

BENCHMARKS FOR CONFRONTING THE CHALLENGES FOR INNOVATION IN HEALTH CARE WITH A MODERN CURRICULUM

A WHITE PAPER BASED ON:

21st-Century Health Care Management Education:
Confronting Challenges for Innovation
with a Modern Curriculum

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Regina E. Herzlinger,
McPherson Professor of
Business Administration,
Harvard Business School
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STEERING COMMITTEE:

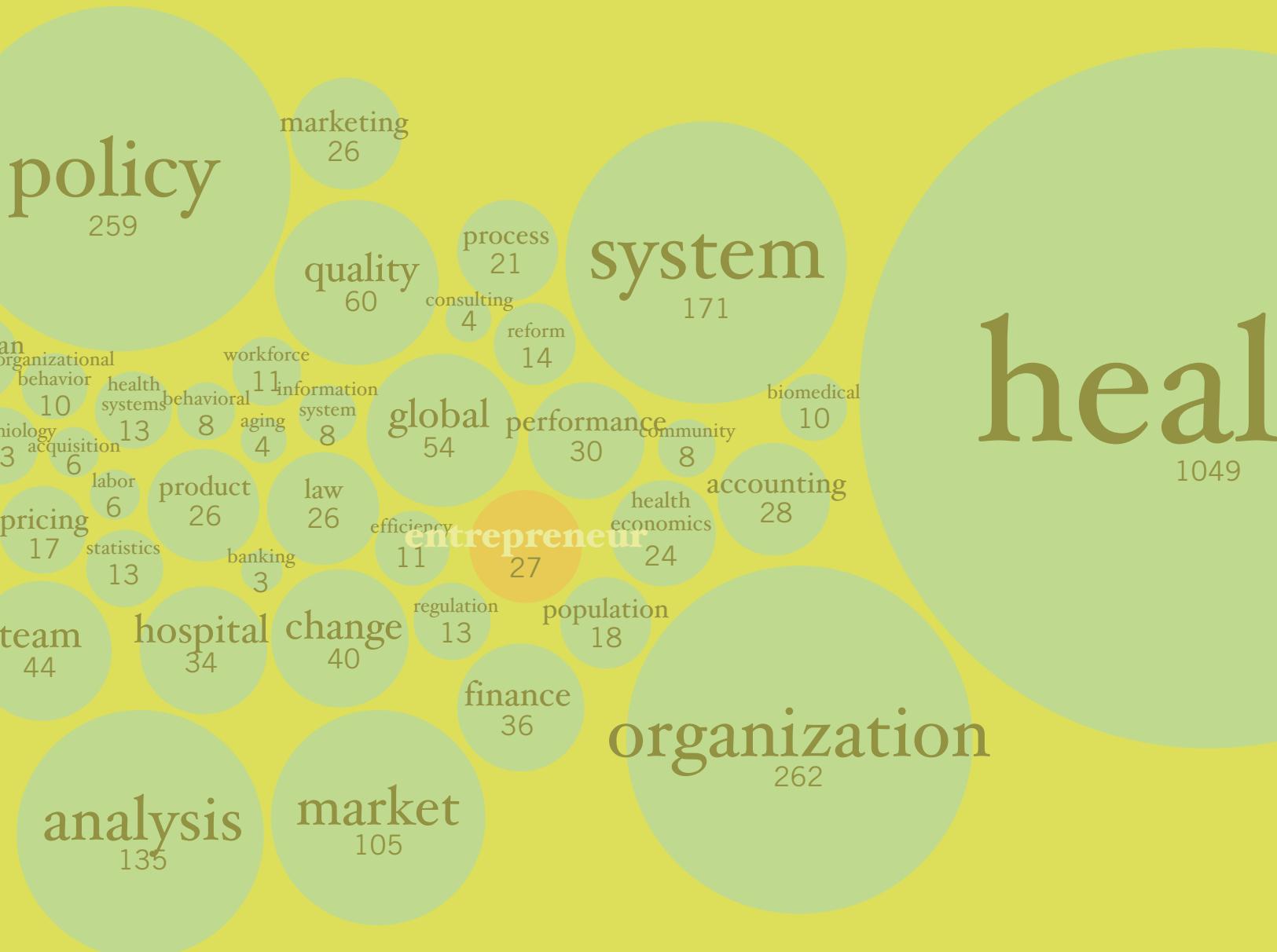
Peter Angood, American College of Physician Executives; Marjorie Baldwin, W. P. Carey School of Business, Arizona State University; Errol Biggs, The Business School, University of Colorado Denver; Maria Chandler, College of Medicine, University of California, Irvine; Robert Kolodgy, Blue Cross Blue Shield Association; John Lowe, Simmons College School of Management; Francois Maisonneuve, Evercore Partners; Ana Maria Malik, Fundação Getulio Vargas - Escola de Administração de Empresas de SP; Paul Mango, McKinsey & Company; Lydia Middleton, Association of University Programs in Health Administration; Michael Morrisey, School of Public Health, University of Alabama at Birmingham; Jaume Ribera, IESE Business School; Grant Savage, School of Business, The University of Alabama at Birmingham; Eugene Schneller, W. P. Carey School of Business, Arizona State University; Kevin Schulman, The Fuqua School of Business, Duke University; Joel Shalowitz, Kellogg School of Management, Northwestern University; J.B. Silvers, Weatherhead School of Management, Case Western Reserve University; Diane Simmons, Healthcare Financial Management Association; Susan Skochelak, American Medical Association; Carla Smith, Healthcare Information and Management Systems Society; Quint Studer, Studer Group; Susan Turney, Medical Group Management Association; R. Lawrence Van Horn, Owen Graduate School of Management, Vanderbilt University; Leah Vriesman, School of Public Health, University of California at Los Angeles; and Thomas Zeltner, World Health Organization.

MODERATORS AND SESSION TITLES:

James F. Blumstein, University Professor of Constitutional Law and Health Law & Policy, Vanderbilt Law School, Health Policy and Accountability; Robert Burns, James Joo-Jin Kim Professor of Health Care Management, The Wharton School, University of Pennsylvania, Biologics, Diagnostics, and Drugs; Aaron Chatterji, Associate Professor of Strategy, The Fuqua School of Business, Duke University, Devices; Richard Hamermesh, MBA Class of 1961 Professor of Management Practice, Harvard Business School, Health Care Venture Financing; Scott Harrington, Alan B. Miller Professor, The Wharton School, University of Pennsylvania, Health Care Finance/Insurance; Regina Herzlinger, McPherson Professor of Business Administration, Harvard Business School, Consumer-Driven Health Care Delivery ; Bob Higgins, General Partner, Highland Capital Partners, Senior lecturer, HBS, Health Care Venture Financing; Curtis McLaughlin, Professor Emeritus, Kenan-Flagler Business School, University of North Carolina at Chapel Hill, Health IT; Michael Morrisey, Professor, School of Public Health, University of Alabama at Birmingham, Health Care Finance/Insurance; Barak Richman, Professor of Law and Business Administration, Duke University School of Law, Health Policy and Accountability; David Ridley, Assistant Professor, The Fuqua School of Business, Duke University, Biologics, Diagnostics, and Drugs; Eugene Schneller, Professor of Health Care Supply Chain Management, W.P. Carey School of Business, Arizona State University, Devices; JB Silvers, John R. Mannix Medical Mutual of Ohio Professor of Healthcare, Finance, Case Western Reserve University, Health Care Finance/Insurance; Quint Studer, Founder and CEO, Studer Group, Health Delivery; Ken White, Sentara Professor, Virginia Commonwealth University, Health Delivery; Wei Zhang, Professor, Guanghua School of Management, Peking University, Global Health Care Systems.

SPEAKERS:

Michael Chu, Senior Lecturer of Business Administration, Harvard Business School, "Writing and Teaching Cases"; Srikant Datar, Arthur Lowes Dickinson Professor, Harvard Business School, "Innovating MBA Curricula"; Richard Gilfillan, Acting Director, Center for Medicare and Medicaid Innovation, "Health Care Management Education for a People Centered Health System"; Regina E. Herzlinger, McPherson Professor of Business Administration, Harvard Business School, "Innovating in Health Care Course and Field Studies," "Review of Participants' Responses to Employer Questionnaire Results"; Content Analysis of Courses of 26 Schools of Health Care Administration"; Alan MacCormack, Adjunct Professor of Business Administration, Harvard Business School, "The HBS FIELD Course."



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EXECUTIVE SUMMARY

Advances in drugs, devices, and managerial, surgical, and medical knowledge have created health systems that can deliver the best care—but at sky-high cost and with unequal access and erratic quality. This trajectory is both unsatisfactory and unsustainable.

In interviews about the future of health care, 59 of the CEOs of the world's largest and most innovative health-sector organizations most frequently used the word "innovation." Their consensus was that innovation in processes and systems was more important than the invention of new medical and health-related products. But a content analysis of the current health care-related offerings at 26 top U.S. schools found the term "public policy" most frequent in curriculum descriptions, followed by "organization."

Only seven business schools and one school of public health used the term "entrepreneur," and only 25 of 91 course descriptions from business schools contained both "innovation" and "entrepreneur."

Clearly, for health care to change, the education of its leaders must change.

A conference of health care management academics and professionals, 21st-Century Health Care Management Education: Confronting Challenges for Innovation with a Modern Curriculum, was held in 2012 at Boston's Harvard Business School, as a first step in reshaping the education of executives to meet the challenges of innovating 21st-century health care.

HBS Professor Regina Herzlinger, the conference organizer, and her steering committee colleagues sought to leverage the expertise of the 157 conferees to meet these challenges. They represented diverse academic institutions, professional organizations, and health care consultancies. Attendees from the European Union, North and South America, India, Russia, Africa, and Asia assured a global perspective.

A CALL TO ACTION

The CEO interviews reflected significant dissatisfaction with the skills of academically prepared candidates from diverse types of health care management programs. In a separate survey, academics largely agreed with them. A few highlights:

- Innovative processes are more important than innovative products.
- The current academic focus on isolated training in finance, ethics, medicine, etc., is less helpful than a holistic curriculum that mirrors real-life situations.
- Skills in change management, communication, and team building are essential for innovation.
- Breaking down the silos separating the schools that offer expertise in differing aspects of health care management is crucial for collaboration.
- A broad-based knowledge of how health care works—including financing, organizational structures, technology, and public policy—and how to apply that knowledge are prerequisites for evaluating and implementing innovations.
- Management education helps with business problems; health care policy, medical, and scientific education does not focus on managerial issues. Uniting these two camps with shared purpose and common language is a critical step for creating significant change in future health care systems.
- Fieldwork and structured mentorships offer lessons the classroom cannot.

