

## The Future of Academic Medicine

Ana Marušić

Croatian Medical Journal  
Zagreb University School of Medicine,  
Zagreb, Croatia

Corresponding author:  
Ana Marušić  
Salata 3  
10000 Zagreb  
Croatia  
e-mail: [ana.marusic@agram.mef.hr](mailto:ana.marusic@agram.mef.hr)

Received: 05. 09. 2006  
Accepted: 25. 09. 2006

**Note:** This editorial was prepared from the published articles on ICram activities and the Power Point presentation on the five scenarios of futures of academic medicine in 2025, prepared by Dr Jocalyn Clark, *British Medical Journal*. The presentation of the scenarios was used by the author of this editorial for lectures on several occasions, including the Symposium on "Gefährdung der universitären Medizin", Neue Universität Heidelberg, 22 July 2005; 10<sup>th</sup> "Grazer Konferenz" on "Curriculum Development as an Ongoing Process" in Vienna, 11-13 May 2006; and the Symposium on "Ethics and Medicine: Today and Tomorrow" in Zagreb, 24 November 2006.

**Key words:** Education, Medical; Schools, Medical; Biomedical Research; Evidence-Based Medicine; Bosnia-Herzegovina.

Academic medicine is usually defined as a triad of teaching, research and practice in medicine (1, 2). More broadly, it can be defined as the "capacity of the health-care system to think, study, research, discover, evaluate, innovate, teach, learn, and improve" (3). Although these attributes of academic medicine make it crucial for the improvement of health, there are many voices in the academic medical community that worry about the future of academic medicine (3). Many national and professional bodies in medicine discussed this problem and especially the many deterrents to pursuing a clinical academic career for young physicians. For example, the Academy of Medi-

cal Sciences in the UK, published in 2002 its report "Clinical Academic Medicine in Jeopardy: Recommendations for Change"; and the American Association of Medical Colleges released in 2004 their analysis of medical education system in the USA, entitled "Educating Doctors to Provide High Quality Medical Care: A Vision for Medical Education in the United States" (3).

Editors of medical journals, which are an important part of academic medicine, have also become aware of the problems in academic medicine, and decided to promote the discussion about the future of academic medicine at the beginning of the new millennium. *BMJ*, *Lancet*, and 40 other jour-

nals, including the *Croatian Medical Journal* (1, 4), in 2003 launched a global initiative to develop a new vision for the place of academic medicine in the global community. The first result of this initiative was the formation of the ICRAM – the International Campaign to Revitalize Academic Medicine (5, 6). The goal of this campaign was to offer young medical academics an opportunity to think about the future of academic medicine in a novel way and globally.

ICRAM is run by a working party of 20 medical academics (Table 1), nominated by colleagues from their academic communities. They represent 14 countries, half of the members are women, and half of them come from medium or low income countries. The ICRAM Working Party is chaired by the Leader of the Campaign, Prof. Peter Tugwell from the Centre for Global Health at the University of Ottawa, Canada; and the Campaign Coordinator is Dr Jocalyn Clark, Assistant Editor at the *BMJ*. (Table 1.)

As the contribution to the ICRAM, the *Croatian Medical Journal* published a series of 23 essays on academic medicine, both from the developed countries (7, 8) and developing and newly emerging countries (9-14). These challenging and thought-provoking articles from experts coming from 20 different countries all over the world were published as a separate book (15).

### **ICRAM Goals and Activities**

The goal of the ICRAM Working Party was to produce a series of evidence-based recommendations for reform in global academic medicine by developing a vision and values of academic medicine, discuss strategies for building capacity of academic medicine, including better career paths, and proposing how academic medicine could improve its relationships with other stakeholders – patients, policy makers, funders, and health practitioners (5, 6). To reach these goals,

the ICRAM Working Party used different methodology: a) systematic reviews of the research on different aspects of academic medicine, b) regional meetings with academics from different areas to assess local specificities and needs, c) consultations with all stakeholders in academic medicine, and d) discussing and developing vision and values of academic medicine in future.

