



The Future of Academic Medicine

Five Scenarios to 2025

by Shally Awasthi, Jil Beardmore, Jocalyn Clark, Philip Hadridge, Hardi Madani,
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*corresponding authors Jocalyn Clark jclark@bmj.com and Richard Smith richard_s_smith@uhc.com

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FOREWORD

This report is one of three similar and simultaneous publications about current challenges to and alternative futures for academic medicine. The authors, members of the International Campaign to Revitalise Academic Medicine (ICRAM), want to stimulate discussion among colleagues who work in academic medicine, as well as practitioners and students of medicine and other health professions. They also hope to reach the men and women who set priorities for academic medicine and allocate resources to and within it.

The three publications—articles in *BMJ** and *PLoS Medicine** and this Milbank Report—differ in the extent to which the authors compress and document their discussion of what they call current “instabilities in academic medicine.” For this report, the authors expanded their discussion and documentation of these instabilities in order to provide additional context for readers who do not spend their professional lives in academic medicine.

The authors define academic medicine as the “capacity” of the health sector to “think, study, research, discover, evaluate, innovate, teach, learn, and improve.” Each country allocates responsibility for these tasks differently. In all countries, however, schools of medicine and other health professions and the hospitals, ambulatory care settings, and research units associated with them are central in carrying them out.

Since the second half of the nineteenth century, the institutions of academic medicine have contributed to improving and maintaining health, to national and regional economic development, and to upward socioeconomic mobility for millions of people—students, trainees and employees. Governments and, in some countries, philanthropies generously subsidized the people and institutions of academic medicine for most of the past century because their leaders valued these contributions.

The scenarios in this report suggest that some of the current instabilities in academic medicine could stimulate changes in the priority accorded to it by the public and, as a result, by policymakers—in some countries at least. ICRAM devised these scenarios in order to promote discussion about the instabilities and how they can be addressed in ways that strengthen the contribution of academic medicine to the public good.

Daniel M. Fox
President

Samuel L. Milbank
Chairman

*You may access the *BMJ* article at <http://bmj.bmjournals.com/cgi/data/331/7507/DC2/1> and the *PLoS Medicine* article at <http://www.plos.org/press/plme-02-07-clark.pdf>.

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The members of the ICRAM working party are: Tahmeed Ahmed, scientist, Clinical Sciences Division, ICDDR International Centre for Diarrheal Disease Research, Bangladesh, Dhaka, Bangladesh; Shally Awasthi, professor, Department of Pediatrics, King George's Medical University, Lucknow, India; A. Mark Clarfield, professor, Department of Geriatrics, Soroka Hospital, Ben-Gurion University of the Negev, Beersheva, Israel; Lalit Dandona, professor, chairperson of Health Studies Area, and director of Centre for Human Development at the Administrative Staff College of India, Hyderabad, India; Amanda Howe, professor of primary care, School of Medicine, University of East Anglia, Norfolk, United Kingdom; John P.A. Ioannidis, chairman, Department of Hygiene and Epidemiology, University of Ioannina School of Medicine, Ioannina, Greece; Edwin C. Jesudason, national clinician scientist at the Academy of Medical Sciences, leadership fellow at the Health Foundation, and lecturer in pediatric surgery, School of Reproductive and Developmental Health, University of Liverpool, Liverpool, United Kingdom; Youping Li, director, Chinese Cochrane Centre, West China Hospital, Sichuan University, Chengdu, China; Juan Manuel Lozano, professor, Department of Pediatrics and Clinical Epidemiology, Javeriana University School of Medicine, Bogotá, Colombia; Hardi Madini, medical student, Royal Free and University College London, London, United Kingdom; Ana Marusic, professor, Department of Anatomy, Zagreb University School of Medicine, and editor of the *Croatian Medical Journal*, Zagreb, Croatia; Idris Mohammed, outgoing provost, College of Medical Sciences, Department of Medicine and Clinical Immunology, University of Maiduguri, Maiduguri, Nigeria; Gretchen Purcell, pediatric surgery fellow, Pittsburgh Children's Hospital, and adjunct assistant professor of medicine, University of Pittsburgh, Pittsburgh, Pennsylvania, United States; Margaret Rhoads, medical student, Imperial College London, London, United Kingdom; Karen Sliwa-Hähnle, professor, Department of Cardiology, CH Baragwanath Hospital, University of the Witwatersrand, Johannesburg, South Africa; Sharon E. Straus, associate professor, Department of Medicine, Toronto General Hospital, University of Toronto, Toronto, Ontario, Canada. Tessa Tan-Torres Edejer, scientist, Department of Health Systems Financing, World Health Organization, Geneva, Switzerland; Timothy J. Underwood, clinical research training fellow, Medical Research Council /Royal College of Surgeons, University of Southampton, Southampton, United Kingdom; Robyn Ward, professor, Department of Medical Oncology, St Vincent's Hospital, Darlinghurst, and School of Medicine, University of New South Wales, New South Wales, Australia; Michael S. Wilkes, vice dean and professor of medicine, School of Medicine, University of California, Davis, California, United States; and David Wilkinson, deputy head and professor of primary care, School of Medicine, University of Queensland, Brisbane, Australia.

The ICRAM planning committee consists of Jil Beardmore, project coordinator at the Centre for Global Health, University of Ottawa, and project assistant, ICRAM, Ottawa, Ontario, Canada; Jocalyn Clark, associate editor of the *BMJ* and project manager of ICRAM, London, United Kingdom; Philip Hadridge, organization consultant and scenarios facilitator, Cambridge, United Kingdom; Richard Smith, chief executive of UnitedHealth Europe, former editor of *BMJ*, and cofounder of ICRAM, London, United Kingdom; and Peter Tugwell, professor of medicine and head of the Centre for Global Health, University of Ottawa, and leader of ICRAM, Ottawa, Ontario, Canada.

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ACADEMIC MEDICINE IN THE TWENTY-FIRST CENTURY

“Academic medicine” might be defined as the capacity of the system for health and health care to think, study, research, discover, evaluate, innovate, teach, learn, and improve. Accordingly, little could be more important, particularly because new discoveries in science offer tremendous opportunities, and emerging diseases pose huge threats. Indeed, the contribution of academic medicine to human health over the last century has been extraordinary. The public’s and the government’s greater understanding of the central importance of health to societies has led to unprecedented scientific advances. New genetic technologies, rapid advances in cell and molecular biology, and imaging technologies promise even more innovation and progress. Recent investments in academic medicine, most notably in the United States and the United Kingdom, are unparalleled. But can academic medicine lead the way into the twenty-first century?

Several national reports suggest that this prospect may be in doubt¹⁻⁸, and critics are becoming increasingly concerned that academic medicine is in crisis around the world⁹⁻¹⁴. Indeed, the lack of basic infrastructure in many countries has meant that academic medicine is floundering, if not absent. Even the current funding in industrialized countries will be wasted if structural changes are not made to allow academic medicine to capitalize on new investments^{7,15,16}. At a time when the health burden, poverty, globalization, and innovation all are growing, academic medicine seems to be failing to realize its potential and its global social responsibility.

In response to these concerns, in 2003 the *BMJ*, the *Lancet*, and 40 other partners launched the International Campaign to Revitalise Academic Medicine (ICRAM), a global initiative to debate the future of academic medicine. It started with only two premises, that it was necessary to think globally and that “more of the same” was not the answer. Reinvention was needed (see the references for campaign-related publications).

As part of the initiative, ICRAM decided to undertake some scenario planning, a technique of thinking about both the future and the present. Scenario planning is carried out by a team whose members consider the instabilities in the present and the drivers of the future and then imagine plausible but varying futures. The aim is not to predict the future, which is impossible, but to provoke more informed conversations by broadening their ideas about what the future might bring. Once they are created, the scenarios can be used to think more deeply about the present and the future. The scenarios also can be used for better short-term pragmatic decision making and long-term strategic planning¹⁷.

INSTABILITIES IN ACADEMIC MEDICINE

The ICRAM group began by considering the current instabilities in academic medicine. None of these is new, and most people would probably agree with nearly all of them.

- *There is widespread, even universal, agreement that things are not right but little agreement on the exact nature of the problem.* Several consultations have taken place previously, mostly in the United States, United Kingdom, and Canada, and these agree that academic medicine is in decline or is at least unprepared for future demands^{1-8,14}. Worse, the diagnosis is neither entirely clear nor consistent across settings (Table 1), and the treatment is unknown. The stated reasons for this decline vary but include both internal factors (increasing pressures on clinical academic staff, the absence of a clear and flexible career structure for young doctors, and uncertainty about future job prospects and security) and external factors (globalization, loss of faith in expert knowledge, increased public accountability, aging populations, and fiscal restraint). The lack of basic infrastructure in many countries has meant that academic medicine is floundering, if not absent. Many people even in wealthier countries like the United States and the United Kingdom worry that the recent surge of funding will be wasted if structural changes are not made to allow academic medicine to capitalize on the new investments, such as creating more attractive and flexible career paths^{7,15,16}.

TABLE 1: REPORTS AND RECOMMENDATIONS OF MAJOR NATIONAL ACADEMIC MEDICINE ORGANIZATIONS

United Kingdom		Challenges Identified
Academy of Medical Sciences, Clinical academic medicine in jeopardy: Recommendations for change.	June 2002	Prolonged training, early financial disincentives, tensions between the responsibilities for teaching, research and clinical service, are all deterrents to pursuing a clinical academic career. There is a need to promote academic medicine and make it once more an attractive career.
Academy of Medical Sciences, Strengthening clinical research.	October 2003	Put simply, clinical research has not kept pace with the advances in basic scientific discovery and this disadvantages patients.
Royal College of Physicians and Academy of Medical Royal Colleges, Clinical academic medicine: The way forward.	November 2004	The key aim must be to recruit and retain more clinical academic staff, by making the academic career path a more attractive and achievable option.