Asked to name obstacles to the innovations necessary in health care management training, the academics most frequently cited the difficulty of finding appropriately trained faculty; the challenges to hiring and retaining teachers with real-world business expertise; and the limitations of curriculum materials themselves, including insufficient real-world data and too few case studies—especially studies of failure. HBS Professor Srikant Datar, coauthor of *Rethinking the MBA*, offered an inspiring example of how and why recent curriculum changes happened at HBS and many other schools of business.

BENCHMARKS FOR CONFRONTING THE CHALLENGES FOR INNOVATION IN HEALTH CARE WITH A MODERN CURRICULUM

In the white paper that follows, you will hear diverse and sometimes discordant voices from all corners of health care management: CEOs, independent consultants, leaders of professional organizations, and faculty members in degree programs. But despite the range of opinions and the many perspectives offered, all are motivated by real concern for the global state of health care and the imperative for change.

The conference attendees offered detailed recommendations for curricular content, pedagogical tools, professional values, and faculty career paths as curriculum changes are implemented. Of course, a broad review and revision of course offerings are in order. More nontraditional faculty should be brought on board, including professionally trained and experienced health care managers to help forge the vital link with real-world concerns. Field placements not only provide a rich learning environment, but also offer real-world perspectives on what is taught in the classroom. Networking should be supported not only between academia and the health care industry, but among different schools and academic departments to create cross-disciplinary courses and programs.

Improving the education of health care managers will not be easy. It will likely require reworking budgets and teaching loads as well as evangelizing among deans and teaching colleagues.

However, **if any group of scholars should believe in its ability to effect sweeping change, it is those of us in health care. Our area of expertise has more than once vanquished the seemingly impossible, whether by substantially increasing life spans, by revoking the death sentence of AIDS in the developed world, or by broadening global access to health care through cost-effective managerial innovations.**

The 2012 meeting marked the beginning of an ongoing process of change that will be revisited in 2013 at Duke University. This white paper serves both as a record of the conversation so far and as a mile-marker for the next conference: "Here is what we collectively agreed we would do in 2012: How have we changed since then, and what more can we do to respond?"

We hope you will read on, to follow in the steps of the 2012 conference attendees who listened to the health care sector and each other as they began the challenging but rewarding journey towards innovating health care through innovations in health care management education.

BENCHMARKS FOR CONFRONTING THE CHALLENGES FOR INNOVATION IN HEALTH CARE WITH A MODERN CURRICULUM

The conference of health care management professors and professionals, 21st-Century Health Care Management Education: Confronting Challenges for Innovation with a Modern Curriculum, was held at Boston's Harvard Business School in 2012, as a first step in reshaping the education of executives to meet the challenges of innovating 21st-century health care.

The conferees sketched a map for the long journey that lay ahead: they knew that health care management curricula will not and cannot change overnight. This white paper serves both as a record of the conversation and as a mile-marker for the next set of conferences: "Here is what we collectively agreed we would do in 2012: How have we changed since then, and what more can we do to respond?"

CALL TO ACTION

Despite the excellence of their many participants—medical care providers, scientists, and leaders—health care systems in all developed countries suffer from unsustainable costs, inconsistent quality, and inequitable access.

This effort takes as its premise the idea that for health care to change, the education of its leaders must change.

Better drugs, better devices, and better managerial, surgical, and medical knowledge have created health systems in developed countries that can deliver the best care—but at a sky-high cost and with unequal access and erratic quality. As one health care CEO noted, "Health costs outpace incomes in all countries, not just the wealthiest ones." A venture capitalist in health care concurred: "The future demand exceeds our ability to pay for it."

Health care management educators universally recognize that this trajectory is unsustainable and worry that their curricula, based primarily in developed economies, may inspire developing nations to adopt these unsatisfactory models.

THE ISSUES: BACKGROUND RESEARCH

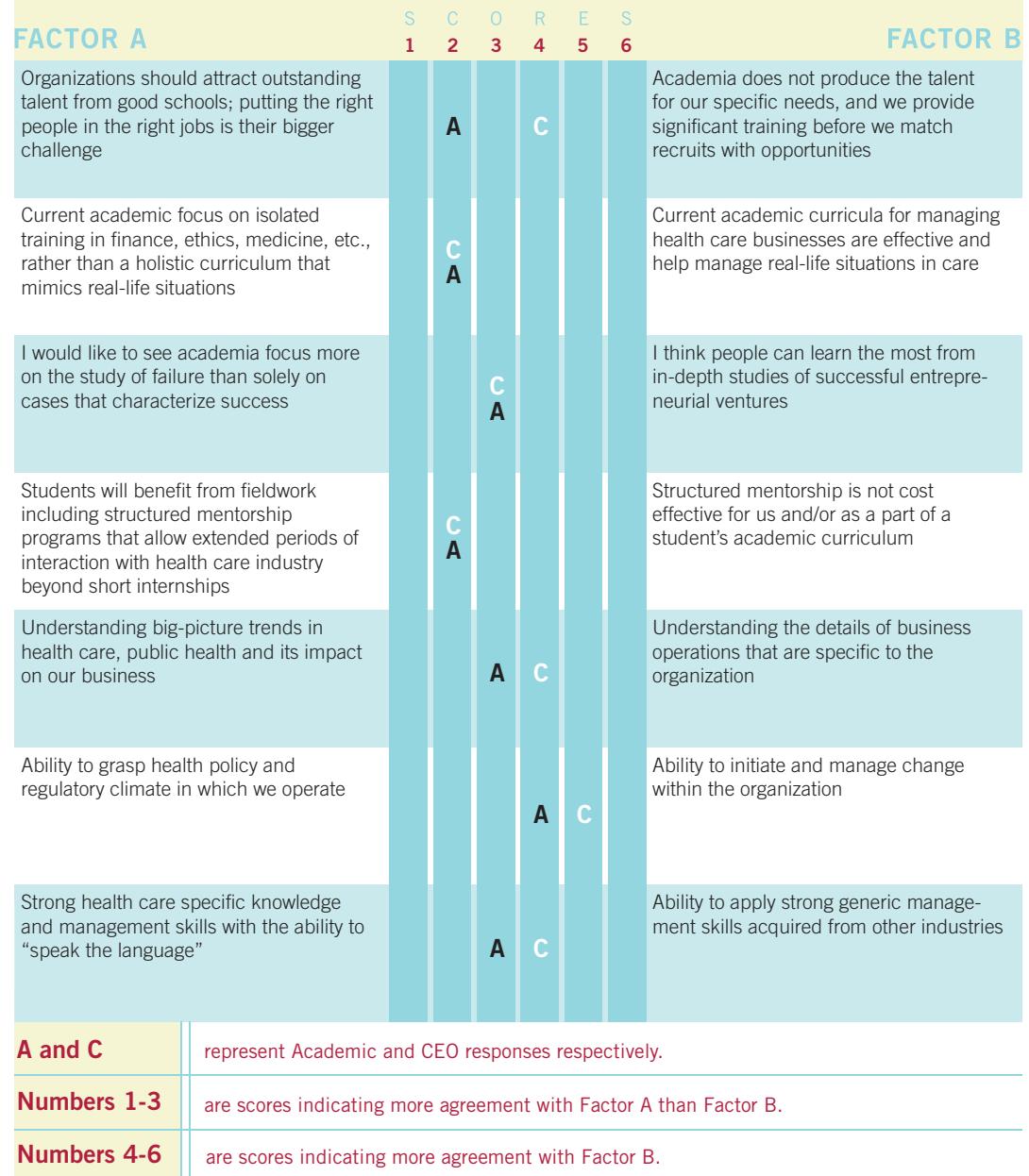
Responding to this call for action from health care CEOs and academics, HBS Professor and conference organizer Regina Herzlinger and her steering committee colleagues sought to leverage the expertise and access of the 157 conferees to meet these challenges. They represented not only the diversity of organizations offering health care management education—academic organizations, including schools of business, public health, health care management, and MD/MBA programs;

professional firms that offer significant educational work; and consultancies focused on health care—but also their geographic dispersion, with representatives from the European Union, North and South America, India, Russia, Africa, and Asia.

In the years preceding the conference, Professor Herzlinger and researchers at Scriplogix, a New York market research consultancy, worked to document the specific interests of health care CEOs and academics. To determine desirable qualities in future leaders, they interviewed 59 of the CEOs of the world's largest and most innovative health-sector companies and analyzed their views of current curricula (see Appendix A for a list of these firms, a link to the interview guide, and the rationale for the selection of these firms). Prof. Herzlinger and her team first assessed the convergence between the responses of the conference attendees and the CEOs to a survey. They then compared the needs identified in these interviews and surveys to the content of the health care curriculum in 26 of the leading U.S. schools (see Figure 1, Comparing Feedback from CEOs and Academia).

FIGURE 1:
COMPARING FEEDBACK FROM CEOs AND ACADEMIA

We compared responses from 98 conference participants with those from CEOs/HR heads (35 CEOs and 26 HR heads) to examine their alignment



The chair/CEO of a health-care cost-effectiveness company noted, "All of our leadership programs have an innovation component. . . . We have tried to make (innovation) an active part of the language, all the time." The president/CEO of a large integrated health system described the innovators: "What I am looking for is not whether or not they came in at the top of their class, but passion and attitude and relationship skills . . . and not being afraid to go out on a limb. You want pioneers, like the people who went down in the wagons and went west and said, 'I don't know how to get to where I'm going, but I am going anyway and I will figure it out along the way.'" They further agreed that, more than new products, innovation was needed in business processes. Academics and CEOs were in . . . agreement about the role of education in achieving these changes, noting that innovation springs from structured and disciplined processes that benefit significantly from the training and rigor of academia.

They concurred that while innovation required talented people, that talent must be accompanied by strong peer networks—whether built in academic settings or elsewhere. No individual can accomplish real innovation without strong connections to colleagues in a variety of disciplines and settings.

WHILE "INNOVATION" WAS THE TERM FOUND MOST OFTEN IN THE CEO INTERVIEWS, IN THE CURRICULUM DESCRIPTIONS "PUBLIC POLICY" WAS MOST FREQUENT, FOLLOWED BY "ORGANIZATION."

Yet, neither executives nor academicians found the current curricula useful in managing real-life health care situations; fieldwork and structured mentorships made much more sense to both groups. Although the CEOs complimented parts of current curricula, they were not consistently satisfied with the products of any of them; they found shortcomings with MBAs, MD/MBAs, MHAs, and MPHs. In addition, though health-related knowledge would eventually be central to the newly minted managers' work, overall the CEOs placed more value on business-driven knowledge. Many were prepared to hire and train good candidates with little health-related education rather than accept the "ready-made" graduates of most academic programs.