So far, four systematic reviews were conducted by the ICRAM members (Sharon Strauss from Canada, John Ioannidis from Greece, and I from Croatia) and their collaborators: 1) patient outcomes in academic vs. non-academic health institutions (16); 2) role of mentoring in academic medicine (17); 3) career choices in academic medicine (18); and 4) funding of clinical research (19).

To increase awareness of medical students and young physicians about possible careers in academic medicine, Gretchen Purcell, ICRAM Working Party member from the USA, published a series of articles in the *BMJ Career Focus* (<http://careerfocus.bmjournals.com/>), presenting exceptional individuals who chose careers in academic medicine and their advice to aspiring academics.

Members of the ICRAM Working Party also convened advisory groups of different stakeholders, as well as seven regional meetings, modeled after the regions of the World Health Organization.

### **Scenarios on the Future of Academic Medicine**

Working on the visions and values of academic medicine, revealed many differences in opinions among the members of the Working Party (3). We could not agree on the values of academic medicine: was it to compete (to earn more) or to provide public service. We also disagreed on the role of the private sector, especially the pharmaceutical industry, and its importance for academic medicine of today and tomorrow – would

Table 1. Members of the International Campaign to Revitalize Academic Medicine, ICRAM (4)

Peter Tugwell, <i>Leader of the Campaign</i>	University of Ottawa, Institute of Population Health, Ottawa, Canada
Jocalyn Clark, <i>Campaign Coordinator</i>	Assistant Editor, BMJ, London, UK
<i>ICRAM Working Party Members:</i>	
Tahmeed Ahmed	Clinical Sciences Division, ICDDR, Dhaka, Bangladesh
Shally Awasthi	Department of Paediatrics, King George's Medical University Lucknow, India
Mark Clarfield	Department of Geriatrics, Soroko Hospital, Ben Gurion University, Beersheva, Israel
Lalit Dandona	Centre for Public Health Research, Administrative Staff College, Hyderabad, India
Amanda Howe	School of Medicine, University of East Anglia, Norfolk, UK
John Ioannidis	Department of Hygiene and Epidemiology, University of Ioannina, Ioannina, Greece
Edwin Jesudason	Department of Child Health, University of Liverpool, Liverpool, UK
Juan Manuel Lozano	Department of Pediatrics and Clinical Epidemiology, Javeriana University, Bogota, Colombia
Youping Li	Chinese Cochrane Centre, West China Hospital, Chengdu, China
Ana Marušić	Department of Anatomy and Croatian Medical Journal, Zagreb University School of Medicine, Zagreb, Croatia
Idris Mohammed	Department of Immunology and Infectious Diseases, University of Maiduguri, Maiduguri, Nigeria
Gretchen Purcell	Department of Surgery, Pittsburgh Children's Hospital, Pittsburgh, IL, USA
Karen Sliwa-Hähnle	CH Baragwanath Hospital, University of Witwatersrand, Johannesburg, South Africa
Sharon Straus	Department of Medicine, Toronto General Hospital, Toronto, Canada
Tessa Tan-Torres Edejer	Department of Health Systems Financing, Expenditure and Resource Allocation, WHO, Geneva, Switzerland
Tim Underwood	Cancer Sciences Division, University of Southampton, Southampton, UK
Robyn Ward	Department of Medical Oncology, St Vincent's Hospital, Darlinghurst, Australia
Michael Wilkes	School of Medicine, University of California Davis, Davis, CA, USA
David Wilkinson	Mayne Medical School, University of Queensland, Brisbane, Australia

business interests threaten or save academic medicine?

In such a deadlock, we decided to use the methodology of scenario building, which is often used by commercial companies for short-term decision making and long-term strategic planning. In the process of scenario building, alternative futures are developed as credible stories which are not predictive but are plausible. Building such scenarios helps to stretch thinking about the future, allows richer conversations, and addresses conflicts, disagreements, dilemmas and divergent opinions.

Scenario building has proven useful not only for planning business strategies but also in different situations and settings, such as the Mont Fleur scenarios undertaken in South Africa during the post apartheid tur-

moil about the Future of South Africa (16), the vision of AIDS problem in 2025 by UNAIDS (17), or the future of patient-centered care in 2015 by Picker Institute (18).