(continued next page)

TABLE 1: REPORTS AND RECOMMENDATIONS OF MAJOR NATIONAL ACADEMIC MEDICINE ORGANIZATIONS

(continued)

United Kingdom		Challenges Identified
Nuffield Trust, Association of Academic Health Centers, and Association of Canadian Medical Colleges, The challenge to academic medicine: Leading or following?	January 2005	If they were to have credibility, academic medical centers needed to have their own houses in order, in terms of transparency in the way funds were handled and to be able to give a proper account of the value of their work to individuals, the population, and the economy.
United States		Challenges Identified
Commonwealth Fund Task Force on Academic Health Centers, Envisioning the future of academic health centers.	February 2003	Try as it might, the task force found it difficult to imagine how the United States could maximize the health of its citizenry without institutions resembling academic health centers. It seems inefficient at best, and foolhardy at worst, to dismantle the infrastructure that AHCs have developed without first firmly establishing the advantages of any alternative approach to pursuing their missions.
Institute of Medicine of the National Academies, Academic health centers: Leading change in the 21st century.	July 2003	In taking on the [future] challenges, AHCs will need to recognize the interdependent and complementary nature of their traditionally independent roles within an overall context that encompasses a commitment to improving the health of patients and populations.
American Association of Medical Colleges, Educating doctors to provide high quality medical care: A vision for medical education in the United States.	July 2004	The shortcomings that exist in the ways doctors are educated must be remedied if the quality of the medical care provided in this country is to improve.

- *There is a lack of capacity for “translational research,” or what brings innovations directly to patients*¹⁸⁻²⁶. The U.S. Institute of Medicine (IOM) argues that “translational blocks” have impeded the translation of (1) basic science discoveries into clinical studies and of (2) clinical studies into medical practice and health decisions²⁰. Those factors responsible for these blocks are high costs, slow results, lack of funding, regulatory burdens, fragmented infrastructure, incompatible databases, and a shortage of qualified investigators and willing participants. In the United Kingdom, a recent report by the Academy of Medical Sciences (AMS) cited the lack of research funding for clinical trials, inadequate facilities to undertake patient-oriented clinical research, limited numbers of clinical academics, increasingly complex legal and ethical governance issues, and failings in the health services as contributing to the poor translation of research⁴. The concern that the scientific discoveries of the past generation have not been translated into a public human benefit has prompted some to ask why the return on investment has been so poor¹⁹.
- *The gap between the best, evidence-based practice and what actually happens is substantial*. Studies in the United States and the Netherlands suggest that 30 to 40 percent of patients do not receive care commensurate with current scientific evidence and that 20 to 25 percent of the care that is provided is not needed or could be harmful^{24,27-28}. This gap—the “know-do” gap between what we know about diseases and what we do to prevent and treat them—is expected only to widen^{19,29}. Moreover, there is currently little regulatory demand for doctors to participate in continuing medical education.
- *The gap between academics and practitioners is growing*. The “town-gown” competition often found between academic and community-based practitioners has been destructive and contradicts the goals of providing high-quality health care³⁰. Peters contends that a closer link between research and service is needed to cultivate the culture of science necessary to improve clinical services and provide conducive educational environments¹⁶. In the United States, the advent of managed care has required new funding arrangements and organizational structures, which in turn demand more effective “working alliances” between managed care organizations and academic medical centers^{31,32}.
- *It is becoming impossible for a person to be competent simultaneously in practice, research, and teaching*. Because of the enormous time pressures and competing demands of research, teaching, and clinical practice, many people believe that the traditional triad has become untenable^{4,13,14}. As the chief medical officer in England argued, “In the past, clinical academics were required to fulfill multiple roles—researcher, teacher, administrator, professional leader—but the growing demands in all these areas means that today’s ‘jack of all trades’ will be master of none”¹³.
- *The use of citation indices in research assessment is inappropriate and may be obstructive*. Traditional research assessment exercises have overemphasized the value of basic research; have underemphasized the importance of applied research that may bring more immediate benefits to patients³³ and perhaps have had an adverse effect on the numbers of clinical lecturers¹⁴; distorted the integrated approach to clinical practice, teaching, and research²⁴; and discouraged many

- university staff, especially those wholly funded by research grants, to spend time teaching¹⁶. The lack of appropriate measures for assessing the contribution of teaching has added to growing concern about shortages of doctors wanting to teach.
- *Fewer doctors want to pursue a career in research.* Even though the number of medical students is higher than it has ever been, there are more vacancies in clinical academic posts in the United Kingdom, where the number of clinical academic posts has fallen by 14 percent in only three years (2000–2003) while the number of medical students has increased by 28 percent¹⁴. In the United States, 50 percent fewer of the current medical students have expressed interest in a research career³⁴.
 - *Careers in academic medicine are discouraged by financial disincentives.* The article by Goldacre and his colleagues regarding junior doctors in the United Kingdom suggests that even though the intellectual challenge of academic medicine is appealing, the difficulties in obtaining solid research funding and uncertainty regarding pay parity with clinical colleagues are significant disincentives³⁵. In the United States, some evidence indicates that indebtedness reduces the likelihood that doctors will choose academic medicine as their primary activity³⁶; as tuition increases continue this is likely to persist. In most countries those doctors who pursue a career in research are likely to earn much less than those who spend at least some time in private practice¹⁰.
 - *The career path is unclear and inflexible.* A report by the Royal College of Physicians of London stated that at the heart of recruitment problems are the absence of a clear career path, the lack of flexible training opportunities, and insufficient mentoring. A recent American study found that 98 percent of its respondents cited the lack of mentoring as the first or second greatest obstacle to a successful career³⁷, despite suggestions that mentoring is good for medical academics in regard to career advancement, peer-reviewed publications and grants, career satisfaction^{38–40}, and perhaps retention⁴¹.
 - *Problems with career progression are particularly salient for women.* Despite graduating in unprecedented numbers from medical schools, women occupy only about 11 percent of faculty positions at the professor level^{38, 42, 43}. In the United Kingdom, 50 percent of applications for junior fellowships are from women, compared with only 12 percent of those for senior fellowships. In the United States, in 1999, women accounted for only 15 percent of the tenured faculty staff in academic medical departments and held just 6 percent of chairs⁴³. Furthermore, a growing body of research suggests that women ascend the ranks of academic medicine more slowly, to lower levels, and with less pay than do their male colleagues^{43–45}.
 - *Research is often not concerned with the biggest health problems.* This is particularly true in a global context. The 10:90 gap in which only 10 percent of global spending for health research is allocated to the health problems of 90 percent of the population appears unyielding^{46, 47}. Diseases for which there is little market value for drug development have been particularly neglected^{48, 49}, yet these both disproportionately affect people in poor countries and represent a sizable proportion of the global health burden. The assumption that those interventions shown to be effective in industrialized countries can be applied to developing countries, thus requiring a simple bridge

over the “know-do” gap, is claimed to be inaccurate ⁵⁰. In a recent review of the global evidence of community-based interventions for reducing perinatal and neonatal mortality in developing countries, Bhutta and colleagues reported that fewer than 5 percent of all randomized trials and systematic reviews of interventions were based on investigations in representative community settings ⁵¹.

- *Medical education does not prepare graduates for careers in modern medicine* ⁵². The IOM stated that undergraduate, graduate, and continuing medical education have not kept pace with patients’ needs, public expectations, technological advances, and changing organizational requirements and financing ⁷. Nor is medical education in sync with the goal of bringing high-quality health care into the twenty-first century ⁵⁻⁷. Thus far it has failed to be adequately patient centered, team oriented, and evidence based ^{5,7,53,54}. Medical students themselves are rarely part of the decision-making or planning processes.
- *The great pressures on health services and the introduction of health care reform mean that academic medicine is often squeezed*. On one hand, the incursion of the marketplace into academic medicine is worrisome. Some people fear that academic values will be lost ³⁴; others, that medical education will be compromised by commercial interests ⁵⁵. The Association of American Medical Colleges (AAMC) appointed a working group to consider how leaders in academic medicine could address the challenges of resource constraints and maintain quality in the medical schools ⁵⁶. Beyond private health care, the impact of health care reform and fiscal restraint is said to have had an adverse effect on academic medicine. The Canadian Institute for Academic Medicine reported that recent cuts in health care spending (which reduced the size and number of teaching hospitals and moved many previously inpatient services into ambulatory or outpatient settings) have hurt the quality of clinical education, the recruitment and retention of clinical academics, and funding arrangements for academic departments ⁵⁷.
- *In many countries, academic medicine lacks a well-resourced institution to speak for it*. The lack of basic infrastructure in many developing countries has meant an absence of academic medical institutions. Even countries with many resources, like Canada and the United Kingdom, have no formal organizations representing academic medicine to meet regularly with the government ⁵⁸. Yet academic medicine cannot expect to develop productive relationships with funders and planners without any national organizations lobbying for medical research and education ⁵⁸.
- *Leadership has often been inadequate*. The roles of academic medical centers have been unclear, and they may have missed opportunities to lead efforts in the innovation, early application, and dissemination of new knowledge and leadership ³⁰. With a growing consumerist movement and the plethora of unregulated health information, the role of academic medicine to act as an honest independent broker with both patients and practitioners is crucial yet largely unrealized ³⁰. The Association of American Medical Colleges asserted that academic medicine needs “deans and chairs who conceptualize their work as values-based and collaborative and who will build the consensus and garner the resources necessary for medical schools to become better learning organizations” ^{7 12}.

The Royal College of Physicians of London emphasized that failing to recruit academics of the highest caliber would lead to lower-quality medicine and poor leadership in the health service and universities ¹⁴.

- *Academic medicine relates poorly to its stakeholders: patients, policymakers, practitioners, the public, and the media.* As the recent trilateral consultation on the challenges of academic medicine asserted, academic medicine has failed too often to engage with the wider health community and local interests ⁵⁸. Not enough time has been spent interacting with citizen and patient groups and practitioners ³⁰, despite the importance of ensuring that the agenda of academic medicine properly reflects the concerns of populations ^{4,58}. Other people believe that academic medicine has failed to position itself adequately as part of global health human resources ^{59,60} and as part of a health sciences profession that includes nursing, public health, social work, and other stakeholders ³⁰. The value of academic medicine is not self-evident ¹². As Fox explained, before resources will flow, it is important to reestablish the “story” that can convince policymakers—and the public they represent—of the critical contribution of academic medicine ⁶¹.

DRIVERS OF THE FUTURE

Much of what will determine the future of academic medicine lies outside the control of the medical academics themselves. As the world changes around them, they must follow. But change will come from inside academic medicine, and its leaders must be prepared to face the drivers of the future. Table 2 shows some of the future drivers that the ICRAM group considered.