A comparison of the results of a content analysis of the CEO interviews and the current health care-related curricula at 26 top U.S. schools, spanning 324 courses, clarified these views (see Figure 2: Comparison of Content of CEO Interviews and Courses Related to Health Care; see Appendix B for the names of the schools).

In them, the word "policy" was found nearly ten times more frequently than the word "product."* Only seven business schools and one school of public health used the word "entrepreneur." And the terms "entrepreneur" and "innovation" together were found in only 25 of 91 course descriptions from business schools.* Noted the CEO of a health care delivery system, "We do not train leaders to be unusual thinkers. We train leaders . . . to be . . . conditioned in ways that are inertia bound" (see Figure 3: Content Analysis of Schools with Health Care Administration Programs).

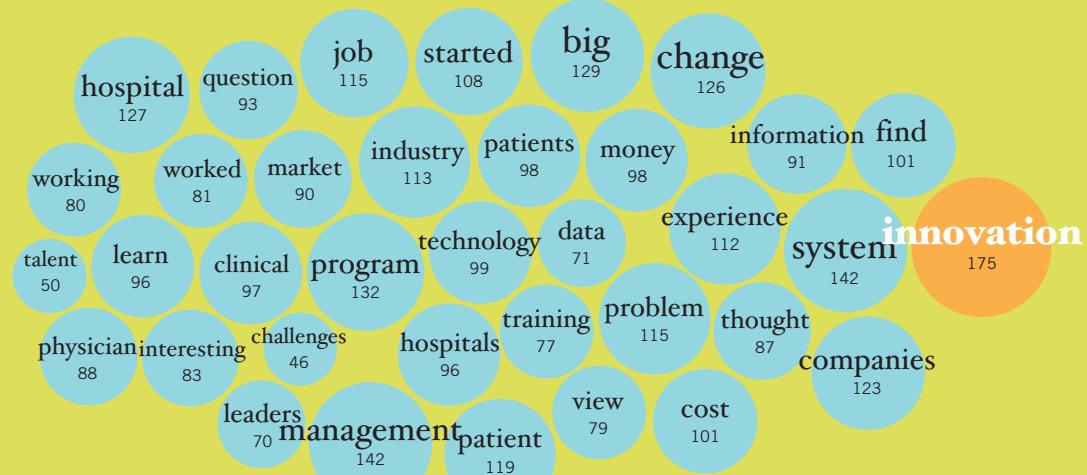
The president/CEO of a large nonprofit health care system bemoaned another educational issue identified by both the CEOs and the conference attendees: the fragmentation of necessary skills and shortage of holistic perspectives: "There is not a good pathway in the United States or in the world for developing . . . leaders. It is really a big problem, because I am absolutely convinced that now and

*When business school courses were analyzed separately, the emphasis on policy was only somewhat reduced. Though "entrepreneurship" and "innovation" appeared more often in the business school curricula, their mentions of "policy" exceeded mentions of such fundamental business concepts as "market" and "cost."

FIGURE 2: COMPARISON OF CONTENT OF CEO INTERVIEWS AND COURSES RELATED TO HEALTH CARE

SHAPING TALENT FOR CHALLENGES IN MODERN HEALTH CARE: A CEO PERSPECTIVE

The Harvard Business School engaged Scriplogix to interview 59 CEOs they identified as the world's most innovative leaders in health care. We asked the CEOs to outline the biggest challenges facing their sector in the coming decade. We also sought their views on the skills needed to meet these challenges and the ways in which academia could foster them. Based on our analysis of transcripts, here is a look at some of the key words CEOs used during these interviews.



COURSES RELATED TO HEALTH CARE: A KEY-WORD ANALYSIS OF COURSE DESCRIPTORS

We analyzed short descriptions of academic courses in a variety of health care-related areas offered by schools across the United States. The graphic below presents key words used by schools to describe the course offerings.

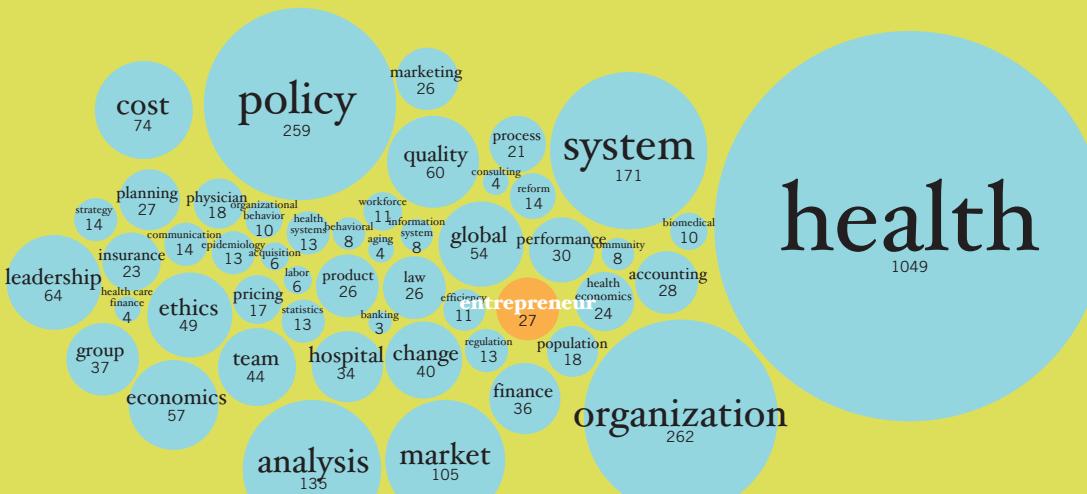


FIGURE 3:
CONTENT ANALYSIS OF SCHOOLS WITH HEALTH CARE ADMINISTRATION
PROGRAMS: FREQUENCY OF WORDS MENTIONED

All Business and Public Health Schools (26 schools, 325 courses)

WORD	FREQUENCY
ANALYSIS; ANALYTIC; ANALYTICAL; DECISION	126
ORGANIZATION	123
POLICY	105
SYSTEM	94
FINANCE; FINANCIAL; INVESTMENT; VALUATION	67
BIOMEDICAL; BIOTECHNOLOGY; DIAGNOSTIC; DRUG;	59
MEDICAL DEVICE; PHARMACEUTICAL; TECHNOLOGY	
COST	51
MARKET	46
LEADERSHIP; LEADING	41
QUALITY	39

CONTENT ANALYSIS OF BUSINESS SCHOOLS WITH HEALTH CARE
ADMINISTRATION PROGRAMS: FREQUENCY OF WORDS MENTIONED

Top Business School Terms (11 schools, 91 courses)

WORD	FREQUENCY
BIOMEDICAL; BIOTECHNOLOGY; DIAGNOSTIC; DRUG; MEDICAL DEVICE; PHARMACEUTICAL; TECHNOLOGY	40
ENTREPRENEUR; ENTREPRENEURIAL; ENTREPRENEURSHIP; INNOVATION	25
FINANCE; FINANCIAL; INVESTMENT; VALUATION	21
ANALYSIS; ANALYTIC; ANALYTICAL; DECISION	21
ORGANIZATION	21
POLICY	21
SYSTEM	21
MARKET	18
GLOBAL; INTERNATIONAL	15
COST	14

FIGURE 3 (CONT.):
CONTENT ANALYSIS OF SCHOOLS OF HEALTH ADMINISTRATION/PUBLIC
HEALTH WITH HEALTH CARE ADMINISTRATION PROGRAMS: FREQUENCY
OF WORDS MENTIONED

Top Public Health School Terms (15 schools, 234 courses)

WORD	FREQUENCY
ANALYSIS; ANALYTIC; ANALYTICAL; DECISION	105
ORGANIZATION	102
POLICY	84
SYSTEM	73
FINANCE; FINANCIAL; INVESTMENT; VALUATION	45
COST	37
LEADERSHIP; LEADING	31
MARKET	28
QUALITY	28
ETHICS	26

increasingly in the future you must have administrative leaders who understand the business and have the leadership skills as well as natural talents." The CEO of a large insurance company underscored the need for holistic views: "Insurance companies are very hierarchical . . . They have probably suppressed entrepreneurship. We are really trying to move away from that and in simple ways think much more cross-functionally, think in a much more project-oriented way, and to really encourage risk taking among our leaders."

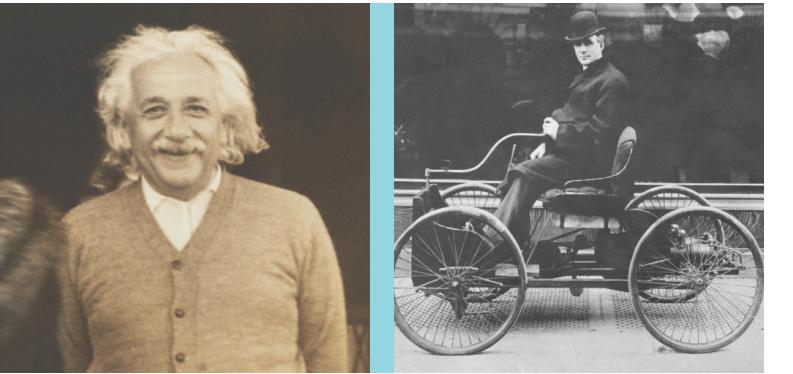
The CEOs also noted that the graduates of these programs, once they have become managers, often do not fully appreciate their colleagues' differing expertise.

These managers seemed to lack familiarity with the educational and professional cultures within which their colleagues live and work. But currently, although management education helps with framing and solving business problems, it is not designed to impart health care-specific knowledge; on the other hand, health care policy, medical, and scientific education does not focus on managerial issues.

The president/CEO of a large physician organization concurred: "Helping non-clinician leaders and managers better understand the clinical approaches, mindsets, and priorities is a necessary and critical step for creating significant change in our future health care systems—nationally and internationally." Noted the director of an MD/MBA program: "My heart goes out to the thousands of young physicians who will receive NO training in management if they chose not to pursue a dual degree. I feel it is a disservice for medical schools and residency programs to turn young physicians out into the real world without anything but clinical skills."

Broad-based knowledge of how the entire health care system works—including financing, organizational structures, technology, public policy—and how to apply that knowledge are prerequisites for evaluating and implementing innovations. Each of these elements affects all the others, making a deep understanding of this "ecosphere" vital for successful innovation.