When several ICRAM Working Party members met in London on the 7<sup>th</sup> to the 9<sup>th</sup> February 2005 to work on the scenarios, I thought that we would do our job very quickly – we would sit down and write how we imagine the future. However, we soon learned that scenario building is structured process, requiring team work and exploring different perspectives, including the considerations of instabilities of the present and the drivers for the future. Among the main instabilities we identified in the present academic medicine (3, 23), the most prominent were the unsustainability of the “teaching-research-practice” triad of academic medi-

cine; “brain drain”; poor career incentives; poor translation of research, both from basic science into clinical studies and from clinical studies into medical practice and health decisions; and poor relationships with stakeholders. Globalization and feminization of medicine, as well as new internet and communication technologies were identified as important drivers for the future.

We then imagined the future after a span of 20 years and wrote up five scenarios, some less and some more futuristic from the perspective of 2025 (3, 23).

#### ***First Scenario: Academic Inc.***

In this scenario, academic medicine flourished in the private sector (3): “Slowly but surely the public sector around the world realized that it could not support the costs of academic medicine. Medical students had high earnings during a professional lifetime: why shouldn’t they pay for their education? And if researchers were doing something valuable then shouldn’t they be able to find a market for their product – accepting that sometimes payment would come from the public sector?”

Medical schools became private, with deans acting rather like Chief Executive Officers (CEO) of a company than academics. Many schools targeted specific populations and provided niche training, such as for older students, or in community medicine, or surgery. Schools asked high fees from students, and used the resources for high staff salaries as well as for purchase of cutting edge facilities and technology. There was intense competition and pressure to reduce costs and improve quality, and research took place in range of private companies. Successful companies-medical schools were responsive to the needs of their customers – governments, researchers, or patients. Academic medicine became a great market field, where innovative, flexible, responsive, and cost-conscious

and cost-reducing companies flourished, and those less competitive failed. With such competitiveness, overall efficiency and effectiveness of academic medicine improved, but equity suffered – with the rich easily creating careers in academic medicine and the poor becoming increasingly disadvantaged to enter the profession. Also, “brain drain” accelerated, and innovation in research often suffered because the shareholders were more interested in financial outcomes than in exploring novel but high-risk ideas.

#### ***Second Scenario: Reformation***

In this scenario, all members of academic medicine teach, learn, research, and improve, following “the death of academic medicine” (3): “There was increasing concern about the gap between academic medicine and practice with important research results not being implemented, too much irrelevant research, bored students, and practitioners who stopped learning. The response was not to try and strengthen academic medicine but to abolish it and instead to bring the processes of teaching, learning, and researching into the main stream of health care. This innovative—though not initially welcomed—response proved to be highly successful and was copied everywhere. A century of separation of academic medicine was ended. Professors disappeared. The entity “academic medicine” was dead. It was akin to the destruction of the monasteries and so became known as the reformation of academic medicine.”

In this scenario, medical schools ceased to exist as entities, and education, research, and quality improvement took place in the practice setting. The triad of teaching, research and practice was not any more a requirement for an academic – team approach was adopted, supported by advanced learning and communication technologies. Team members were health practitioners, stu-

dents, researchers in basic or clinical medicine, and patients. Research questions arose in professional-patient interactions and special national services provided evidence based responses. Leadership came from diverse specialist societies, which joined together in an international academy with great social and political influence. Medical students spent the first six months learning how to learn, then learned by working in a team, starting with a round in general practice. Some students specialized early, some becoming competent specialists within five years, as there was no distinction among undergraduate, specialist, and continuing education.

Team work fostered learning, but the failings of this approach were in the fact that not all teams held shared values, which threatened stability, consensus, and decision making. Team structure also often prevented brilliant individuals to shine as leaders.

### ***Third Scenario: In the Public Eye***

In this scenario, success in academic medicine comes from delighting patients and the public, and using the media (3): “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 it responded dramatically. Whereas it had once been suspicious of the media and public appeal and rather patronizing to patients, academic medicine realized that to succeed it must delight patients and the public and learn to use the media. The most successful academics became 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.”