TABLE 2: DRIVERS OF CHANGE IN ACADEMIC MEDICINE

New science and technology, particularly genetics and information technology.
The rise of sophisticated consumers.
The feminization of medicine.
Globalization.
Emergent diseases.
The increasing gap between rich and poor.
The unimportance of distance.
The demand for more from health care by “big hungry buyers.”
The spread of the Internet and digitalization.
Managerialism.
Increasing anxieties about security.
The expanding gap between what can be done and what can be afforded in health care.
The lack of agreement on where “health” begins and ends.
The aging of society.
The increasing accountability of all institutions.
The loss of respect for experts.
The rise of self-care.
The rise of ethical issues.
The 24/7 society.
The economic and political rise of India and China.

SCENARIO PLANNING

Although ICRAM created a team to create a vision for the future of academic medicine, this proved to be difficult, as the group often could not agree. They disagreed, for example, over the importance of business, particularly pharmaceutical companies, to academic medicine. Would business interests destroy or enhance academic medicine?

Because the group needed to break the deadlock, it decided on scenario planning, a creative way of thinking about both the future and the present. Indeed, scenario planning can be valuable in addressing conflict, dilemmas, and stakeholders' often divergent opinions and values ¹⁷.

In the early 1970s, Royal Dutch Shell developed scenario planning, whose many roots include the work by Herman Kahn and the RAND Corporation for the American military. Scenario planning now is used widely by many nonprofit companies in both industrialized and nonindustrialized settings and even—as in South Africa—in whole countries. Shell defines scenarios as carefully crafted stories about the future embodying a wide variety of ideas that are integrated in a way that is both easy to understand and useful. Scenarios help link uncertainties about the future to decisions that must be made today.

Pierre Wack, one of the creators of scenario planning, described it in the *Harvard Business Review* as a process of “managerial assumption-smashing” ⁶²:

It is extremely difficult for managers to break out of their worldview while operating within it.

When they are committed to a certain way of framing an issue, it is difficult for them to see solutions that lie outside this framework. By presenting other ways of seeing the world, decision scenarios allow managers to break out of a one-eyed view. Scenarios give managers something very precious: the ability to re-perceive reality. (Translation by Anne Commons)

Shell developed scenario planning because its previous method of predicting and planning for one future had failed so often. Because predictions are almost always wrong, if planners work with one future rather than several, they will miss much of what will turn out to be important, particularly during times of discontinuous change, such as now. Indeed, scenario planning allowed Shell to prepare for the unexpected fall in the price of oil in the 1980s and helped it move from being the world's fourteenth-largest to its second-largest oil company.

Scenario planning is used in different ways and always by a group of people. The following are the basic components:

- Identify people who can contribute a wide range of perspectives.
- Conduct comprehensive interviews or run a workshop to find out from the participants the big changes they see coming in society, economics, politics, technology, and the like.
- Have the group identify patterns.
- Draw out the best ideas from the group.
- Have the group sketch rough pictures of the future based on these ideas.
- Elaborate on the scenarios and turn them into stories.
- Finally, offer the scenarios to several groups to use to think about different futures and what should be done now to prepare for them.

ICRAM used these methods with members of the group from different parts of academic medicine and from many different, including developing, countries.

It is important to remember that scenarios are not predictions or forecasts. Rather, they are plausible stories about the future that enhance thinking, conversation, and strategic planning. To be useful, the stories should be imaginative, flexible, engaging, and global. Finally, they should not be confined to one optimistic and one pessimistic view of the future.

FIVE SCENARIOS

The ICRAM group decided on a time span of 20 years, although some of their scenarios were more futuristic than others. We decided to write down the scenarios as if they had happened in the past in order to show better how they might happen in the future. We have not presented the scenarios in any particular order, and we emphasize that they reflect how we think the world might look, not how we want it to look. Table 3 contains a summary of the scenarios.

TABLE 3: SUMMARY OF SCENARIOS

	Academic Inc.	Reformation	In the Public Eye	Global Academic Partnership	Fully Engaged
Description	Academic medicine flourishes in the private sector.	All teach, learn, research, and improve.	Success comes from delighting patients, the public, and the media.	Academic medicine for global health equity.	Academic medicine engages energetically with all stakeholders.
Main Features	Medical research, training, and service are commercial business activities.	Academic medicine disappears; research and education integrated with health care.	Extreme consumerism; patients governing academic medicine; continual use of media.	Global cooperative networks devoted to redressing health inequalities and 10:90 gap.	Strong connections among patients, practitioners, policymakers, and the public.
Medical Education	Private medical schools, major investment in information and communication technology, and some niche schools (care of the elderly, rural medicine, etc.).	Teamwork; learning by doing; competency-based assessment.	Conducted by expert patients, with responsiveness to patients the key value.	Centered on improving global health, through partnerships between medical schools in the developing and developed countries.	Medical training is energized and community based, with students helping drive the agenda.

(continued next page)

TABLE 3: SUMMARY OF SCENARIOS

(continued)

	Academic Inc.	Reformation	In the Public Eye	Global Academic Partnership	Fully Engaged
Research	Privatized, takes place in array of different companies. Responsive to customers' needs.	Improvement of both research and quality, with translational research favored.	Patients determine priorities, through game shows or citizens' juries.	Public health and basic science equally valued.	Conducted by groups of diversely skilled individuals, including stakeholders.
Decision Making and Governance	Corporate governance.	Leadership provided by societies of practitioners and patients.	Bottom up: patients in charge.	Global governance made up of institutional networks, policymakers, politicians, and the public.	Dynamic organizations of all stakeholders to guide academic medicine.
Disadvantages	Efficiency and effectiveness trump equity; two-tier system; brain drain and 10:90 gap preserved; innovation may suffer.	Lacks stability because values are not shared; decision making sometimes slow; individuals sometimes not allowed to shine.	Advances in science and technology subject to fads and fashion; job insecurity among practitioners; little regulation of health information.	Idealistic; requires enormous political will and global cooperation.	Academic medicine may be perceived as "dumbed down"; may lose elite status, originality, and independent thinking.

**ACADEMIC INC.: "ACADEMIC MEDICINE
FLOURISHES IN THE PRIVATE SECTOR"**

Slowly but surely the public sector around the world realized that it could not support the cost of academic medicine. Because medical students earn a lot of money during their professional lifetime, why shouldn't they pay for their education? And if researchers are doing something valuable, then shouldn't they be able to find a market for their product, assuming that sometimes the public sector would pay them?

The movement of academic medicine almost entirely into the private sector started when more and more medical schools became private, beginning with the most prestigious schools. In an increasingly global market, these schools could charge high fees, pay their staff well, and upgrade their facilities. They also invested a great deal in information and communication technology, bringing state-of-the-art learning to their students. It meant, too, that the schools could offer courses to students far away from their geographical base. As these schools developed, they expanded internationally, sometimes forming alliances with other prestigious schools but also taking over the weaker schools. Soon the best schools were operating on all five continents. In the branches in developing countries, the medical student bodies tended to be made up of students from both the developed world and a quota from the developing countries.

Competition was intense and was based on both cost and quality. Although those schools that managed to improve quality while reducing costs—usually through the clever use of technology—flourished, a great many medical schools disappeared. The number of students, however, grew, and the competition for talent was intense, with schools offering generous scholarships to poor but bright students and becoming ever more sophisticated at finding high-quality students in deprived populations.

As in other intensely competitive markets, medical schools competed also by occupying niches. That is, the schools offered very different kinds of courses, such as specializing in older students, basic science, rural medicine, surgical skills, and training doctors for poor communities (in both the country where the medical school was based and in lower- and middle-income countries). Sometimes the students' fees were paid by governments, local communities, or the military in order to produce physicians who met their needs. Many students attended schools in countries other than their own. Some schools owned companies that produced and sold goods and services, whereas others were subsidiaries or departments of global corporations (e.g., McDonald's Hamburger University).

Health research was carried out almost entirely in the private sector, but in a wide range of organizations: pharmaceutical companies, medical schools, biotechnology companies, small companies offering a huge range of services, and charities. These companies were founded not only by researchers but also by patients, practitioners, and others. Many of the companies founded by academics offered complex and innovative health services. As in all businesses, to be successful these companies had to be highly responsive to the needs of their customers, including patients and governments. Those that were innovative, flexible, responsive, and relentlessly cost conscious flourished, but many of them "failed." Little stigma was, however, attached to "failure." Indeed, as in Silicon Valley, California, at the end of the twentieth century, the experience of "failure" was seen by many as an important qualification in a leader.

The injection of more competitive pressure and the business model into academic medicine made it not only more efficient but also more effective: research was much more relevant, and the "know-do"

gap between the development of new ideas and their introduction into practice was dramatically shortened. Basic science was still well funded because both governments and investors recognized the potentially high returns. Research on the health needs of poor and marginal populations also improved because public-sector bodies concentrated their resources on these problems, leaving the problems of the wealthier to the market.

On the negative side, applying the business model to academic medicine meant that efficiency and effectiveness trumped equity. Academic Inc. resulted in a two-tier system, with the rich finding it easy to pursue a career in academic medicine and the poor finding it hard to enter the profession, despite the generous scholarships available to some. In addition, much more attention continued to be paid to the health problems of wealthier people and countries, and the brain drain from poor to rich countries accelerated. Innovation also suffered. Private academic medicine enjoyed less lead time and had more direct and immediate accountability to its shareholders than it had when it was publicly funded.

**ACADEMIC INC.: "ACADEMIC MEDICINE FLOURISHES
IN THE PRIVATE SECTOR"**

Slowly but surely the public sector around the world realizes that it cannot support the costs of academic medicine. Because medical students earn a lot of money during their professional lifetime, why shouldn't they pay for their education? And if researchers are doing something valuable, why shouldn't they be able to find a market for their product, accepting that sometimes the public sector will pay?

- Medical schools become private, with many providing niche training.
- Fees and staff salaries are raised, and facilities and technology are cutting edge.
- Competition and pressure to reduce costs and improve quality are intense.
- Research is taken over by private companies.
- Successful companies are responsive to customers' needs (governments, researchers, patients).
- Many training and research companies fail.
- Overall efficiency and effectiveness of academic medicine improves, but equity suffers.
- A two-tier system results; the 10:90 gap persists; and the brain drain accelerates.
- Innovation often suffers because of the immediate accountability to shareholders.

**REFORMATION: "ALL TEACH, LEARN,
RESEARCH, AND IMPROVE"**

Twenty years ago there was increasing concern about the gap between academic medicine and practice because important research results were not being implemented, too much research was irrelevant, students were bored, and practitioners stopped learning. In some medical communities the response was not to try to strengthen academic medicine and make it more responsive but to abolish it and instead to bring teaching, learning, researching, and improving into the mainstream of health care. This innovative response, though not initially welcomed, proved to be highly successful and was copied everywhere. The century of academic medicine's estrangement ended. Professors disappeared. The entity known as "academic medicine" was gone. Its destruction was like that of the monasteries, and so this development became known as the "reformation of academic medicine."

