University of Cincinnati College of Business Administration	1998	1	0, 1, 2, 3
University of Colorado School of Medicine	University of Colorado College of Business Administration	1995	2	2, 3
University of Connecticut School of Medicine	University of Connecticut School of Business	1998	5	0, 1, 2, 3
University of Florida College of Medicine	Warrington College of Business	2001	2	0, 1, 2, 3
University of Illinois at Chicago College of Medicine	UI College of Commerce and Business Administration	1978	4	0
University of Kentucky College of Medicine	Gatton College of Business and Economics	1999	1	0, 1
University of Louisville School of Medicine	University of Louisville College of Business and Public Administration	1999	11	0
University of Michigan Medical School	University of Michigan Business School	2001	4	3
University of Pennsylvania School of Medicine	The Wharton School	1970	20	0, 1, 2, 3
University of Rochester School of Medicine and Dentistry	Simon Graduate School of Business Administration	1998	3	0
Vanderbilt University School of Medicine	Owen Graduate School of Management	2000	3	0, 1, 2, 3
Wake Forest University Health Sciences (School of Medicine)	Babcock Graduate School of Management	1993	10	0, 2, 4
Yale University School of Medicine	Yale University School of Management	2000	8	0, 1, 2, 3

*Year 0 refers to the initial medical school application.

U.S. allopathic medical schools to determine the current number of MD/MBA programs and interviewed administrators at each MD/MBA program to understand the programs' characteristics. With this study, we have sought to provide the most comprehensive analysis to date of the current state of the relationship of U.S. medical schools and business schools through the MD/MBA program.

METHOD

Between May and October 2001, e-mail messages were sent to the offices of admissions or student affairs at all accredited U.S. allopathic medical schools. Offices that did not respond to these messages, or whose e-mail addresses could not be obtained were contacted by telephone.

Programs had to meet one of two criteria to be considered an MD/MBA program: (1) a student could earn both MD and MBA degrees in the program in less time than would be necessary to earn the two degrees separately, or (2) the program offered an integrated MD and MBA curriculum, designed and administered through the coordination of medical and business school faculty and administration. If the surveyed medical school did not sponsor a MD/MBA program, the respondent was asked whether, to the best of the officer's knowledge, the medical school administration was currently considering establishing such a program.

The designated director, coordinator, advisor, or other administrator specifically assigned to oversee each MD/MBA program was interviewed. Thirty-two of the 33 interviews were administered by telephone and one was completed through e-mail correspondence. Responses were recorded as standardized data and additional comments were recorded in narrative fashion.

Information given by the program directors was classified as program growth, curriculum and degree require-

ments, application and admission, and program leadership and organization.

The initial year of the program was defined as the first year in which students matriculated (or will matriculate) at the business school with the intent to jointly pursue the MD and MBA degrees. Enrollment in the MD/MBA program was defined as being officially approved to jointly work towards the MD and MBA degrees, regardless of the year of study.

This study was exempt from institutional human investigation committee review.

RESULTS

Program Growth

Of the 125 U.S. allopathic medical schools, 33 (26.4%) had MD/MBA programs that met the criteria at the time of the study (see Table 1). This number far exceeds any reported heretofore—even in the popular press. Six programs reported having been established by 1993 (in contrast to five programs reported by Shalowitz et al.¹⁰); the remaining 27 programs (450%) were established between then and 2002 (see Figure 1). Of the 92 schools without an MD/MBA program, 17 reported that they were currently considering establishing a program, 58 reported that they were not considering establishing a program, and 17 did not respond to this inquiry.

A total of 329 students were reportedly enrolled in MD/MBA programs at the time of the study (mean = 10 students per program, SD = 12.5, median = 8). Table 1 shows that one program had no student enrolled at the time of the study, 15 programs had between one and six students, 13 programs had between seven and 16 students, and the four largest programs had enrollments of 17, 20, 33, and 69 students.

Table 2 shows the numbers of graduates from MD/MBA programs in the three years prior to the study. In

2001, an average of 3.05 students graduated from each of the 20 reporting programs that had been established long enough to produce graduates.

Curriculum and Degree Requirements

Of the 33 MD/MBA programs surveyed, two programs (Tufts and Texas Tech) reported that attainment of the joint degree was usually accomplished in four years, 30 programs reported it was accomplished in five years, and one program (University of California, Davis) reported it was accomplished in six years.

Five general models representing the structures of the curricula of more than one program were synthesized using the survey results. These curriculum models and the number of schools that generally followed each model are listed in Table 3. However, it should be noted that these models are relatively loose representations. When the curricula and course sequences were laid out in their entirety, virtually no two programs were identical.