Though traditional classroom teaching continues to offer a great deal of value, the responses of both CEOs and academics reflect the strong belief that other modes of learning and teaching are required. We should continue to pursue and improve classroom-based pedagogical strategies, but project-centered education, field study, and mentorships offer invaluable real-world experience and respond directly to the CEOs' request for more practical education.



INNOVATION: EINSTEIN OR HENRY FORD?

"Innovation may be a tired word," one CEO said. "But the idea is to really rethink, to have some curiosity about the way things are—and the way they [should be]." "Innovation is not a project," noted another CEO. "It is a way of thinking."

One large health care system dramatically reduced the percentage of women whose labor was induced early, lowering the numbers of babies admitted to the newborn ICU and emergency C-sections. Its president/CEO explained, "We did not invent some new practice. We deployed a . . . leadership way to get people engaged and track our outcomes."

Thus, one of the areas of strongest agreement between our academic conferees and the CEOs interviewed was that modern health care needs innovation in processes and systems more than it needs new inventions. The chair/CEO of a health care cost-effectiveness company offered, "Innovation, in our world, is not going to be necessarily about the thing, it is going to be about the way you do it . . . Although we make some products, it is largely a service business and that means innovating

THE CEOS ESSENTIALLY SAID THAT HEALTH CARE DOES NOT NEED MORE ALBERT EINSTEINS. IT NEEDS HENRY FORDS — TINKERERS DISSATISFIED WITH THE STATUS QUO WHO ARE CONSTANTLY TWEAKING —SEARCHING FOR MORE EFFICIENT, SOCIETALLY RESPONSIVE WAYS OF DELIVERING CARE.

around services is just as powerful." A related point of agreement was the importance of the ability to solve problems and improve performance across a range of business processes.

We must also teach innovators to be realistic—they cannot outrun their colleagues or their market. The head of a physician group asked, "At what point does a vision become a hallucination? Even if you are doing the right thing, all of a sudden you find yourself unable to make your bond payment." Noted one CEO, "We should look at innovation as something that measurably improves the value of health care as measured by better outcomes and/or lower costs." A health care delivery consultant

underscored the interdependence of profitability and high-quality: "Mission and margin are not at odds with each other. They work together. That's what all leaders need to be taught from day one."

CHANGE MANAGEMENT: IMPLEMENTING INNOVATIONS

While "innovation" is the minting of something universally new, "change" involves the implementation of an idea new to an organization. As one participant pointed out, "Innovation may require change leadership and/or change management, but successful change does not necessarily require innovation." Implementing innovation typically requires effective managers to collaborate, for reasons exemplified by the president/CEO of an innovative biotech: "Our company is dependent on our scientists, clinicians, our business development team, our technology team, our IT team. We are dependent on outside consultants in the areas of reimbursement, regulatory strategy. I have my board with whom to work. . . . We have to create cultures where very different groups within an organization have to complement one another and trust one another. . ." The chair of an African HMO amplified this point: "Today there is a huge disconnect between the point-of-care people and the managers . . . you need both sides to click in a way to get the best efficiencies out of the system." A senior advisor in a global management consultancy who described himself as "a big believer in cross-sector understanding" noted, "While I periodically bring to bear lessons I have learned in other industries—I think by far the more important thing is that I work with both health plans and providers and medical technology companies. And I have a very deep understanding of the motivations of each and the challenges of each and when they get up in the morning, what they worry about."

THE CEOS AND SCHOLARS CONCURRED THAT INTERDISCIPLINARY TRAINING IN HEALTH CARE MANAGEMENT PROGRAMS SHOULD SUPPORT SKILLS IN TEAM BUILDING AND COLLABORATION.

The president/CEO of an innovative biotech shared this observation: "Just because you are smart and willing to work your tail off does not mean that you're going to succeed. Typically, it is the person with the right work ethic, with the right skill set, but also with the appropriate interpersonal skills, and I do not just mean the friendliest person or somebody with natural social grace. I mean somebody that understands that this is in fact a culture, a social environment, and there are certain things that we have to learn how to overcome and that is not allowing walls to be put up." A senior consultant noted, "In the health care world especially it is not enough to imagine a good idea. It is so damn hard to execute it because frequently you are executing it across multiple sectors . . . Execution is not just about running your own operations, but it is managing at the intersections."

The CEOs also stressed that they needed managers who were insightful about people—about their motivations and the incentives to which they respond. A large health care system CEO explained: "One of our biggest challenges . . . is actual behavior change in the people that we are partnering with . . . and there is a huge body of knowledge and analytics that in retail has actually defined when behaviors are most likely to change . . . But we have not even begun to approach that with all the data that we have now for the last 17 years in our electronic storage. We should be able to figure that out." The CEO of a large health care insurer suggested, "I would love to see some dynamic interplay between the disciplines within academia that relate either directly or tangentially to health care, which would include sociology, anthropology, and some of the other social sciences."

Finally, the CEOs noted that their best managers are self-aware.

The president/CEO of an innovative biotech related the story of a successful manager with a background in academic/clinical medicine: "Despite having spent 20 years in the academic setting, doing clinical research and seeing patients each and every day, he has transcended this background very quickly by being humble and by having . . . a thirst to learn more about other aspects of kind of professional life. . . . If you think that you are going to come in because you are the most brilliant in one area and therefore will be the most brilliant across areas, across all functional areas, I think you are doomed to fail." The CEOs noted that a self-aware executive is an adaptable one—someone who sees his or her lack of knowledge and wants to learn how to fix it. "What we look for most is a self-awareness and a humility that makes you able to keep learning and teaching others as fast as you learn," one CEO said. "Flexibility and humility are the things that we find connect to teaching and learning; those are the key . . . to our foundational competencies."

EDUCATION IN ANALYTICS

Conferees also deemed important education that allows managers to unleash the power of information technology to mine big lodes of data and identify trends and best practices in patient, provider,

THE SURVEY OF OUR ACADEMIC CONFEREES REVEALED THAT OF THE 11 FACTORS THEY STRONGLY AGREED WERE IMPEDIMENTS TO CHANGE, 6 CENTERED ON FACULTY.

or payer technology-adoption behavior. The CEOs pointed out that the best health care enterprises will need to analyze enormous amounts of information. To do that, they need managers who are comfortable in overseeing experts in analytic techniques. The president/CEO of a large health care system explained one such process: "We had in our data warehouse all the outcome data for patients . . . We showed that data to these doctors and within less than a year the incidence [of an undesirable practice] variance from best practice protocol decreased about 28%, 29%, 30% down to about 5%, because they want to deliver good care. . . . You cannot make that kind of change without [understanding how to analyze] data."

The CEOs' interest extended to behavioral economics, which has made especially significant progress in understanding the motivational factors that affect human behavior around both sickness and wellness. Education in these economic or psychological insights could help managers better understand provider, consumer, and payor behavior and provide appropriate incentives and accountability. As the president/CEO of a large nonprofit health-care system said, "We need to have people who also can be creative and help us create incentives for providers of health care as well as for us as the consumers, and align incentives."

OBSTACLES TO CHANGE

In addition to shortages of educators knowledgeable in health IT, entrepreneurial approaches to global health, venture capital, and the case method, the conferees also noted a specific lack of public health or health administration faculty with appropriate managerial skills. They also pointed out that some faculty members lacked adequate grounding in actual health care delivery and global markets and failed to take a holistic perspective. (Throughout the conference, attendees stressed the necessity of teaching a holistic view of the entire health care system's operation).

Some attendees observed that many faculty members seemed to resist changes to their curriculum. They wondered whether faculty incentives for teaching and curriculum reform should be strengthened to provide (in appropriate circumstances) rewards comparable to those for traditional research and publication. The other impediments the scholars identified most often related to curriculum. They cited difficulty in accessing data on real-world organizations or material integrating health care and business school curricula. A related concern was the general difficulty of translating between the "health" and "management" ways of thinking.

The respondents also expressed discomfort in trying to balance standard and innovative/leading-edge curricula. Finally, they reported that programs were too often based on ideology rather than evidence. Curricula could be improved by a better balance between evidence and ideology and a broader perspective on understanding and accommodating competing values in health care management and health care policy.

There were differences in the importance assigned to impediments to the modernization of health care curricula among the academics involved in executive, MBA, and MD/MBA programs, and schools offering MPH and MHA degrees. They differed in their opinions of the strength of the impediments created by the lack of cross-registration and appropriate teaching materials: those involved in executive and MD/MBA programs saw them as greater obstacles than did academics in MBA or MPH/MHA programs. In addition, though the disparities among types of programs were smaller, executive and MD/MBA program scholars identified larger impediments to coordinating classes, dealing with looming policy uncertainties in health care, adapting contemporary technology for content delivery, meeting prior requirements for enrollment, and eliciting input from successful health care CEOs.

NEW APPROACHES

The scholars and professionals who gathered at HBS concluded that health care management curricula should foster the following qualities among students:

- Innovative enough to see and seize new opportunities to enhance efficiencies, improve the process and outcome of care, and increase financial viability. They should understand the role played by external forces—such as the competitive structure of the sector, revenue and financing sources, technology, and public policy—and how best to align them to the business model for innovation.
- Knowledgeable enough to understand science, medicine, information technology, and economics, individual and group behavior, public policy, and finance. "Exposure to all parts of the health care value chain . . . is critical," noted a Blue Cross and Blue Shield Association executive.
- Worldly enough to glean new insights and best practices from colleagues in other fields and countries.
- Self-aware enough to know when they need these outside perspectives.
- Risk-tolerant enough to try new approaches, to break down barriers of organizational boundaries and professional cultures, and to learn from their mistakes.
- Ethical enough to understand that solutions must not only achieve economic viability, but also adhere to the high ethical values central to health care.

These qualities may also be useful criteria in the selection and admission of students.

Against this background, the conferees split into three discussion tracks: finance/economics, delivery, and information technology. Their separate paths led them to many of the same conclusions about how health care management curricula must change.