Teaching, learning, researching, and quality improvement all began to take place in the practice setting, and they were everybody's business. The fiction that a single person could be competent simultaneously in practice, teaching, research, and improvement was disproved. Instead, it was teams that had to have all these competencies, not individuals, and substantial investments were made to get teams to work well and to communicate to a degree rarely before seen in health care.

The teams were supported by advanced technology that provided online learning, decision support, answers to questions that arose during practice, and access to research results. Patients did much of the teaching and research, and all the teams included patients as well as practitioners, students, professional researchers, and other health professionals.

Research was built around the questions that arose when doctors (and other health professionals) and patients consulted together. The questions were collected by the National Question Answering Service, which provided the answers using databanks of systematic reviews when possible. The service also organized research to answer questions that were frequently asked to which answers could be found later. Teams of different sizes and skills were assembled to conduct research. Some of the researchers were permanently in practice, but others, particularly basic researchers, were resident in research institutions and joined the teams as needed.

Some research was driven by discoveries made in basic science rather than questions that arose during practice; the fact that practitioners and researchers were used to working together in teams facilitated this "translational" research.

The teams also switched back and forth from research to quality improvement for both individuals and "the system," ensuring that new research reached practice. Studies reporting the results of quality improvement projects were published just as frequently as research studies were, and highly efficient information systems ensured that practitioners learned relevant information quickly, unlike the old days when practitioners were deluged with research results, most of which were not relevant to them.

Intellectual leadership in health care was provided by specialist societies, which included, as equal members, patients, researchers, and health professionals other than doctors. In most countries these specialist societies were gathered together into an academy or institute of health care, and an international academy was created that was much more than a talking shop, as it had a strong influence on world leaders.

Health students started their training by spending six months in institutions that taught them how to learn. The learning professionals who staffed these institutions were available to all the practice teams. Students then learned through their attachment to practice teams, starting with a period in general practice. Some students specialized early, with some becoming, for example, competent cardiologists within five years. Becoming an independent professional depended not on university degrees or exams but on a demonstration of competencies determined by a national body dominated by patients that used the most up-to-date methods of assessment.

Learning was by doing, and the divisions of undergraduate, specialist, and continuing education disappeared, as did the divisions among teaching, learning, researching, and quality improvement.

One problem with this reformation model was that it lacked stability because it required shared values and beliefs, which not all teams held. The need for local consensus meant that decision making could be slow. It was hard for brilliant and charismatic individuals to shine as leaders and thinkers owing to the team-based approach and the fact that the career path was much less structured, with none of the traditional arrangements like tenure and the protection of academic freedom. One result was that such individuals eschewed careers in health care, research, and teaching. Especially in developing countries, the lack of an academic medicine structure meant that there were fewer opportunities to influence medical research and training.

REFORMATION: “ALL TEACH, LEARN, RESEARCH, AND IMPROVE”

The gap between academic medicine and practice causes increasing concern, with important research results not being implemented, too much irrelevant research, bored students, and practitioners who stopped learning. The response is not to try to strengthen academic medicine but to abolish it and instead to bring teaching, learning, and researching into the mainstream of health care. This innovative response, although not welcomed at first, proves to be highly successful and is copied everywhere. A century of separate academic medicine ends, and professors disappear. “Academic medicine” is gone, a phenomenon like the destruction of the monasteries, and so it becomes known as the reformation of academic medicine.

- Education, research, and quality are improved in the practice setting.
- A medical academic no longer is a “jack of all trades” (teach, research, practice).
- A team approach is adopted, supported by advanced learning and communication technologies.
- Teams are made up of patients, multidisciplinary practitioners, students, and professional researchers (basic and clinical science).
- Research questions come from interactions between professionals and patients, and a national question-answering service provides evidence-based responses.
- Leadership comes from diverse specialist societies, which organize in an international academy that can influence world leaders.
- Medical students first learn how to learn and then learn by doing.
- Teamwork fosters learning, but not all teams have the same values, which threatens stability, consensus, and decision making.
- Brilliant individuals have difficulty shining as leaders.

**IN THE PUBLIC EYE: "SUCCESS COMES FROM
DELIGHTING PATIENTS AND THE PUBLIC AND
USING THE MEDIA"**

Academic medicine was slow to recognize the rise of global media, "celebrity culture," and the use of public relations (or spin) to drive the political process, but once it did acknowledge how the world had changed, it responded dramatically. Whereas once it had been suspicious of the media and public appeal and rather patronizing to patients, academic medicine realized that to succeed, it had to impress and satisfy patients and the public and learn how to use the media. The most successful academics were those who were very responsive to patients and the public, capturing their imaginations and appearing regularly on their television screens. Some medical academics became as well known as film and rock stars and were feted by politicians.

All academic institutions became dominated by public citizens and patients, and in all institutions, the public and media relations department became the most important one. Money, from both public and private sources, followed "interest," which referred to what interested the public and was often determined through game and "reality" shows on television. Academic medicine learned from sports, and large prizes were awarded to those who won academic competitions. Although some academics were horrified by these developments, others remembered how John Harrison had been stimulated to solve the problem of calculating longitude by the promise of a large prize.

Not all decisions regarding research priorities and the allocation of funds were made in the glare of television cameras. Although all decisions put the public interest first and were made by the representatives of the public, some still were made by more sedate and evidence-driven bodies like citizens' juries, in which randomly selected patients and members of the public were presented with detailed evidence by "experts."

Medical training was conducted in the public eye as well, with students receiving much of their training from expert patients. The agenda for training was set predominantly by the public and patients, and responsiveness to patients was the most prominent characteristic of successful doctors and students.

There was much greater diversity in the form and size of academic institutions than there had been at the beginning of the millennium. Both huge public and private universities and smaller institutions were often built around one charismatic individual. Competition among the institutions was intense, particularly for "celebrity" teachers and researchers. Only those institutions that could attract and keep the public's attention could survive.

In the developing countries, the academic health community was linked to strong consumer movements, such as those focused on HIV/AIDS, and the leading nongovernmental organizations (NGOs) established their own medical schools. These ensured that the public voice would be powerful, that training would be tailored to local needs, and that the group for field-testing new research advances would be committed.

On the negative side, medical academics felt more anxious about their job security and ability to succeed. Even celebrity academics worried that their time in the spotlight was short-lived. Advances in science, medicine, and technology were shaped by popular appeal and thus were subject to fads and fashion. Some patients struggled with their newfound status as governors, and health information was often not regulated.

IN THE PUBLIC EYE: "SUCCESS COMES FROM DELIGHTING PATIENTS AND THE PUBLIC AND USING THE MEDIA"

Academic medicine is slow to recognize the rise of global media, "celebrity culture," and the use of public relations (or spin) to drive the political process, but once it does, it responds dramatically. Whereas it once was suspicious of the media and public appeal and rather patronizing to patients, academic medicine realizes that to succeed, it must delight patients and the public and learn to use the media. The most successful academics are those who are very responsive to patients and the public, capturing their imaginations and appearing regularly on their television screens. Some medical academics become as well known as film and rock stars and are feted by politicians.

- Academic institutions become dominated by citizens and patients, with their public relations department the most important.
- Grants and prizes are awarded on academic game and reality shows.
- Citizens' juries also make decisions about research priorities and funding.
- Students receive most of their training from expert patients.
- The form and size of institutions range widely; competition is intense to hire the best teachers and researchers.
- Academic institutions have strong links with consumer movements and local NGOs.
- Academics are more anxious about their job security and ability to succeed.
- Because scientific advances are shaped by popular appeal, they are subject to fads.
- Health information is essentially unregulated.

**GAP (GLOBAL ACADEMIC PARTNERSHIP):
"ACADEMIC MEDICINE FOR GLOBAL
HEALTH EQUITY"**

In 2005 the world began to find the growing global gap between the rich and poor to be unacceptable. This concern was driven partly by the media and global travel, bringing the plight of the poor in front of the eyes of the rich, but it also was driven by anxieties about global security. Terrorism was seen as fueled by the obscene gap between rich and poor. Global policymakers also understood better—particularly after the report by the Commission on Macroeconomics and Health—that investments in health produced some of the richest returns in economic and social development. Indeed, health care was a “must have,” not a “nice to have.”

Money flowed into health in the poor world, and governments required that these investments be accompanied by learning, research, planning, and evaluation. The primary concern of much of academic medicine was improving global health, particularly by concentrating on the health problems of the 90 percent who had previously received only 10 percent of health care resources (the 90:10 gap). Academics became excited by this kind of work, not only because it was intellectually exciting and highly personally rewarding, but also because it was where prestige was most likely to be found. The result was that it was impossible for an academic institution to be a world leader without a substantial investment in global health and extensive links around the world.

The view and scope of academic medicine broadened to human rights, justice, economics, and the environment, recognizing these as the major drivers of health. This broader view meant that academic medicine (renamed “global health innovation” in 2012) became the main institution concerned with the rights of those who would be alive 50 years from now, a group that previously had had nobody to speak for them. But at the same time, basic science remained important because of its contribution to global problems like finding vaccines and new treatments for malaria, AIDS, and emerging diseases like RaSReV (rapidly spread respiratory virus), which appeared in 2010 and killed millions in a global pandemic.

Academic medicine, in partnership with governments (and, where corruption was prevalent, with NGOs), became a major driver toward achieving the millennium’s development goals. The G-8 governments (the world’s richest eight countries plus Russia) had signed an accord that prohibited the recruitment of academic health professionals from the developing world. Medical schools and research institutions formed networks linked to local NGOs made up of developing and developed countries and forming links among developing countries. In one network, the universities of industrialized countries gave 10 percent of their faculty members’ research time to address the problems of the developing world. Some institutions formed pairs of developing and developed country institutions; some merged; and researchers, teachers, and students moved regularly between both settings. The net flow was to the developing world, with the 90:10 divide beginning to correct itself surprisingly rapidly. Big investments in information and communication technology meant that those in the developing countries had the same access to information and modern learning methods as did those in the developed world.

The networks of institutions formed a global governance structure, with substantial input from politicians, practitioners, policymakers, the public, NGOs, and patients. Academic medicine moved from being marginal to central in global affairs, and medical academics, particularly those with

experience in both the Southern and the Northern Hemispheres, became global leaders. It was a development that happened naturally because of their broad interests in human rights, justice, and the environment.