Of the 27 programs reporting, 11 (40.7%) required students to complete a business- or health-administration-related internship or program, seven (25.9%) offered it as an optional opportunity, and nine (33.3%) did not advocate such an experience.

Most programs waived or offered dual credit for a portion of normally required MBA requirements. The percentages of MBA credit waived at the 30 programs responding to the question were 0% at nine programs, 1–24% at six programs, 25% at nine programs, and 26–37% at six programs (mean = 17.0%, median = 24.4%, SD = 13.6%).

Five programs (15.2%) offered courses tailored specifically for the MD/MBA students—one program offered a course in health care law and ethics, systems, and strategy, another offered six-week field studies for MD/MBA students, two others offered courses in medical leadership, and one program conducted a "capstone" course for MD/MBA students.

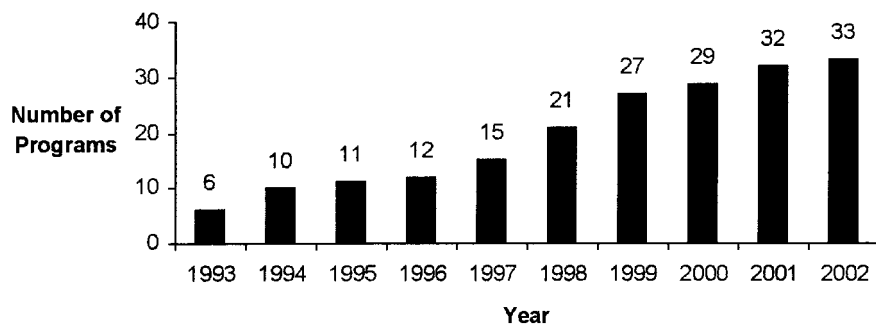


Figure 1. Growth in the number of MD/MBA programs in the United States, 1993–2002.

Application and Admission

The years of medical school in which students were able to apply for the joint-degree program are listed in Table 1. Six programs (18.2%) reported that they accepted applications to the program only prior to medical school, 14 (42.4%) designated only one year in which they accepted applications, three (9.1%) designated two years, seven (21.2%) designated three years, and nine (27.3%) accepted applications during four years. Twenty-three programs (69.7%) required that students be accepted or enrolled in the medical school before the joint-degree application was considered.

Six programs (18.2%) reported that applicants were expected to have had some kind of work experience outside medical school, and 24 (72.7%) required applicants to submit Graduate Management Admission Test (GMAT) scores.

Nine schools (27.3%) had established a maximum number of students allowed into the program. The average of this number was 7.1 students per year; however, many programs anecdotally re-

ported that they would set a limit if the number of applicants became excessive.

Acceptance into 21 (63.6%) of the joint-degree programs was based solely on independent admission to both the MD and the MBA programs, whereas 12 (36.4%) of the programs considered the candidates as joint-degree applicants, distinct from the main applicant pool.

Program Leadership and Organization

Thirteen (39.4%) of the 33 programs were directed, coordinated, or advised by faculty members who were not part of the medical school administration, and 20 programs (60.6%) were overseen by medical school administrators. Eleven of the 13 faculty members who were not part of the medical school administration had MD degrees, eight had both MD and MBA degrees, one had both PhD and MBA degrees, and one had both MD and MPH degrees.

Four programs (12.1%) reported having some kind of official student organization for MD/MBA students. One had an MD/MBA student coordinator,

one had an MD/MBA representative on the executive council, and two had MD/MBA clubs. At several other programs, students could join organizations that fell under the “health care management” umbrella at the medical or business school but were not unique to MD/MBA students.

DISCUSSION

The number of MD/MBA programs at U.S. medical schools grew significantly from 1993 to 2002. The rise from six programs in 1993 to 33 programs in 2002, with at least 17 more medical schools considering establishing MD/MBA programs, indicates a strong and relatively sudden demand for management training from the outset of physicians’ careers. This is confirmed by the fact that nearly 40% of the 33 established programs had not yet produced any graduates in 2002. Students are increasingly taking advantage of this opportunity, with the number of graduates per year having risen from 27 to 61 in the three years prior to the study. This number is expected to continue to rise even further, independent of new programs, as current programs graduate their full complements of students. If the number of graduates per program remains constant, the total number of MD/MBA graduates per year from the 33 programs will be 101 within two years—rivaling the number of graduating students entering some medical specialties.