**THE PARTICIPANTS' SHARED CONCLUSIONS CAN BE
SEPARATED INTO FOUR GROUPS:**

CURRICULAR CONTENT
PEDAGOGICAL TOOLS
PROFESSIONAL VALUES
FACULTY CAREER PATHS

CURRICULAR CONTENT

To achieve these goals, the conferees agreed that programs should provide the following content and skill development, customized to suit the needs of particular types of programs:

- **A holistic overview of the global health care system**, its current organizational structures, and the financing, technology, and public policy that support this ecosystem.
- **Knowledge of innovation and entrepreneurship**, including skills in prototyping, experimenting, evaluating, and revising in search of practical, affordable solutions. "Innovation in its broadest sense must be stressed," said the president of the Association of MD/MBA Programs. "This is the only way that change will happen and that creative solutions will be found for our current problems in health care."
- The ability to **evaluate and align forces within the health care system that could facilitate or threaten business models of new ventures**: the structure of the sector; its financing, technology, public policy, and consumers; and the role of accountability.
- **Quantitative expertise**, in areas such as cost accounting, financial modeling, service quality, service operations, statistics, and big data mining and analysis.
- **Facility in communicating and collaborating across schools and across professional disciplines**, including medicine, nursing, public health, and pharmacy. "Doctors do not understand management, and managers do not understand clinical," noted a Duke University professor. "They need to understand each other's language."
- **Practical insight about consumer behavior**. "Health care is moving, over time, to a more [business-to-consumer] approach, and all the players are going to have to retool their go-to-market plans," noted a partner in a health care private equity firm. "Patients must be at the heart of our health care system," noted Dr. Richard Gilfillan, Acting Director of the U.S. Center for Medicare and Medicaid Innovation, in his keynote talk, "Healthcare Management Education for a People Centered Health System."
- **Skills in change management**. The president/CEO of a large nonprofit health care system offered specific desirable characteristics: "You must have people who understand the business; you need people who understand the clinical side of things enough at least to be conversant with it and to really have an ownership level of it, and to understand the kind of people that are on the front lines of health care making a difference. . . . We must have effective change leaders that can inspire people and who understand enough about what these clinical people really are doing that they can make these changes in a way that protects the patients and increases the quality of the care we deliver, does it more affordably, and makes people still want to go through the hard life experience of being a doctor or a nurse, because those are not easy jobs."



A SCENE FROM MAKOLA MARKET, THE LARGEST MARKET IN ACCRA, GHANA'S BIGGEST CITY AND CAPITAL.



FOUR HARVARD BUSINESS SCHOOL MBA STUDENTS WITH CHILDREN FROM TORGOME VILLAGE, A RURAL VILLAGE OUTSIDE OF ACCRA.

This trip is part of the HBS FIELD program (Field Immersion Experiences for Leadership Development), introduced into the MBA curriculum in 2012, which requires students to develop a new product or service concept for partner organizations around the world.

Professor Michael Chu joined the students as project advisor. Program Managers Alicia Mendoza and Sarah Ward of HBS took these photographs.

PEDAGOGICAL TOOLS

Traditional in-class teaching has long been the foundation of fine health care managerial education. Many excellent instructors offer a valuable classroom experience that relates traditional academic readings to real-world examples. For example, a University of Alabama professor explains his approach to teaching health insurance and managed care, “[I] present a handful of key concepts in an intuitive way (e.g., adverse selection, compensating differentials, selective contracting, etc.). For each I present the empirical literature, warts and all. My goal is two-fold. First, because of the focus on only a handful of key concepts, presented intuitively, they will not be able to ‘flush’ the course after the final exam. Second, the empirical evidence gives them the confidence to apply the concepts to areas of their managerial/policy lives where the evidence isn’t as strong.”

Nevertheless, both executives and academics agree that additional exposure to the real world is critically needed. The conferees therefore encouraged colleagues to include the following tools for active learning:

- Among the variety of **potential real-world examples**, case studies, especially studies of failures. The CEO/president of a health-care technology firm reflected on his own training: “I loved imagining myself in those people’s shoes and what I would have done differently and I cannot believe they did X, Y, Z. For whatever reason, that brought learning to life in a way that my past academic pursuits never did. . . . I think that most CEOs would have juicy failure stories that they would love to have publicized because it would be great teaching for their own executives.” The president/CEO of a large integrated health system also enthused about the value of studying failure: “So nobody gets to the top based on successes; you get to the top by learning from failures, which become successes. So if you flip the thing around the other way you get a very different perspective. Every success is built on some failure. We have made—I have made—loads of mistakes. The key, however, is to learn from them and not to repeat them.”
- **Project-based learning**, including practicums and consulting engagements. “Interaction with the field is critical,” said an Arizona State University professor. The president of a large regional hospital offered his experience: “We identified a cohort of about 30 physicians who spend a year in this program getting exposed to a variety of management projects. We are more proactively than ever before trying to groom the next generation of physician leaders here.” The chair of an African HMO offered her own perspective: “Business school education is so practical in that . . . having been through it, I think that there is no better way of learning, and part of that process is also being able to be out in the field and eat and breathe as much as possible.” According to a clinical development consultant, “The education should include more access to clinical experience . . . knowing what it is to provide health care in this country. It is one thing if you are a patient. You get a different perception when you are a caregiver.” The president/CEO of a medical supply company actually rolled up his own sleeves: “One of the things I do here every year is spend two days a year as a male nurse. I go to one of our hospitals and I work a shift. And there is lots of stuff I am not allowed to do, but I can hand out food, I can clear off trays, I can do patient transports inside the hospital. . . . It gives me a good sense of what is going on at the sharp end and how diverse some of that work is and how some of the policies that we talk about and that we decide . . . and how they are being perceived.”
- **Mentoring of students by industry professionals.** Noted the president/CEO of an innovative biotech, “It can be either within the academic setting or outside of the academic setting—but mentorship becomes really important and I think fostering that can have true rewards. The ROI on mentorship can be pretty darn high.” A clinical development consultant had similar thoughts: “Particularly in the health care business, students need to be connected with those of us who are trying to make our way through this . . . health care system, as well as their academic faculty. They need both. . . . If I were a student today, I would want to have access to both. I want to hear the two points of view. If I were a student, I would want to have built-in connections with those folks who are successful entrepreneurs or successful large company managers in health care.”

Noted the chair of the board of an African HMO: “I would say that the mentoring part is critical not only because of the hard issues, but particularly because of the soft issues It is important that as managers we do understand what those softer issues are of dealing with the various stakeholders, whether staff, patients, customers, payers, whoever.”

- **Deeper partnerships between industry and academia, and a larger role of adjuncts and nontraditional instructors**, especially in fields where scholars may have less experience and expertise, such as venture capital and health IT. A University of Alabama at Birmingham professor suggested pairing active or retired executives with interested academics to collaborate on development of syllabi, assignments, and tests. The president/CEO of a large integrated health system concurred: “So you want a mix of the people teaching, and this occurs in some places, which have the practical experience along with the intellectual stimulation part of it.”

A leading consultant to health care organizations noted, “People working in health care would like nothing better than to shape the future of leadership education. A few years back I was asked to teach a ‘special topic’ course at George Washington University. It was a tremendously positive experience for both the students and me. We need to make sure programs are aggressively recruiting industry leaders to bring their in-the-trenches perspective to students. This is a key part of sparking the kind of innovative thinking that will make a difference.”

- **Field-based experiences** that could include a multi-month formal residency in a health care organization or a field-study course that places the student in a health care business for several hours a week. The president/CEO of an association of health care managers notes that such placements would not only create a rich learning environment, but would also provide a day-to-day perspective on what is taught in the classroom and a substantial opportunity for informal career counseling.
- **Interactive learning**—more Socratic interaction in the classroom and more simulations and role-playing. The president/CEO of a large integrated health system offered this insight: “When I look at a person’s resume . . . I am much more interested in what they can do, not where their degree came from. . . . This is why we use simulation We’re one of the largest simulation centers in the country at the moment, and we have come back to the academic part of it.”
- **Continuing education was deemed important** by both CEOs and academics, whether in an academic setting or strictly in-house. This area requires research into what we know about what is taught to working managers about health care delivery/policy, etc.? How does it differ from what they learned in school? How do the careers of those who are “converts” differ from those who were health focused from the beginning?
- **Boot camps**, which a health care private equity investor suggested would boost nonbusiness students’ understanding of entrepreneurial skills such as writing a business plan and raising money.
- **Contests.** At the nexus of academia and industry, competitions have sprung up in writing business school cases, performing case analysis, and formulating business plans. While some contests are open to individuals, others require a team of students from different departments or disciplines. The teams typically work to solve a business problem within an allocated time, during which they present in front of judges, who are often professionals. In case competitions for example, teams demonstrate the speed, thoroughness, and skill with which a case can be understood, analyzed, and solved. They build valuable skills and enable the kind of entrepreneurial cross-pollination identified by our CEOs and conference participants as central to success for 21st-century health care managers.

- **Global experience.** Visiting different health care environments offers the opportunity to understand the variety of structural solutions to the organization, delivery, and financing of care. One Duke professor suggested, “It is too easy to think that the structure of the health care sector is fixed and optimized since it is such a critical service in every market. Exposure to other health care systems is a great way to challenge this mindset and to provide the courage to challenge the status-quo.”
- **Adopting lessons from other service-oriented business sectors.** According to a widely experienced health care executive and politician, “When it comes to providing better services, health care can learn a lot from the hotel and restaurant industry, tourism, the banking sector, the entertainment sector, and IT service providers. Health care can also learn from other industries where safety is key, such as the airline, submarine, and nuclear energy sectors.”

PROFESSIONAL VALUES

Conferees agreed that professional values remain a critical component of graduate management education:

- **Ethics,** of course, play a major role in health care managerial decisions. Health care managers should be well versed in medical and business ethics and in balancing the various ethical demands they will face. The president/CEO of a large nonprofit health-care system was quite clear: “So one of the most important things to me is I want to have people who are highly ethical, who are mission driven, and who really are focused on doing the right thing for the patient, so that is a number-one requirement.”

(THIS EFFORT) WILL INVOLVE RECRUITING NEW KINDS OF FACULTY, LAUNCHING NEW ACADEMIC JOURNALS, AND CREATING NEW JOINT DEGREES. IT WILL CERTAINLY DEMAND BREAKING DOWN THE “SILOS” THAT SEPARATE THE VARIOUS SCHOOLS OF LEARNING THAT CONTRIBUTE EXPERTISE TO HEALTH CARE MANAGEMENT.

- Instead of presenting ethics in artificially separate courses, it may be more useful to **build ethical and moral dimensions appropriate to science and medicine into all managerial courses.** The CEO/president of a health-care technology company related a transformative interaction with a teacher. “He said, ‘You have been running a consulting firm, an analytics firm for some time now. How many lives have you touched?’ I could not answer him. I was gobsmacked. He said, ‘Let me tell you how many I have touched,’ and he went into great detail. Essentially the point he was making was if the . . . school helped students think that way as a dominant ethic rather than financial return on effort or anything else, they would create a whole different product. Rather than thinking about how much money can I make and how quickly I can make it, if I said how many lives can I touch, the money will flow.”