The GAP scenario for academic medicine was idealistic and sometimes struggled to realize its full potential—despite the best intentions of its architects and practitioners—because it required enormous political will and global cooperation. Too often, nations would revert to narrow self-interest. Academics, as well, often longed for the comforts of the developed world and sometimes became exhausted from their extensive traveling and the enormous problems of the developing world.

GAP (GLOBAL ACADEMIC PARTNERSHIP): “ACADEMIC MEDICINE FOR GLOBAL HEALTH EQUITY”

The world begins to find the growing gap between the rich and poor to be unacceptable. This concern is driven partly by the media and global travel, bringing the plight of the poor to the attention of the rich, but it also is driven by anxieties about global security. Terrorism is recognized as fueled by the obscene disparities between rich and poor. Global policymakers also understand better that investment in health produces some of the richest returns in economic and social development. Health care becomes a “must have,” not a “nice to have.”

- The primary concerns and resources of academic medicine are to improve global health.
- The focus on global health offers intellectual stimulation and prestige to academics.
- Academics champion human rights, economics, and the environment as key determinants of health.
- Basic science remains important because of emerging global diseases.
- The G-8 governments sign an accord prohibiting the recruitment of academic health professionals from developing countries.
- Universities in the Northern Hemisphere commit 10 percent of their faculties’ time to the Southern Hemisphere.
- North–North and South–South academic partnerships and networks flourish.
- The 90:10 gap narrows rapidly.
- GAP is idealistic and suffers because political will and global cooperation are often lacking.

**FULLY ENGAGED: "ACADEMIC MEDICINE ENGAGES
ENERGETICALLY WITH ALL STAKEHOLDERS"**

Early in the new millennium, academic medicine became concerned that most of its relationships with its stakeholders were poor. The public had little or no understanding of what academic medicine was or why it mattered. To many, its very name implied irrelevance. Patients often felt patronized by academics, and many practitioners, including doctors, were not convinced of the value of academic medicine. Policymakers found that academics did not understand their problems and that the studies they produced came too late to be useful. Some of the leading academics did, however, have good relationships with politicians, who recognized that biotechnology might be very important to the creation of future wealth, but the public profile of academic medicine was both low and clouded.

Most medical academics admitted that they were doing a poor job of relating to stakeholders and that it thus was not surprising that they were misunderstood, underappreciated, and seen as largely irrelevant. This, they thought, was particularly unfortunate, as the ability of the system of health care to discover, think, study, learn, and evaluate had never been more important.

The community thus decided that it had to do better, and across the globe medical academics devised ways of becoming fully engaged with their stakeholders. In many countries this meant the creation of new organizations, and in others it required the transformation of existing ones. Fifty prestigious universities in developed countries with medical faculties partnered with at least one university in a developing country to help stop the "brain drain" and to replace it with a "brain gain" through incentive programs that provided resources for training and research, academic recognition, travel funds, and family support. Everywhere, medical academics had to learn how to communicate with the public, patients, and practitioners. They had to be more sensitive to the perception of their being elitist and patronizing and acknowledge the messiness of public discourse. They also had to be much cleverer in handling the media, telling them not only about their successes but also sharing their uncertainties and problems.

But communication on its own was not enough. Academic medicine had to bring its stakeholders inside the fold. The governance of academic institutions included patients, the public, and practitioners. Sometimes the president of an academy was not a distinguished researcher but a prominent patient. The medical academics discovered that their arguments were taken much more seriously when advanced clearly by a patient rather than by themselves. Patients became involved not only in peer reviews of grants and studies but also in the prioritizing, designing, and conducting of research. Medical students became the main drivers of medical education rather than simply its consumers. They insisted on rearranging the curriculum to ensure that they acquired and demonstrated competence in self-assessment of the crucial skills needed by doctors in today's society.

Slowly but surely, medical academics became not a group apart but a highly diverse group of people with a broad set of skills and backgrounds. They were at the center of a vibrant community of patients, members of the public, practitioners of all stripes, policymakers, members of the media, marketing experts, and politicians, all of whom were interested in learning, studying, researching, and thinking about health care.

But some academics found the change uncomfortable and were not convinced of its value. Critics talked of “dumbing down” and popularization. They worried that in abandoning its elitism, academic medicine had lost its ability to be truly original and speak independently.

For most, however, academic medicine was much more fun than it used to be. The number of applications to medical schools increased. Health services invested more in evaluating what they did and paid more attention to the results. More funds flowed into basic research, and the connections among the many different groups involved in research improved, with the result that intellectual fiefdoms were breached.

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Academic medicine realizes that most of its relationships with its stakeholders are poor. The public has little or no understanding of what academic medicine is or why it matters. Indeed, its very name implies irrelevance to many. Patients often feel patronized by academics, and many practitioners, including doctors, are not convinced of the value of academic medicine. Policymakers find that academics don’t understand their problems and that the studies they produce come too late to be useful. Some leading academics do have good relationships with politicians, who recognize that biotechnology may be very important to creating future wealth, but the public profile of academic medicine is both low and clouded.

- Medical academics worry that they are misunderstood, underappreciated, and seen as irrelevant.
- The main goal is to engage fully with the stakeholders of academic medicine: patients, practitioners, policymakers, and the public.
- New organizations are created, and existing ones are reshaped, embracing openness.
- The media are used to interacting with the public.
- Governance involves all stakeholders; sometimes the academy president is a prominent patient, journalist, or community leader.
- Medical students drive medical education rather than simply being its consumers.
- Medical academics diversify, and intellectual fiefdoms are breached.
- Critics worry about “dumbing down” and popularizing academic medicine.
- Academic medicine fights to remain truly original and independent.

USING THE SCENARIOS

These scenarios are tools, not ends in themselves. We want them to be used, not simply read. They are aids to learning, understanding, discussing, and planning and are best used by groups. They should be considered as a set, but those who want to use the scenarios should feel free to develop them in any way that they want. They also may need to be adapted to the particular social, economic, and political conditions of different regional and national settings.

TESTING ASSUMPTIONS

One use of scenarios is to test assumptions. Those who think about the future of academic medicine will have assumptions about the future, and often they are so ingrained that they are not even recognized. And people's assumptions differ. Discussions about scenarios can draw them out and explore them.

Many people, for example, probably assume that something called "academic medicine" will probably continue, along with the paraphernalia of professors, departments, degrees, medical schools, and academic centers. But the reformation scenario tells a story of academic medicine that has disappeared. Practice, research, teaching, learning, and improvement have become indivisible. Is this a plausible story? How could it happen? What would the consequences be? These are just some of the questions that a group might address, and even if they concluded that the scenario was implausible, their assumptions would have been revealed, shared, and tested.

Another assumption might be that academic medicine, particularly the training of medical students, will always take place mainly in the public sector. But according to the Academic Inc. scenario, this might not be the case. What would the implications be for national health services of such a scenario? Would such developments inevitably be accompanied by the privatization of health services and the disappearance of universal coverage? Is it necessarily inevitable that academic medicine will continue to be a public-sector activity? If the private sector became more active, what would the role of the public sector be?

At the very least, discussing the scenarios can expose assumptions, but it should also allow them to be tested and their implications to be explored.

RECOGNIZING UNCERTAINTY

One of the main functions of scenarios is to expose uncertainty. Even though many of us make confident statements about the future, particularly the near future, we cannot really know what it will bring.

Weeks before the Berlin Wall came down in 1989, the *Economist* was confident that such a development was years away. In a book on unemployment and health in the mid-1980s, one of us worried about the implications of a "leisure society," which at the time seemed to be arriving soon. Machines would replace employment; they would not give people endless new tasks. Now, though, such an idea seems ludicrous.

Anyone tempted to dismiss a scenario as "impossible" should be careful. The "impossible" can happen very quickly, and given a little more time, the "impossible" may be almost certain to arrive. Scenarios can look forward to any length of time in the future, but restricting them to the "inevitable" of the next year or two must be balanced with extending them to the "fantasies" of 50 years from now.

WIDENING PERSPECTIVES

Scenarios should help widen perspectives. For example, much of the thinking about the future of academic medicine is currently nationally bound. People forget the implications of globalization and the international influence of the Internet. The GAP scenario imagines a future in which the national has become much less important than the global. The rich are no longer cut off from the problems of the poor. In the world of Academic Inc., the national picture might be hugely influenced by the arrival of global medical schools.

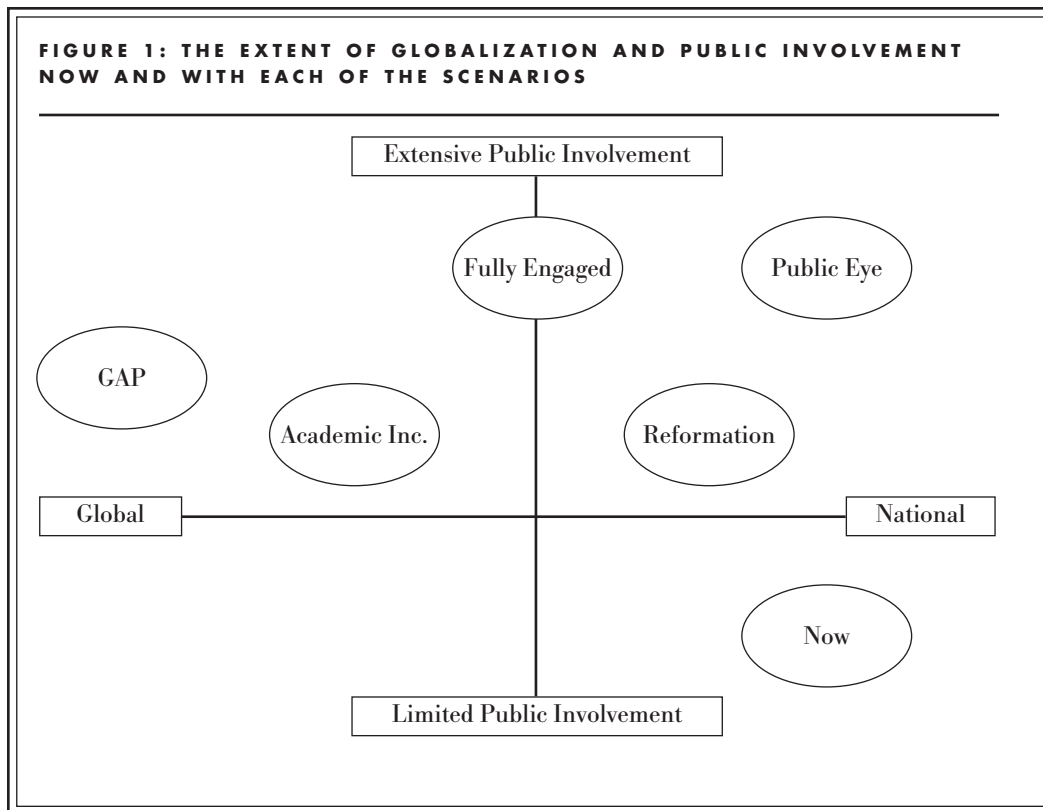
At a recent meeting to discuss whether three academic institutions should form strategic partnerships, somebody wondered how the partnerships, which were largely driven by immediate economic necessity, might fit into the future of academic medicine. Nobody had considered this question; instead, managers had concentrated on solving the immediate problem. Although discussion of the scenarios might have distracted them from the immediate problem, the time spent considering how the partnerships might look in each of the scenarios probably would have been well spent. The discussion might, for example, have exposed the largely hidden assumption that “bigger institutions were more likely to survive.” But is that true?