A spectrum of philosophies regarding the integration of the two degrees appeared to exist. On one end, some MD/MBA programs were highly integrated, offering what is purported to be an accelerated course of study in medicine and health management. This was perhaps best represented by the two four-year programs, which described theirs as “Health Organization Management” and “MD/MBA Degree in Health Management” programs, respectively. These programs were directed by

Table 2

Numbers of Graduates from MD/MBA Programs in the United States, 1999–2001			
	Year		
	1999	2000	2001
Total number of MD/MBA graduates	27	42	61
Number of programs eligible/reporting	10	15	20
Average number of graduates per program	2.7	2.8	3.05

Table 3

Curriculum Sequence Models* and Numbers of Programs Following Those Models for 33 MD/MBA Programs in the United States, 1999–2001						
Model	No. Programs	Year in School				
		1	2	3	4	5
I	14	Basic science	Basic science	Clinical rotations	Management	Clinical rotations/Management
II	10	Basic science	Basic science	Management	Clinical rotations	Clinical rotations/Management
III	3	Management	Basic science	Basic science	Clinical rotations	Clinical rotations
IV	2	Basic science	Management	Basic science	Clinical rotations	Clinical rotations
V	2	Basic science/ Management	Basic science/ Management	Clinical rotations	Clinical rotations/ Management	—
Other	2					

*See text.

an individual holding PhD and MBA degrees and by an individual holding MD and MBA degrees. On the other end of the spectrum, some programs maintained the MD and MBA components as distinct experiences. This is probably best represented by several programs that offered no courses unique to MD/MBA students, were overseen separately at the medical and business schools by their respective student administrators, and did not encourage a health management internship or other practical experience. One program administrator commented that the two programs at his institution were intentionally kept separate to provide a deeper and more objective perspective in management education (similar to the experience of non-MD-seeking business students).

This spectrum is further highlighted by administration practices. On one hand, many of the schools formally regarded application to the joint-degree program differently than regular applications to the business or medical school; on the other hand, many other programs simply required independent admissions into both schools. Roughly half of the programs were directed by faculty members who were not administrators (most of whom hold MD/MBA degrees); the others were overseen by school administrators as part of their administrative duties. In fact, the associate dean of medical education at one

institution commented that she oversaw the MD/MBA program along with eight other joint-degree programs.

The sequences of courses varied among MD/MBA programs, each of which appeared to have certain advantages and disadvantages. The most common pathway required students to complete their core clinical rotations before entering the business school full-time—apparently with the idea that the clinical experience obtained as a third-year clerk provides a better context for the student’s management education and to avoid disrupting the transition from the basic science education to clinical education. However, in this model, students must interrupt their clinical training with a year furlough taken after core clinical rotations before returning to complete elective rotations and residency training. Another common pathway placed full-time business school education between basic science courses and clinical rotations—thus avoiding interruption of clinical training after the third year of medical school. With this option, however, students may have less contextual experience upon which to base their management education. Several programs required that students complete their full-time management education before or during their basic science years at the medical school—minimizing interruption of medical education and training. A disadvantage of this pathway, however, is

that management education becomes increasingly distanced from its eventual practice (if residency is included, at least six years elapse between management training and practice). Two other programs allowed students to complete both degrees in four years by using summer and evening management courses with the intent of providing an integrated and accelerated experience. However, these programs are potentially extremely strenuous or else risk diluting the curriculum of one or both degrees.

Many programs required (and most allowed) students to pursue MD/MBA degrees and apply to the program even before matriculation into medical school. However, only seven programs expected applicants to have prior employment experience. This constitutes a departure from the standard requirement of at least two to five years of significant work experience for most business school applicants¹⁷ (although there is evidence that some business schools have recently begun to recruit a handful of younger applicants in an effort to diversify the student body¹⁸). It is interesting to note that, although most MBA applicants without employment experience were not even considered by MBA admission committees, most joint-degree programs appear to encourage students to apply to the business school early in their medical education course.

Regardless of the degree of integration of the two curricula, MD/MBA

programs appear to be designed to complement medical education with management training, rather than the converse. Although most of the programs in the study waived some requirements for the normal MBA degree, only five programs explicitly used business studies to satisfy a portion of medical school credit requirements—and these were counted only as elective credits. Moreover, most of the programs required that a student first be accepted at the medical school before the application to the joint-degree program was even considered. Furthermore, 29 of the 33 programs were led or coordinated by members of the faculty or administration of the medical school. Also, several of these individuals reported anecdotally that MD/MBA degree students were carefully monitored to ensure that the students' management studies did not interfere with their progress toward satisfactory completion of the MD degree—none reported to be concerned that the demands of medical school might interfere with students' business school courses.