FACULTY CAREER PATHS

Developing faculty for such innovative programs in health care management education poses a formidable financial and human resource challenge. Strategies for addressing the issues identified by conferees included:

- **Recruiting faculty members with real-world qualifications** and recognizing the importance of their contributions.
- **Cross-disciplinary training that integrates academic and professional teachers** in a shared purpose.
- **Research that responds to the call of CEOs for additional real-world skills.** One HBS participant noted, “A growing area of research . . . focuses on implementation and execution as opposed to strategy.”
- **Establishing a respected group of journals to better support health care management faculty.** Currently, many faculty members are subject to tenure review that often recognizes only “A-list” research journals. A Vanderbilt University professor, for example, called for “new or strengthened research outlets, peer reviewed, where the threshold for publication is determined by a rigorous quantification of the net value benefit of any innovation.”
- **Increased forums for dialogue across disciplines and better ways of sharing content and tools.**
- **Revised accreditation standards** that recognize and legitimize people with professional training and experience as well as those who are academically trained.
- **Centralized, easily accessible sources of information from early adopters about revamped curricula,** new tools, and innovative career paths.

Because much of the management education in health care does not take place in resource-rich environments or with full-time master’s students, but rather in executive master’s, in-house programs, or with part-time students at budget-strapped schools, these kinds of innovations should be widely shared through centralized, easily accessible repositories.

HOW TO MAKE IT HAPPEN: OVERCOMING OBSTACLES TO CHANGE

Changes in academia are often hard-won, but they do happen. By design, academic organizations are guided by groups of people who function in multiple layers. Consensus is valued, committees are powerful, and traditions that were many years in formation are—for some good reasons—not quickly dismissed. In addition, because of tenure systems, changes among faculty happen slowly and in small increments.

Nevertheless, given strong leadership, clear evidence of need, and thoughtful projections of possible benefits, change is possible. Witness the recent emergence in business schools of entrepreneurship as its own field of teaching and scholarship. A generation ago, one rarely heard the term “entrepreneur” in business schools. Today, entrepreneurship programs stand alongside accounting, finance, and management as core pieces of curricula.

Creating a new curriculum for health care management may take several years, but there is no reason why it, too, cannot earn centrality and prestige. Nevertheless, the process will not be easy.

In addition, it will likely require reworking budgets and teaching loads as well as evangelizing among deans and teaching colleagues. A few courses that focus on innovation in health care already exist; see Appendix C for some sample course descriptions.

AN EXAMPLE OF SUCCESSFUL CURRICULUM INNOVATION

At the conference, HBS Professor Srikant Datar, coauthor of *Rethinking the MBA*,* explained why the curriculum at HBS and other schools of business was recently changed: the market will have its say. Because mainstream business degree programs were not producing the kind of graduates that industry wanted, prospective students of many such programs began to question the substantial investment in money and time required by a business school degree, and enrollment began to fall off.

Recent MBA curriculum changes . . . based on an updating of the U.S. Army's "Be-Know-Do" framework: reassess the facts, frameworks, and theories being taught (the "knowing" component) while revamping curricula to favor core management skills and methods (the "doing") and the underlying beliefs and values that create a manager's professional identity and view of the world ("being").

IF ANY SCHOLARS SHOULD BELIEVE IN THEIR ABILITY TO OVERCOME THE IMPOSSIBLE, IT IS THOSE IN HEALTH CARE. AFTER ALL, THEIR AREA OF EXPERTISE HAS MORE THAN ONCE VANQUISHED THE SEEMINGLY IMPOSSIBLE, WHETHER BY SUBSTANTIALLY INCREASING LIFE SPANS, BY REVOKING THE DEATH SENTENCE OF AIDS IN THE DEVELOPED WORLD, OR BY BROADENING ACCESS TO HEALTH CARE ACROSS THE WORLD THROUGH COST-EFFECTIVE MANAGERIAL INNOVATIONS.

Datar and his coauthors recommended a fundamental rebalancing away from "knowing" and towards "doing" and "being." As they stated in *Rethinking the MBA*, "Without 'doing' skills, knowledge is of little value. Without 'being' skills, it is often hard to act ethically or professionally." Similar attention to "hard" as well as "soft" skills is embodied in the guidelines for many educational programs. For example, the Medical Group Management Association's and the American College of Medical Practice Executives' Body of Knowledge for Medical Practice Management described the four general competencies that form the foundation for a successful health care executive as professionalism, leadership, communication skills, and critical thinking.

In addition to Harvard, almost all schools introducing new curricula have followed the approach of *Rethinking the MBA*. They include Wharton, Northwestern, Berkeley, and UNC as well as schools in Europe (Leeds, IESE), Australia (University of Technology, Sydney), Africa (Aga Khan University Business School), India, China, and Latin America (where Datar has worked with a consortium of schools).

The change required a multi-front approach. First, faculty members with real-world business qualifications were newly hired. Cross-disciplinary training then integrated academic and professional teachers in a shared purpose. Encouraging collaboration was key, as broader-based and cross-disciplinary inquiries began to replace the kind of ultra-specific research that once stood academics in good stead. Yet, Datar and his colleagues found that even when faculty was willing to teach new material, inexperience got in the way. In response, they created "train the teachers" seminars. Building a group of pioneers who wanted to share their courses alleviated some of the concern about these first steps into terra incognita.

*Cullen, Patrick G., Srikant M. Datar, and David A. Garvin. *Rethinking the MBA: Business Education at a Crossroads*. Boston: Harvard Business Press, 2010.

Armed with evidence of executives' views that business education needed improvement, Datar's group approached the accrediting organization, the Association to Advance Collegiate Schools of Business, and asked, "Here are our data. What do your data say?" Their general agreement about the need for change simplified the process of how to begin making it. The 25–30% modification in courses called for fundamental revisions in accreditation standards that, for example, recognize professionally trained faculty as well as academically trained faculty.

To motivate research-oriented faculty to participate in this process, Datar anticipated that responding to the call of CEOs for more real-world skills would likely open novel research avenues. For example, the focus on globalization has produced research publications and books on concepts such as semi-globalization and winning in emerging markets as well as much greater interest in journals of marketing, finance, and operations on global issues. Another growing area of research is in implementation and execution as opposed to strategy.

INNOVATING HEALTH CARE MANAGEMENT EDUCATION

Changing the way that hundreds of educational programs operate seems like a daunting task. Even getting one's colleagues in a single department to change their ways can feel Sisyphean.

Specific steps to consider include:

- **Reviewing and revising health care management course offerings.**
- Examining the **expanded use and recruiting of adjunct faculty and nontraditional instructors, with business and health care enterprise expertise or clinical training (such as those with dual degrees: MD/MBA, JD/MHA, MBA/MSN, etc.).**
- Recruiting **faculty members with deep interests and commitment to the health sector.** For academically trained faculty, this category includes those with applied research interests in health care who publish in nontraditional discipline journals. For professionally trained faculty, this group includes people with the real-world experience.
- **Helping existing faculty to transition to this new curriculum** through dedicated sabbatical programs (for exposure to health care organizations), incentives for new course development, or "train the trainer" programs.
- Strategizing about how to **focus the accumulation of knowledge** to contribute to the growth of the field as a whole.
- **Developing new joint programs that link or even dissolve the "silos."** The president/CEO of a large physician group points out, for example, that half of U.S. medical schools now offer combined MD/MBA, MBA/MHA MPH, and other joint degrees with law, social work, nursing, biomedical engineering, etc.
- Reaching out to **health care enterprises in the community** to identify sites where students might do fieldwork and consulting.
- Seeking out **colleagues from other departments and schools** with whom to teach cross-curricular courses.

Those of us who educate and train health care executives have before us a daunting task—and a thrilling opportunity. Global health care faces a threefold crisis of unsustainable economics, erratic quality, and unequal access. If we create unprecedented collaboration among disciplines and between academia and business, revamp curricula that may no longer serve us, and use the academic tools we know to be effective, we can offer the world the leaders who are equal to the challenge of innovating 21st-century health care.

APPENDIX A: FIRMS OF CEOS INTERVIEWED, BY SECTOR & LOCATION

The Abbreviated Interview Guide is available at:

http://people.hbs.edu/rherzlinger/CEO%20Abbreviated%20Interview%20Guide_HBS.pdf

The selection of executives to be interviewed was driven by three goals: first, to represent all the sectors with a stake in health care, including biotech, delivery, diagnostics, health IT, insurance, medical devices, governments, and NGOs or foundations; second, to focus on innovative firms and large employers of the graduates of these programs; and last, to provide a global perspective.

Firms:

LOCATION	NAME	SECTOR
Argentina	Farmacy	Pharmacy
Brazil	Amil Participacoes S.A	H & HMO
China	BeiGene	P
Denmark	Novo Nordisk	P
France	Institut Curie	R
Germany	Fresenius Management SE	D
Germany	Siemens Healthcare	Medical Devices
Hong Kong	National Kidney Foundation	NPF
India	Apollo Hospitals	H
India	Biocon	P
India	Fortis Healthcare	H
Israel	Israel Ministry of Health	G
Israel	Teva	P
Italy	Humanitas Mirasole Spa	H
Kenya	AAR Holdings	I
Kenya	Aga Khan University Hospital	H
Mexico	IMSS	G
Mexico	Primedic	Low cost social care
Mexico	SaludDigna	Low cost social care
Nigeria	Anadach Group	C
Nigeria	Hygeia HMO	HMO
Singapore	Fortis Healthcare	H
South Africa	Discovery Health	Fin Serv. & Wellness
South Africa	Discovery Vitality	Fin Serv. & Wellness
Switzerland	Helsana	I
Switzerland	Novartis	P
Switzerland	Swiss Health Care System	G
UK	McKinsey & Company	C
UK	Nuffield Health	ICD
USA	athenahealth	IT
USA	Bain & Company	C
USA	Blue Cross Blue Shield - MA	I
USA	Cardinal Health	Distrib. & IT
USA	Care-Safe	C
USA	Carilion Clinic	H
USA	Celgene Corporation	P
USA	Dorenfest Group	C
USA	Geisinger Health System	ICD
USA	Foundation Medicine	D
USA	Highland Capital Partners	VC
USA	Intermountain HealthCare	ICD
USA	Intuitive Surgical	Medical Devices
USA	Iora Health	ICD
USA	Marshfield Clinic	H
USA	Massachusetts General Hospital	H
USA	McKesson Corporation	Distrib. & IT
USA	McKinsey & Company	C
USA	NSLIJ-Long Island Jewish Medical Ctr.	H
USA	OrbiMed	VC
USA	Partners HealthCare	H
USA	Patients Like Me	Information
USA	Polaris Venture Partners	VC
USA	Pro Mujer	Low cost social care
USA	Quest Diagnostics	D
USA	Quest Diagnostics (ex-CEO)	D