ADDRESSING DILEMMAS AND CONFLICTS

A potentially great advantage of talking about the future is that it may enable us to talk about current conflicts that may be so emotionally charged that they are hard to discuss. Indeed, to some extent, these scenarios grew out of an emotionally charged debate in academic medicine over the role of big business, particularly the pharmaceutical companies. Several people had strong views on whether such involvement was “good” or “bad,” and the discussion ended. The scenarios describe a time in which the role of big business might be very different and so make the discussion easier. Big business would probably be very prominent in the world of Academic Inc. but probably much less important in the world of reformation, although it is possible to imagine ways in which business might be very involved in such a world. This kind of thinking should lead to a better understanding of the different possible roles for business, and that understanding might be helpful in easing discussion about the current role of business.

DEEPENING UNDERSTANDING

Figures 1 through 3 show how the scenarios can be used to consider particular aspects of academic medicine, both in the future and at the present. How, for example, will the public be involved in academic medicine? Figure 1 suggests that in all the scenarios, although the public currently has little involvement in academic medicine, this is likely to increase. Not everybody might agree, but the figures and the scenarios encourage discussion. They also raise the question of whether one scenario should have the public less involved than now, with academic medicine becoming more elitist. But such a scenario seems implausible. The analysis suggests that instead, it is the current position that is uncomfortable, that the leaders of academic medicine should be thinking more about ways of involving the public in academic medicine.



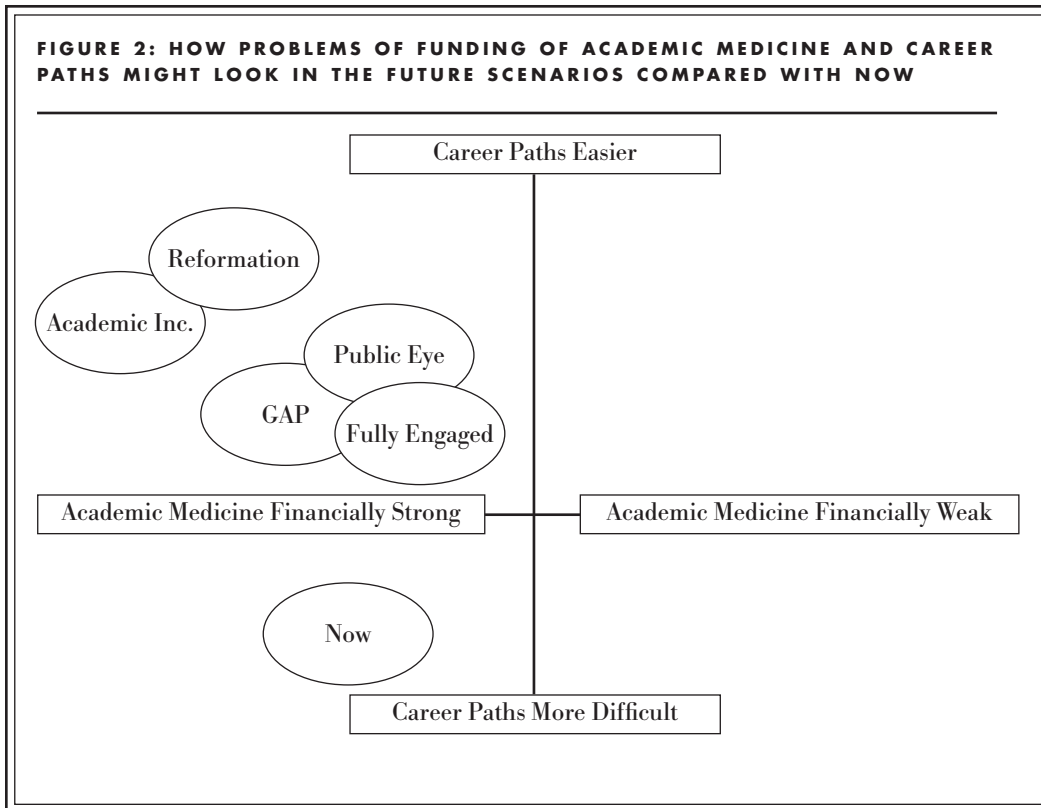
EXPLORING STRATEGIC QUESTIONS

These scenarios are intended to encourage broad, long-term, and strategic thinking, and they can be used to address particular strategic questions. For example, what might happen to primary care research, and how might it best be promoted? These are questions that the international leaders of primary care are currently considering. The next few paragraphs illustrate how the scenarios might help with these two strategic questions and also how they can help with other such questions.

Most countries conduct little primary care research, as they lack funding and capacity, and primary care research often has little prestige. Even in those countries where such research is established, it still must struggle to compete with other areas of research, like genomics. Primary care research also is an area that is more culturally bound than many others.

The Academic Inc. scenario may not encourage primary care research. There is little money to be made from it, and the fact that it is culturally bound might make it difficult for the global medical schools to undertake. To flourish in such a world, the leaders of primary care might need to work hard on the business case for such research and to consider how businesses could promote research and learning in primary care. These efforts are likely to be useful whichever way the world develops.

Primary care might be much more likely to flourish in the world of reformation. Most of health care is primary care rather than secondary care, and so closer links between service and academia would be



good for academic primary care. The leaders of primary care might do well strategically to promote links between service and academia, rather than emphasize the academic nature of primary care research in order to encourage greater respect from the scientific community.

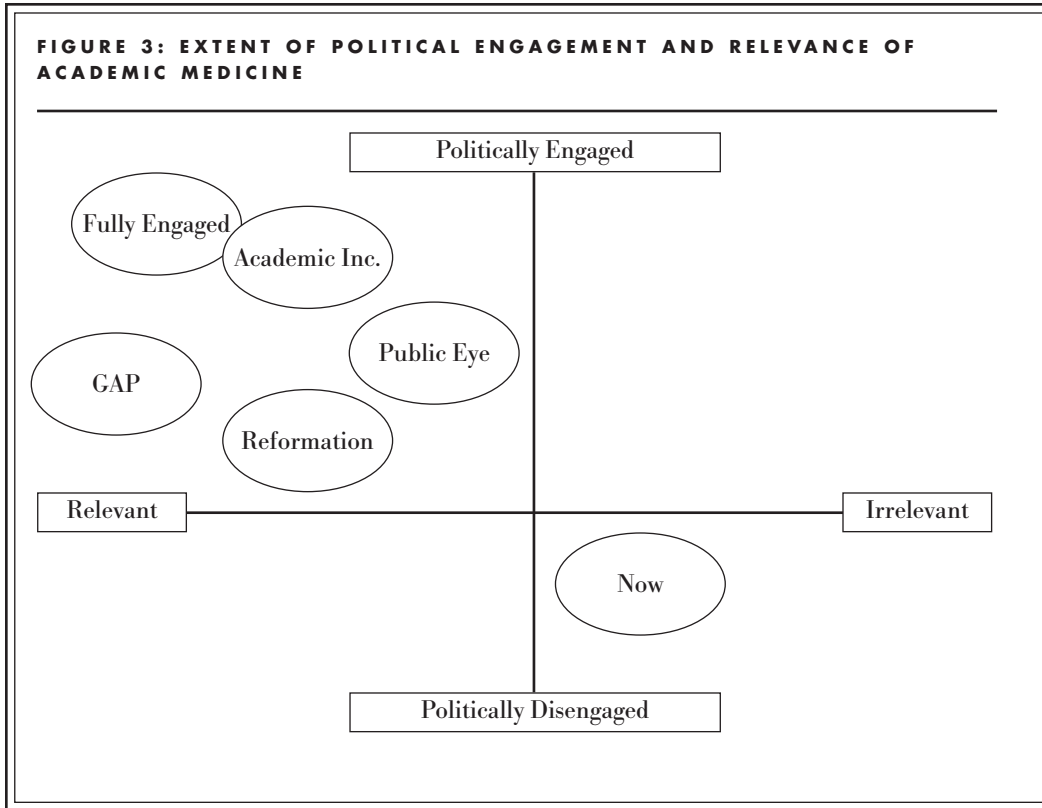
The public eye scenario might be difficult for primary care research to advance, because it is not glamorous and cannot easily be promoted on television. But could the leaders of primary care research find ways to “glamorize” their discipline? Again, a discussion about this might be useful whichever way the world moves.

In the GAP scenario, primary care research would probably have to be strongly emphasized, because primary care is affordable and can be made available to everybody in a way that other, more expensive forms of care cannot. Although primary care research is often culturally bound, the leaders of such research might respond by forming international organizations and forming links with those promoting international development (which has actually happened).

If the world moves in the direction of the fully engaged scenario, then it will be important for primary care researchers to invest resources in reaching out to all its stakeholders: politicians, patients, the public, practitioners, and policymakers. Primary care has a great deal to offer all these constituencies, and whatever the future holds, it almost certainly makes sense for researchers to build these links.

Contemplating these scenarios will not solve the problems of primary care researchers, but it should help generate strategic options and final decisions of which paths to take.