Although this study reveals a significant development in medical education, it brings to light several questions that warrant further study. First, there are many other means for physicians to pursue management training. In fact, a number of medical school representatives (both those that sponsor the joint degree as well as those that do not) reported that medical students frequently take leaves of absence from the medical school to pursue MBA degrees. Many individuals also pursue the MBA degree before or after medical school or seek other types of management training at different stages in their medical careers. Further understanding of how these training programs compare with MD/MBA programs would be highly valuable—especially to students making the choice to enter the field of medical management even before beginning their medical careers.

Second, the cause of the growth of these programs may be noteworthy. It is

unclear whether their development is prompted by demand from students or faculty, comes from academia or external sources, or is spurred on by physicians or non-physicians. Such an understanding might better reveal the perceived objectives that these programs are attempting to fulfill.

Third, variations found in certain elements of the programs suggest the need for an assessment of the appropriateness of uniformity in program curricula. The rapid and uncoordinated growth of the programs, along with the virtual absence of significant interaction between program leaders, indicates that the programs would likely benefit from sharing of information and experiences with one another.

Fourth, perhaps the most fundamental question raised by this research addresses the effectiveness of the MD/MBA program in creating physician managers and leaders. Because management training occurs at such an early career stage, the ability of the individuals to properly apply their training years down the road should be closely monitored. Graduates of the MD/MBA programs could be relatively easily followed and could reveal important information about the applicability of managerial principles in the medical setting.

The preceding questions may be regarded as limitations of the current study. However, because this is the first study documenting the recent rise of MD/MBA programs, we hope that it may serve as a springboard to further investigating these issues.

Our study highlights a recent and remarkable phenomenon that has not elsewhere been reported: dramatic increases in the number of students seeking MD/MBA degrees and the number of medical and business schools sponsoring MD/MBA programs. These graduates apparently represent a new subset of physicians who are grounded in the managerial sciences from the outset of their careers. Dr. Jordan Cohen, president of the Association of American Medical Colleges, recently

described the “urgent and compelling need to recognize the expectations the public has for the future of medicine”—expectations that include the need for better health care resource management and the need for a more cohesive health system.¹⁹ The recent significant development of MD/MBA programs apparently constitutes one attempt to address those concerns. We believe our findings also indicate a growing cooperative spirit between medical and management training institutions, and we are optimistic they reflect an even greater movement by medical professionals to understand and appropriately use tools from the managerial sciences in the provision of health care.

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Cover Note

YALE–NEW HAVEN HOSPITAL

Founded in 1826, Yale–New Haven Hospital (YNHH) was Connecticut’s first hospital and only the fourth voluntary hospital in the United States.

Initially founded as a charitable institution for the care of the poor, the hospital soon expanded to include the care of the entire community. In its early days, sailors from New Haven’s busy seaport came to the hospital for care. During the Civil War, more than 23,000 soldiers were hospitalized here, and in subsequent wars, YNHH was a designated military hospital. Continuing to serve its community, Yale New Haven Health System was named by the State Department of Public Health last year as one of two state centers of excellence for bioterrorism preparedness and response.

Yale–New Haven Hospital is a 944-bed academic medical center hospital affiliated with Yale University School of Medicine, which serves as a referral center for patients seeking advanced medical treatment throughout New England, the nation, and foreign countries. Yale–New Haven Hospital includes the Yale–New Haven Children’s Hospital, which offers the region’s most comprehensive maternity and pediatric services and the state’s only Level 1 pediatric trauma center. The Yale–New Haven Psychiatric Hospital offers a comprehensive array of diagnostic capabilities and treatment options, including inpatient and outpatient programs, and a crisis intervention unit in the YNHH emergency department. In addition, the hospital supports major programs in cancer, heart, neuroscience, orthopedics, digestive disease, pulmonology, and geriatrics.

The hospital’s distinguished history is filled with medical achievements of national significance. In 1942, YNHH initiated two medical treatments that forever changed the face of modern medicine. One was the first successful use of penicillin and the second was the use of chemotherapy for cancer treatment. Yale–New Haven Hospital also pioneered natural childbirth and rooming in, and in 1961, YNHH opened the first newborn special care unit in the world.

Last year, YNHH provided services for nearly half a million outpatient and emergency visits and 43,500 discharges, relying on the skills of approximately 1,500 registered nurses, 2,400 physicians, and 500 residents.

Yale–New Haven is the flagship hospital of the Yale New Haven Health System, Connecticut’s largest healthcare delivery system. For the 11th consecutive year, in 2002, *U.S. News and World Report* named Yale–New Haven Hospital as one of America’s Best Hospitals. It is the only Connecticut hospital to be consistently ranked each year.

For more information about YNHH, visit our Website at (www.ynhh.org).

—Courtesy of Yale–New Haven Hospital