- C** Consulting
- D** Diagnostics
- G** Government
- H** Hospital
- HMO** Health Management Organization
- I** Insurance
- ICD** Integrated Care Delivery
- IT** Health IT
- NPF** Non-profit foundation
- P** Pharmaceuticals
- R** Research
- VC** Venture Capital

Schools:

College of Health Sciences, Rush University
Columbia Business School, Columbia University
Darden School of Business, University of Virginia
Feinberg School of Medicine, Northwestern University
Fuqua School of Business, Duke University
Gillings School of Global Public Health, University of North Carolina
Global Health Institute, Duke University
Harvard Business School, Harvard University
Kellogg School of Management, Northwestern University
Perelman School of Medicine, University of Pennsylvania
School of Allied Health Professions, Virginia Commonwealth University
School of Medicine and Public Health, University of Wisconsin
School of Medicine, Vanderbilt University
School of Public Health, University of California, Berkeley
School of Public Health, University of Michigan
School of Public Health, University of Minnesota
School of Public Health, University of Texas
School of Public Health, University of Washington
Sloan School of Management, Massachusetts Institute of Technology
Stanford Graduate School of Business, Stanford University
Stern School of Business, New York University
The Wharton School, University of Pennsylvania
Tuck School of Business, Dartmouth College
Wagner Graduate School of Public Service, New York University
Yale School of Management, Yale University
Yale School of Public Health, Yale University

APPENDIX B: U.S. SCHOOLS INCLUDED IN CONTENT ANALYSIS

APPENDIX C:**SCHOOLS WITH COURSES CONTAINING THE WORD
“ENTREPRENEUR” AND/OR “INNOVATION”****COLUMBIA BUSINESS SCHOOL:****Healthcare Investment and Dealmaking (Cliff Cramer, Robert Essner)**

This course analyzes the unique characteristics and strategies of investing in the health care sector from the perspective of venture capital firms investing in early-stage health care enterprises, private equity firms seeking to build value-creating health care platforms, and entrepreneurs seeking capital from these and other sources. The course also analyzes “dealmaking” strategies in the health care sector, including mergers & acquisitions, joint ventures, licensing, and other third-party transactions. It assesses how companies, other firms, and entrepreneurs can assess, value, and manage the inherent risks in investing in a changing, highly regulated, and politically charged environment.

DARTMOUTH COLLEGE, TUCK SCHOOL OF BUSINESS:**Contemporary Issues in Health Care: Biotech (Donald Conway, Steven Gillis, Michael Zubkoff)**

As a relatively new field of commercial endeavor, biotechnology has had more impact (perhaps with the notable exception of computer hardware and software) on society than any other business enterprise in the past 30 years. The advent of genetic engineering has revolutionized drug discovery and development, adding tens if not hundreds of novel therapies to physicians' arsenals for treating and preventing disease. In this mini-course, students will gain an appreciation for the biotechnology industry, its premise and continued promise, as well as what is required for biotechnology entrepreneurs in the 21st century to attract investment capital. Areas ripe for investment and development will be explored as well as lessons learned over the past three decades, which have been witness to the creation of thousands of biotechnology companies and the very way that innovation is supported by the pharmaceutical industry and regulated by worldwide governments.

DUKE UNIVERSITY, FUQUA SCHOOL OF BUSINESS:**Invention to Application (Barry Myers)**

A hands-on learning experience in which students work with researchers at Duke as well as with experienced entrepreneurs to commercialize real-case Duke University research.

Provider Strategy (Marco Huesch)

This course focuses on organizational innovation, specifically strategies and tactics for provider networks to successfully manage resource constraints as well as insurance and reimbursement issues in order to deliver quality, ethical, and cost-effective care.

Economics and Management of the Pharmaceutical Industry (David Ridley, Jeff Moe)

An examination of management and policy issues concerning innovation, product commercialization, competition, and regulation in the pharmaceutical industry—international in perspective with an emphasis on the current U.S. market and policy.

HARVARD UNIVERSITY, HARVARD BUSINESS SCHOOL:**Innovating in Health Care (Regina Herzlinger)**

This course has a global focus, with case studies set in Brazil, India, Spain, the U.K., and the U.S., among other countries. For students interested in careers in entrepreneurial health care management, consulting, and investing, this course will discuss how to successfully create entrepreneurial health care ventures. Students will be required to create a business plan that appropriately responds to the six forces that shape health care.

Entrepreneurship and Venture Capital in Healthcare (Richard Hamermesh)

This course examines a wide range of healthcare ventures and examines licensing, joint venturing, and financing agreements that form the basis of these ventures. The course is intended primarily for students who have a career interest in either leading or investing in healthcare ventures (biotechnology, medical devices, and healthcare services). It will also be of interest to students who plan to work in Business Development functions either in or outside the healthcare sector.

Entrepreneurship in the Private and Social Sectors (Robert Higgins)

This course seeks to prepare students for future work and leadership in and with entrepreneurial ventures and to provide an informed perspective to those who may someday promote or regulate such ventures. In addition, the course looks at the increasingly common relationships among the private, public, and social sectors in healthcare, housing, education, and other industries.

Field Course: Innovating in Health Care (Regina Herzlinger)

Students will meet as a whole on selected dates: 1st session—Professor Herzlinger discusses research strategies and the course overview; 2nd session—students present their research ideas and plans to their classmates; last two sessions—students present their results to their classmates. Students are required to email their presentations to Professor Herzlinger and their fellow classmates four business days before their presentation. In addition, student teams meet with Professor Herzlinger at a time which will be determined on the first or second session of the course. These meetings will occur on a weekly basis. Students must complete a business plan.

Field Course: Health Care Computer-Assisted Innovations (Regina Herzlinger, Margo Seltzer)

Professors Herzlinger and Seltzer will jointly supervise student independent projects in the following areas: medical devices, medical informatics, health IT, telemedicine, social media. Students may also choose from faculties' independent project opportunities or those of their own creation. Students will be required to prepare a business plan for their project and/or a working prototype of a device or IT application. They must email their presentations to Professors Herzlinger and Seltzer and their fellow classmates four business days before their presentation. For the first two of the course sessions, Prof. Herzlinger will lecture on the creation of a business plan and evaluations of new technologies and Prof. Seltzer will lecture on a variety of technologies and approaches to technological innovation. Students will present their new venture ideas for feedback. The last two sessions will be devoted to student presentation of their work. The remaining sessions will be devoted to individual weekly meetings between the faculty and student groups.

Field Course in Healthcare (Richard Hamermesh)

The Field Study Seminar in Healthcare provides an opportunity for students, working in teams, to gain first-hand experience with a health care organization. This seminar will be especially helpful to students who are interested in deepening their understanding of the healthcare industry entrepreneurship, venture capital, and early stage technologies.

India/Singapore: Assembling Global Innovation Strategies (Vicki Sato)

This course is intended for future general managers in science- and technology-intensive businesses who seek firsthand exposure to companies constructing global R&D strategies. The primary focus of this course will be conducting part of a firm's R&D in Asia. Students with an ambition to move into a science-based or technology-intensive business will benefit most from this course.

Managing Global Health: Design, Delivery, and Evaluation of Global Health Programs (Nava Ashraf)

This course is designed for students who seek entrepreneurial or management roles in global development, particularly in global health. Students learn to creatively and skillfully bridge the worlds of research and action to make an impact in global health.

MIT SLOAN SCHOOL OF MANAGEMENT:

Critical Reading and Technical Assessment of Biomedical Information (Stanley Lapidus)

Students gain experience in critical reading of scientific literature with an emphasis on analyzing clinical controversies and emerging technologies in subject areas that have been or could become sources of entrepreneurial activity. Students are required to analyze a variety of topics in the scientific literature, including screening for and cost-effectiveness of early detection of cancer, therapeutic opportunities in oncology, evaluation of immunotoxins and antibody therapies, and new prospects for the treatment of autoimmune disorders. To support the discussion of these topics, outside experts may be invited to participate as facilitators.

NORTHWESTERN UNIVERSITY, KELLOGG SCHOOL OF MANAGEMENT:

NUvention: Medical Innovation

Medical Innovation is a two-quarter sequence focused on the creation of innovations for the health industry. Students, guided by faculty and physicians from Kellogg and the Northwestern law, medical, and engineering schools work in teams to develop medical products. Students experience the entire innovation life cycle from ideation to prototyping, legal protection, market sizing, and business plan development. At the end of the course, the teams present their business plans to a panel of venture capitalists with the goal of securing funding and possible formation of a start-up. Key deliverables in this class include: "elevator pitch" to request prototype/pilot funding, prototype development, provisional patent application, FDA 510/K application, and business plan presentation to venture capitalists.

STANFORD GRADUATE SCHOOL OF BUSINESS:

Advances in Biotechnology (L. Hwang, J. Schwarz)

This course engages guest academic and industrial speakers to explore the latest developments in fields such as bioenergy, green process technology, production of industrial chemicals from renewable resources, protein pharmaceutical production, industrial enzyme production, stem cell applications, medical diagnostics, and medical imaging. It also covers biotechnology ethics, business and patenting issues, and entrepreneurship in biotechnology.

Biodesign for Mobile Health (Marta Zanchi, Paul Wang, Paul Yock)

This seminar examines the emerging Mobile Health industry. Mobile Health (mHealth, or wireless health) is the provision of health services and information via mobile technologies such as mobile phones and wearable sensors. Innovations in this area promise solutions to the need for universal access to affordable and effective health care by enabling consumers to take charge of their health, creating affordable ways to manage aging and chronic conditions, moving care from the hospital into the home, improving treatment options by providing transparency of measurable clinical outcomes, and shifting the focus from "sick care" to "health improvement" and prevention. Faculty from Stanford University and other academic Institutions and guest lecturers from the Mobile Health industry and entrepreneurial community will discuss the driving needs, opportunities, and challenges that characterize the emerging Mobile Health innovation landscape, and present an overview of the technologies, initiatives, and companies that are already transforming the way we access health care today.

Biodesign Innovation (Todd Brinton, Craig Milroy, Paul Yock)

This is a two-quarter course series offered and taught jointly by faculty at the Graduate School of Business, the School of Medicine, and the School of Engineering. Students work in small entrepreneurial, multidisciplinary teams to identify important unmet clinical needs, develop solutions (mostly medical devices), and then prepare business plans for commercializing those solutions. Through the course, students learn strategies for understanding and interpreting clinical needs, researching literature, searching patents, analyzing intellectual property, regulatory, and reimbursement pathways, performing market assessments, conducting basic prototyping, and addressing other commercialization activities.