FIGURE 3: EXTENT OF POLITICAL ENGAGEMENT AND RELEVANCE OF ACADEMIC MEDICINE



SEARCHING FOR COMMON FEATURES: LESSONS FROM THE SCENARIOS

Scenarios often are used to search for common features that can lead to strategic paths that are likely to be useful no matter how the world develops. The preceding five scenarios share the following features:

- In all the scenarios, academic medicine puts more effort into relating to its stakeholders—the public, patients, practitioners, politicians, and policymakers—which may necessitate the creation of new institutions that involve all these groups.
- Academic institutions must be more globally minded.
- Teaching, researching, improving, leading, and providing service will continue to be important, but expecting individuals to be competent in all of these will become increasingly impractical.
- Although teamwork will become more important, individuals also must be allowed to shine and flourish.
- Competition among academic institutions is likely to increase and to become more international.
- In all the scenarios, academic institutions need to become more “businesslike” and more adept at using the media.
- Teaching and learning will become even more important, with one reason being that dissatisfied students may go elsewhere. Learning will be lifelong and depend heavily on information technology.
- It will be even more important to combine research, both basic and applied, with implementation and improvement. The gap between knowledge and practice will become increasingly intolerable.
- The range of types of academic institutions is likely to become more diverse, with medical schools or academic centers being just one of these types.
- The thinking and skills of academic medicine must become broader, combining with and learning from other disciplines like economics, law, ecology, and humanities.
- Thinking about the future will become both increasingly important and increasingly difficult for academic institutions.

Our main hope for these scenarios is that other groups may find them useful in thinking about both the present and the future of academic medicine. Importantly we have deliberately not drawn conclusions from these scenarios; instead, we have derived lessons from imagining what will be important whichever way the world goes. In other words, these are “lower common denominator” lessons that might form the basis for strategic planning across specific regional and national settings. The next steps are to share the scenarios widely, invite critical commentary and reaction, and begin a dialogue about action and strategies for the future of academic medicine. We hope the scenarios will initiate a collective dialogue about future innovative decision making. We do not seek agreement but, rather, broader thinking.

NOTES

1. Academy of Medical Sciences, The tenure track clinician scientist: A new career pathway to promote recruitment in clinical academic medicine, *The Savill Report* (London: Academy of Medical Sciences, 2000).
2. Academy of Medical Sciences, *Clinical Academic Medicine in Jeopardy: Recommendations for Change* (London: Academy of Medical Sciences, 2002).
3. Academy of Medical Sciences, *From Laboratory to Clinic—Translating Medical Science into Patient Benefit* (London: Academy of Medical Sciences, 2003).
4. Academy of Medical Sciences, *Strengthening Clinical Research* (London: Academy of Medical Sciences, 2003).
5. American Association of Medical Colleges, *Educating Doctors to Provide High Quality Medical Care: A Vision for Medical Education in the United States* (Washington, DC: AAMC, 2003).
6. Commonwealth Fund Task Force on Academic Health Centers, Envisioning the Future of Academic Health Centers, *Final Report*, February 2003.
7. Institute of Medicine of the National Academies, *Academic Health Centers: Leading Change in the 21st Century* (Washington, DC: Institute of Medicine of the National Academies, 2003).
8. Strategic Learning and Research Committee, Department of Health, Developing and sustaining a world class workforce of educators and researchers in health and social care, 9–20 (London: Department of Health, 2004).
9. Academic medicine: Resuscitation in progress, *CMAJ* 170 (2004):309.
10. Z.A. Bhutta, Practising just medicine in an unjust world, *BMJ* 327 (2003):1000–1.
11. J.A. Rottingen, P. Thorsby, C. Seem, and K.M. Gautvik, Medical research at Norwegian universities (in Norwegian), *Tidsskrift for Den Norske Laegeforening* 118, no. 15 (1998):2339–43.
12. J. Clark and P. Tugwell, Who cares about academic medicine? *BMJ* 329 (2004):751–2.
13. L. Donaldson, On the state of the public health, annual report of the chief medical officer, 36–43 (London: Department of Health, 2003). Available at <http://www.publications.doh.gov.uk/cmo/annualreport2003/focus.htm>.

14. Royal College of Physicians and Academy of Medical Royal Colleges, Clinical academic medicine: The way forward, a report from the Forum on Academic Medicine (London: Royal College of Physicians, 2004).
15. K. Peters, Exceptional matters, *Lancet* 364 (2004):2142–51.
16. M.E. Whitcomb, Sustaining biomedical research: A challenge for academic health centers, *Acad. Med.* 80 (2005):203–4.
17. UNAIDS, AIDS in Africa: Three scenarios to 2025 (UNAIDS, 2005). Available at http://www.unaids.org/en/AIDS+in+Africa_Three+scenarios+to+2025.asp.
18. N.S. Sung and W.F. Crowley Jr., Central challenges facing the National Clinical Research Enterprise, *JAMA* 289 (2003):1278–87.
19. C. Lenfant, Clinical research to clinical practice—Lost in translation? *NEJM* 349 (2003):868–74.
20. Institute of Medicine, *Crossing the Quality Chasm: A New Health System for the 21st Century* (Washington, DC: National Academy Press, 2001).
21. D.M. Berwick, Disseminating innovations in health care, *JAMA* 289 (2003):1969–75.
22. Canadian Institute of Health Research, Knowledge translation strategy 2004–2009, February 16, 2005. Available at <http://www.cihr-irsc.gc.ca/e/26574.html>.
23. M. Nylenna, A.S. Hansen, A.B. Storeng, and S. Westin, Dissemination of research—A neglected obligation (in Norwegian), *Tidsskrift for Den Norske Laegeforening* 124, no. 16 (2004):2088–90.
24. J. Grimshaw and M. Eccles, Is evidence-based implementation of evidence-based care possible? *MJA* 180 (2004):S50–1.
25. J.N. Lavis, D. Robertson, J.M. Woodside, C.B. McLeod, and J. Abelson, Knowledge Transfer Study Group. How can research organizations more effectively transfer research knowledge to decision makers? *Milbank Q.* 81, no. 2 (2003):221–48.
26. J. Lomas, Health services research, *BMJ* 327, no. 7427 (2003):1301–2.

27. M. Schuster, E. McGlynn, and R.H. Brook, How good is the quality of health care in the United States? *Milbank Q.* 76 (1998):517–63.
28. R. Grol, Successes and failures in the implementation of evidence-based guidelines for clinical practice, *Med. Care* 39(2001):II46–54.
29. T. Pang, A. Pablos-Mendez, and C. IJsselmuiden, From Bangkok to Mexico: Towards a framework for turning knowledge into action to improve health systems, *Bull. World Health Organ.* 82, no. 10 (2004):720–1.
30. H. Moses, S.O. Thier, and D.H.M. Matheson, Why have academic medical centers survived? *JAMA* 293 (2005):1495–1500.
31. K.M. Ludmerer, *Time to Heal: American Medical Education from the Turn of the Century to the Era of Managed Care* (New York: Oxford University Press, 1999).
32. T.D. Eppright, S. Bradley, and C. Sinkler, Managed care organizations and academic medicine: Establishing a more effective working alliance, *Missouri Medicine* 97(2000):441–3.
33. J. Banatvala, P. Bell, and M. Symonds, The Research Assessment Exercise is bad for UK medicine, *Lancet* 365 (2005): 458.
34. T.E. Andreoli, The undermining of academic medicine, *Academe*, March 22, 2005. Available at <http://www.aaup.org/publications/Academe/1999/99nd/ND99Andr.htm>.
35. M. Goldacre, Junior doctors' views about careers in academic medicine, *Med. Educ.* 33 (1999):318–26.
36. M. Fox, Medical student indebtedness and the propensity to enter academic medicine, *Health Econ.* 12 (2003):101–12.
37. V.A. Jackson and D. Farber, “Having the right chemistry”: A qualitative study of mentoring in academic medicine, *Acad. Med.* 78 (2003):328–34.
38. British Medical Association, Women in academic medicine—Challenges and issues, a report by Health Policy and Economic Research Unit at the request of the Medical Academic Staff Committee (London: British Medical Association, 2004).

39. S.E. Farrell, N.M. Digioia, K.B. Broderick, and W.C. Coates, Mentoring for clinical educators, *Acad. Emerg. Med.* 11, no. 12 (2004):1346–50.
40. R.A. Berk, J. Berg, and R. Mortimer, Measuring the effectiveness of faculty mentoring relationships, *Acad. Med.* 80 (2005):66–71.
41. D.L. Wingard, K.A. Garman, and V. Reznik, Facilitating faculty success: Outcomes and cost benefit of the UCSD, *Med.* 79 (2004):S9–11.
42. L.K. McGuire, M.R. Bergen, and M.L. Polan, Career advancement for women faculty in a U.S. school of medicine: Perceived needs, *Acad. Med.* 74 (2004):319–25.
43. Keeping women in hospital and academic medicine, *Lancet* 358 (2001):83.
44. C. Laine and B.J. Turner, Unequal pay for equal work: The gender gap in academic medicine, *Ann. Intern. Med.* 141 (2004):238–40.
45. J. Bickel, D. Wara, and B.F. Atkinson, Increasing women’s leadership in academic medicine: Report of the AAMC Project Implementation Committee, *Acad. Med.* 77 (2002):1043–61.
46. S. Ramsay, No closure in sight for the 10/90 health-research gap, *Lancet* 358 (2001):1348.
47. C.M. Michaud, C.J.L. Murray, and B.R. Bloom, Burden of disease: Implications for future research, *JAMA* 285 (2001):535–9.
48. G. Yamey, The world’s most neglected diseases. Ignored by the pharmaceutical industry and by public-private partnerships, *BMJ* 325 (2002):176–7.
49. C. Morel, Neglected diseases: Under-funded research and inadequate health interventions, *EMBO Rep.* 4 (2003):S35–8.
50. P. Buekens, G. Keusch, J. Belizan, and Z.A. Bhutta, Evidence-based global health, *JAMA* 291 (2004):2639–41.
51. Z.A. Bhutta, G.L. Darmstadt, and E.I. Ransom, *Using Evidence to Save Newborn Lives* (Washington, DC: Population Reference Bureau, 2003).

52. K. Ludmerer, Becoming a physician—Learner centered medical education, *NEJM* 351 (2004):1163–4.
53. *Through a Prism: Perspectives on a Cross Professions Skill Set, Proceedings of the 11th Congress of Health Professions Educators* (Washington, DC: 2004).
54. J.R. Frank and P. Tugwell, CanMEDS 2000, *Med. Teacher* 22, no. 6 (2000):549–54.
55. P.Y. Watson, A.K. Khandelwal, J.L. Musial, and J.D. Buckley, Resident and faculty perceptions of conflict of interest in medical education, *J. Gen. Intern. Med.* 20, no. 4 (2005):357–9.
56. J.L. Houpt, L.D. Goode, and R.J. Anderson, How medical schools can maintain quality while adapting to resource constraints, *Acad. Med.* 72 (1997):180–5.
57. Editorial Committee of the Canadian Institute for Academic Medicine, The effect of health care reform on academic medicine in Canada, *CMAJ* 154 (1996):1483–9.
58. *The Challenge to Academic Medicine: Leading or Following? Proceedings of the Fifth Trilateral Conference* (London: Nuffield Trust, 2005).
59. V. Narasimhan, H. Brown, A. Pablos-Mendez, O. Adams, G. Dussault, G. Elzinga, et al. Responding to the global human resources crisis, *Lancet* 363 (2004):1469–72.
60. L. Reichenbach and H. Brown, Gender and academic medicine: Impacts on the health workforce, *BMJ* 329 (2004):792–5.
61. D.M. Fox, From piety to platitudes to pork: The changing politics of health workforce policy, *J. Health Politics Policy Law* 21 (1996):825–44.
62. P. Wack, Scenarios: Uncharted waters ahead, *Harvard Bus. Rev.*, September/October 1985, 139–50.

REFERENCES

- Abbasi, K. The four pillars of global academic medicine. *BMJ* 329 (2004).
- Academic medicine: Resuscitation in progress. *CMAJ* 170 (2004):309.
- Alcolado, J.C. Commentary: Funding will make you free. *BMJ* 329 (2004):797.
- Baker, M., B.S. Singhal, and M. Menken. Governance of academic medicine should be with public trustees. *BMJ* 329 (2004):798.
- Bell, J. Resuscitating clinical research in the United Kingdom. *BMJ* 327 (2003):1041-3.
- Bhutta, Z.A. Practising just medicine in an unjust world. *BMJ* 327 (2003):1000-1.
- Bosman, F. Academic medicine: Dream or nightmare? *CMJ* 45 (2004):371-4.
- Burger, E.J., L. Ziganshina, and A.U. Ziganshin. Academic medicine in Russia. *CMJ* 45 (2004):674-6.
- Chalmers, I., C. Rounding, and K. Lock. Descriptive survey of non-commercial randomised controlled trials in the United Kingdom, 1980-2002. *BMJ* 327 (2003):1017-20.
- Charlton, B.G., and P. Andreas. Campaign to revitalise academic medicine: Is the bubble due to burst for medical research funding? *BMJ* 329 (2004):294.
- Clark, J. Academic medicine: Time for reinvention: Summary of responses. *BMJ* 328 (2004):49.
- Clark, J. Polishing the tarnished image of academic medicine. *BMJ* 328 (2004):604.
- Clark, J., and R. Smith. BMJ Publishing Group to launch an international campaign to promote academic medicine. *BMJ* 327 (2003):1001-2.
- Clark, J., and P. Tugwell. Who cares about academic medicine? *BMJ* 329 (2004):751-2.
- Clarke, M.P. Reform of undergraduate medical teaching in the United Kingdom: Evangelism triumphs over common sense for ophthalmology. *BMJ* 329 (2004):799-800.
- Dandona, L., N. Tandon, and P. Sahni. Academic medicine and health improvements in India (editorial). *National Medical Journal of India* 18 (2005):53-8.

- Donev, D.M. Revitalization of academic medicine in Macedonia—An urgent need. *CMJ* 45 (2004):677–83.
- Eldar, R. Academic medicine and quality of medical care. *CMJ* 45 (2004):256–8.
- Elijovich, F. Campaign to revitalise academic medicine: Funding needs to be on the discussion table. *BMJ* 328 (2004):1376.
- Fatović-Ferenčić, S. Free the dinosaurs into butterfly gardens: In a search for changing the profile of the academic professional. *CMJ* 45 (2004):375–7.
- Fenderson, B.A., and D.A. Fenderson. Balancing traditional values in academic medicine with advances in science and technology. *CMJ* 45 (2004):259–63.
- Fielder, A.R. Campaign to revitalise academic medicine: Crisis in UK academia affects academic medicine too. *BMJ* 328 (2004):1376.
- Fox, C. Reform of undergraduate medical teaching in the United Kingdom: Students are too many to be assessed individually in general hospitals. *BMJ* 329 (2004):799.
- Gamulin, S. Academic approach to academic medicine. *CMJ* 45 (2004):245–7.
- Gray, J.D. Campaign to revitalise academic medicine: A road map needs to be drawn for the 21st century. *BMJ* 328 (2004):1377–8.
- Hart, J.T. Reform of undergraduate medical teaching in the United Kingdom: Unfunded reform always ends in reaction. *BMJ* 329 (2004):799.
- Haug, C. Redefining academic medicine (in Norwegian). *Tidsskrift for Den Norske Laegeforening* 124, no. 9 (2004):1225.
- Haynes, R.B. Campaign to revitalize academic medicine. *ACPJ. Club*. 140, no. 3 (2004):A13.
- Hiley, C., and A. Robertson. The international campaign to revitalise academic medicine. *Ann Intern Med*. 142, no. 5 (2005):390–1.
- International Working Party to Promote and Revitalise Academic Medicine. Academic medicine: The evidence base. *BMJ* 329 (2004):789–92.

International Working Party to Promote and Revitalise Academic Medicine. ICRAM (the International Campaign to Revitalise Academic Medicine): Agenda setting. *BMJ* 329 (2004):787–9.

Inês Schmidt, M., and B. Duncan. Academic medicine as a resource for global health: The case of Brazil. *BMJ* 329 (2004):753–4.

Kardas, P. Dilemma of an indigent country: Is academic medicine a good investment? *CMJ* 45 (2004):553–5.

Kmietowicz, Z. Campaign for academic medicine calls for radical thinking. *studentbmj* 12 (2004):265.

Kullmann, L., and T. Kullman. Are problems of academic medicine a new phenomenon? *CMJ* 45 (2004):550–2.

Lempp, H., and C. Seale. The hidden curriculum in undergraduate medical education: Qualitative study of medical students' perceptions of teaching. *BMJ* 329 (2004):770–3.

Maaroos, H.I. Family medicine as a model of transition from academic medicine to academic health care: Estonia's experience. *CMJ* 45 (2004):563–6.

MacQueen, R. Campaign to revitalise academic medicine: Academic medicine needs teeth. *BMJ* 328 (2004):1377.

Mandić, Z., and Z. Vatauk. Caring for academic ophthalmology in Croatia. *CMJ* 45 (2004):264–7.

Marušić, B. Academic medicine: One job or three? *CMJ* 45 (2004):243–4.

Marušić, M. “Complementary and alternative” medicine—A measure of crisis in academic medicine. *CMJ* 45 (2004):684–8.

Mayor, S. Report calls for action to improve careers in academic medicine. *BMJ* 330 (2005):8.

Morrison, J. Reform of undergraduate medical teaching in the United Kingdom: Evidence base for problem based learning is growing. *BMJ* 329 (2004):798–9.

Muula, A.S., and C. Lau. Academic medicine in a southern African country of Malawi. *CMJ* 45 (2004):556–62.

- Novick, W.N. Academic cardiac surgery in Croatia: Perspective through eyes of an international collaborator. *CMJ* 45 (2004):384–8.
- Payne, J. Reform of undergraduate medical teaching in the United Kingdom: “Problem based learning” v “traditional” is a false debate. *BMJ* 329 (2004):799.
- Phillips, P.A. Campaign to revitalise academic medicine: Focus on health care is needed. *BMJ* 328 (2004):1377.
- Porter, B. Campaign to revitalise academic medicine: Isolation hinders academic medicine. *BMJ* 328 (2004):1376.
- Reichenbach, L., and H. Brown. Gender and academic medicine: Impacts on the health workforce. *BMJ* 329 (2004):792–5.
- Ridd, M., C. Emmett, and R. Hardwick. Academic medicine has pitfalls for junior researchers. *BMJ* 329 (2004):798.
- Sackett, D. Campaign to revitalise academic medicine: Don’t believe us. *BMJ* 329 (2004):294.
- Sewankambo, N. Academic medicine and global health responsibilities. *BMJ* 329 (2004):752–3.
- Šimunović, V.J., H.G. Sonntag, and A. Horsch. Temptation of academic medicine: Second alma mater and “shared employment” concepts as possible way out? *CMJ* 45 (2004):378–84.
- Stefanović, V. Academic medicine—Experiences from Finland and suggestions for the future. *CMJ* 45 (2004):248–353.
- Stewart, P.M. Improving clinical research. *BMJ* 327 (2003):999–1000.
- Švab, I., and M. Bulc. Academic medicine: What does an outsider have to offer? *CMJ* 45 (2004):254–5.
- Terpenning, M.S. Campaign to revitalise academic medicine: Direction of academic medicine is worrying. *BMJ* 328 (2004):1377.
- Tugwell, P. The campaign to revitalise academic medicine kicks off. *Med. J. Aust.* 19 (2004):372–3.
- Tugwell, P. Campaign to revitalise academic medicine kicks off. *BMJ* 328 (2004):597.

Tugwell, P. The campaign to revitalise academic medicine kicks off. *Lancet* 363 (2004):836.

Tugwell, P. The campaign to revitalise academic medicine kicks off. *Pediatrics & Child Health* 9 (2004):6.

Tugwell, P. The campaign to revitalize academic medicine kicks off: We need a deep and broad international debate to begin. *CMJ* 45, no. 3 (2004):241-2.

Twisselmann, B. Reform of undergraduate medical teaching in the United Kingdom: Summary of responses. *BMJ* 329 (2004):800.

Underwood, T.J. Academic medicine: What's in it for me? *studentbmj* 12 (2004):350.

Vassallo, J. Academic medicine: Can we afford to ignore this ailing entity? *Malta Medical Journal* 16, no. 2 (2004):6-7.

Walmsley, J. What funders and others can do to help save clinical academic medicine. *BMJ* 329 (2004):806.

White, K.L. Campaign to revitalise academic medicine: Some thoughts for academic revisionists to consider. *BMJ* 328 (2004):1378.

Wilkinson, D., and R. Ward. International Campaign to Revitalize Academic Medicine (ICRAM): What does it mean for Australia? *Med. J. Aust.* 181, nos. 11/12 (2004):658-9.

Wright, J.G., and J.H. Wedge. Clinicians and patients' welfare: Where does academic freedom fit in? *BMJ* 329 (2004):795-6.

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