Creating a Start-Up I and II (Haim Mendelson)

This course focuses on the creation of a new venture by providing frameworks and applying them to the identification and pursuit of a business opportunity. Concepts include the new venture formation process, opportunity identification, evaluation and analysis, customer development, business models, market research, design thinking, team formation, team dynamics, leadership, venture viability research, and managing intellectual property. Part of the course is partitioned by vertical market to reflect vertical-specific topics and issues. Students form teams, conduct fieldwork, and iterate on the combination of business model—product—market. Teams then present to a panel of entrepreneurs, venture capitalists, angel investors, and faculty. Healthcare teams typically propose ideas generated by labs from the Stanford Medical School through interactions with SPARK, Biodesign, and with Medical School courses.

Design for Service Innovation (James Patell, Stefanos Zenios)

This is an experiential course in which students work in multidisciplinary teams to design new services (including but not limited to web services) that will address the needs of an underserved population of users. Through a small number of lectures and guided exercises, but mostly in the context of specific team projects, students will learn to identify the key needs of the target population and to design services or processes that address them. For the academic year, teams will focus on need in the healthcare and financial services sectors.

Entrepreneurial Design for Extreme Affordability

(James Patell, David Beach, David Kelly)

This is a project-based course jointly offered by the School of Engineering and the Graduate School of Business. Students apply engineering and business skills to design product prototypes, distribution systems, and business plans for entrepreneurial ventures in developing countries for challenges faced by the world's poor (the course does not have an exclusive healthcare focus, but in most years the challenges identified and solved are related to health and healthcare). Topics include user empathy, appropriate technology design, rapid prototype engineering and testing, social technology entrepreneurship, business modeling, and project management. Key course activities include weekly design reviews, a final course presentation, and regular interactions with industry representatives and project advisors.

Entrepreneurship: Formation of New Ventures (Peter Reiss, Rob Chess)

This course is for students who at some time may want to undertake an entrepreneurial career by pursuing opportunities leading to partial or full ownership and control of a business. The course deals with case situations from the point of view of the entrepreneur/manager rather than the passive investor. Many cases involve visitors, since the premise is that opportunity and action have large idiosyncratic components. Students must assess opportunity and action in light of the perceived capabilities of the individuals and the nature of the environments they face. The course is integrative and allows students to apply many facets of their business school education. While there are various sections of this course, one section in particular focuses on science- and technology-based businesses and includes a large number of medical device and biotech cases.

Medicine for Innovators and Entrepreneurs (Elizabeth Mellins, Tandy Aye)

This is an interdisciplinary, project-based course in which bioscience, bioinformatics, biodesign, and bioengineering students learn concepts and principles to help them understand human disease and work together to propose solutions to medical problems. Diabetes mellitus is used as a paradigm for understanding human disease. Guest medical school and outside faculty participate in the course, and field trips are scheduled to Stanford's clinics and biotechnology companies in the area.

Global Biodesign: Medical Technology in an International Context (Raj Doshi, Jan Benjamin Pietzsch, Chris Shen, Paul Yock)

Students, postdoctoral fellows, and faculty from the schools of business, engineering, humanities & science, law, and medicine are invited to participate in this elective course. Offered for the first time in 2011, this seminar examines the development and commercialization of medical technologies in the global setting, focusing primarily on Europe, India, and China. Faculty and guest speakers from industry and government will discuss the status of the industry, as well as opportunities in and challenges to medical technology innovation unique to each geography. Topics related to development of technologies for bottom-of-the-pyramid markets will also be addressed.

UNIVERSITY OF CALIFORNIA, BERKELEY SCHOOL OF PUBLIC HEALTH:

Health Care Technology Policy (James Robinson)

The course examines the public policy institutions and processes influencing innovation, regulation, and payment for biotechnology, pharmaceuticals, and medical devices. Topics include technology transfer and patent law, FDA review for safety and efficacy, insurance coverage policy at the Center for Medicare and Medicaid Services, coverage, payment, and benefit by private insurers for new technology, and cost-effectiveness analysis. Special topics vary from year to year. Examples and case studies are drawn from all three of the technology sectors.

Advanced Health Care Organizations and Environments

(Joan Bloom)

This course examines major theories and frameworks for analyzing health care organizations. Emphasis is given to the application and testing of theories in the health care sector. Theories to be examined include bureaucracy, contingency theory, culture and climate, resource dependence, institutional theory, and theories of change and innovation. The seminar will rely on extensive student participation.

UNIVERSITY OF NORTH CAROLINA, GILLINGS SCHOOL OF GLOBAL PUBLIC HEALTH:

Public Health Entrepreneurship (Alice Ammerman)

Basic concepts underlying commercial and social entrepreneurship applied to public health, including guest lectures by individuals with proven success in these areas.

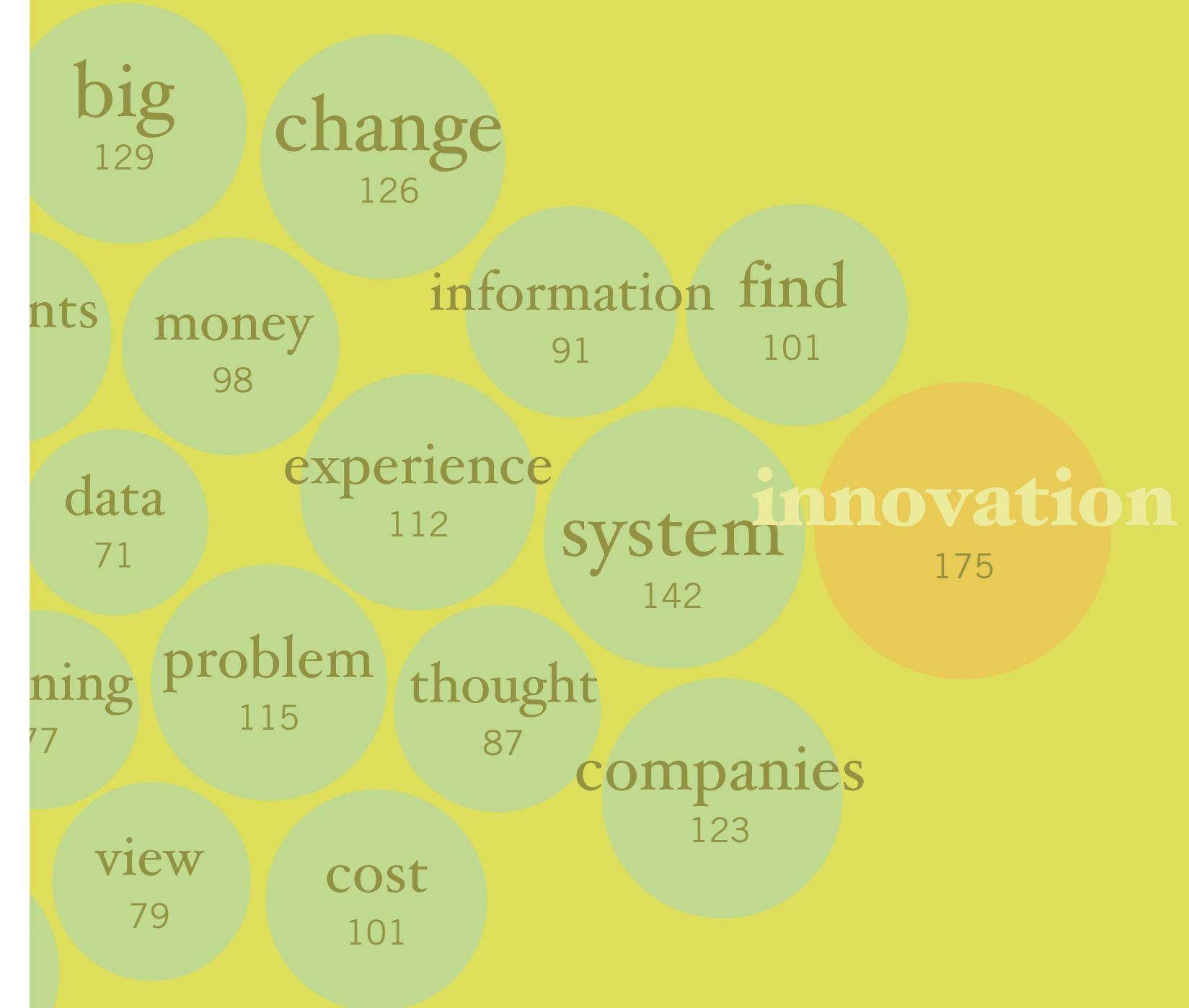
UNIVERSITY OF VIRGINIA, DARDEN SCHOOL OF BUSINESS:

Healthcare Management

This course looks at the healthcare industry from the standpoint of the manager or entrepreneur who seeks to understand the fundamental challenges now occurring. From the perspective of the large hospital and healthcare system, the pharmaceutical or biotechnology company, and capital ventures related to healthcare, the course reviews how often conflicting perspectives have led to the changing financial and organizational expectations now faced by today's managers. It will be of value to students interested in gaining a broad understanding of the healthcare system and want to apply the principles of general management to a specialized industry in dynamic flux. Cases, readings, guest speakers, and group discussions will be the principal modes of instruction.

YALE UNIVERSITY, YALE SCHOOL OF MANAGEMENT:
Managing Health Care Organizations
 (Ingrid Nembhard, Shelley Diehl Geballe)

This course is designed to integrate previous course work in management and in public health to further participants' understanding of organizational, managerial, and strategic issues facing health care organizations (HCOs) and the health care workforce. The course will provide participants with a foundation for developing, implementing, and analyzing efforts to improve HCOs' performance. A major objective of the course is to sharpen the leadership, problem-solving, and presentation skills of those who aim to hold operational and strategic positions in health care organizations. Through case studies, readings, in-class exercises, and class discussions, participants will learn analytic frameworks, concepts, tools, and skills necessary for leading and managing organizational learning, quality improvement, innovation, and overall performance in health care organizations.



Note: Different search criteria would produce a different, but likely overlapping, set of courses.

Source: Analysis of course descriptions found on public websites of health care administration and management courses of the top 26 U.S. business schools, and public health schools or programs within those colleges or universities, if applicable, as well as the top 10 public health programs in the U.S. as ranked by *U.S. News and World Report* for 2012.



ATTENDEES AT 21ST-CENTURY HEALTH CARE MANAGEMENT EDUCATION: CONFRONTING CHALLENGES FOR INNOVATION WITH A MODERN CURRICULUM, OCTOBER 4-5, 2012.

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**HARVARD BUSINESS SCHOOL
SOLDIERS FIELD
BOSTON, MASSACHUSETTS 02163
WWW.HBS.EDU**