In this scenario, the patients and the public became the center force of academic

medicine. The most important department at medical schools became that for public and media relations because the school’s priorities and activities became dominated by the public, i.e. the patients. Students received most of their training not from medical academics but from expert patients. There was a great diversity in the form and size of institutions, and the competition was intense for the best teachers and researchers. Academic institutions had strong links with consumer movements and local non-governmental organizations. Financial support for research came from media “interest”, similar to TV games and reality shows. The downsides of this scenario were manifold, including increased anxiety of academics about their job security and ability to succeed, because scientific advances and clinical practice were shaped by popular appeal, so subject to fashion and not evidence. Also, there was very little regulation of health information.

### ***Fourth scenario: Global Academic Partnerships***

This scenario described how academic medicine contributed to global health equity (3): “The world began to find the growing gap between the rich and poor unacceptable. The 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 was also driven by anxieties over global security. Terrorism was recognized to be fuelled by the obscene disparities between rich and poor. Global policy makers also understood better that investment in health produced some of the richest returns in economic and social development. Health care was a “must have” not a “nice to have.”

The primary concern and goals of academic medicine were to improve global health. A global health focus offered academics intellectual stimulation and prestige, and Academics championed human rights,

economics, and the environment as key determinants of health. Basic science remained important because of emerging global diseases. The richest (G8) governments signed an accord that prohibited recruitment of academic health professionals from developing countries, thus alleviating brain drain from these academic settings. Universities in the North committed 10% of faculty time to the South; North-South and South-South academic partnerships and networks were established and worked to the benefit of all partners.

The 90:10 gap between the developed and developing nations narrowed rapidly. GAP was idealistic and suffered because political will and global cooperation were often lacking.

#### ***Fifth Scenario: Fully Engaged***

In this scenario, academic medicine engaged energetically with all stakeholders (3): “Academic medicine realized that its relationships with its stakeholders were mostly poor. The public had little or no understanding of what academic medicine was or why it mattered. Its very name implied irrelevance to many. Patients often felt patronized by academics, and many practitioners—including doctors—were unconvinced of the value of academic medicine. Policy makers found that academics didn’t understand their problems and that the studies they produced came too late to be useful. Some leading academics did have good relationships with politicians, who recognized that biotechnology might be very important in future wealth creation, but the public profile of academic medicine was both low and clouded.”

Medical academics worried that they were misunderstood, underappreciated, and seen as irrelevant by the public. The main goal of academic medicine became to engage fully with the stakeholders of academic medicine—patients, practitioners, policy makers, and the public. New organizations were cre-

ated, and existing ones were reshaped, embracing openness, and the media were used to interact with the public. Governance of academic medicine involved all stakeholders, so that the leading figures in academic institutions could be patients, journalists, or leaders in the community. Medical students were not any more simple consumers of academic medicine, but they shaped and drove medical education. The downfall of the such fully engaged academic medicine was that it got too “popular” and perhaps “dumbed down”, and academic medicine had to struggle to stay truly original and independent.

#### **Lessons from the Scenarios**

What we learned from these scenarios was that none of them would predict the future with certainty, but that the future would have elements of each of the five scenarios. There were also some common features to all scenarios. Firstly, academic medicine will need to relate better to other stakeholders and learn how to use media to relate its importance to the public. It will also have to become more business-like in the modern world, as the competition will increase in the global society. Globalization will stimulate academic medicine to be more and more globally minded and embrace new technologies. Medical academics cannot be any more “jack of all trades” and will have to give up the whole triad of research-teaching-practice to the teams of professionals. The emphasis in academic medicine will be teaching and lifelong learning, both in clinical and non-clinical areas. Academic institutions will also diversify, offering specialized expertise. Quality improvement will have to be combined with basic and applied research. Academic medicine will have to accept a broader thinking and skill sets, intensively collaborating with other research and professional fields, such as economics, ecology, law, and humanities. We will also

have to learn more about developing leadership skills. And we will have to think more about the future, starting with the decisions do we need to take now to achieve the desired future.

After the publication of five scenarios, BMJ asked its readers to judge which scenarios they thought likely and desirable. According to the poll (24), the most desirable scenario was “Global Academic Partnerships”, but it was also judged as the least likely scenario. In contrast, the most likely scenario was “Academic Inc.,” where academic medicine becomes a full business enterprise, although it was judged least desirable.

### **Current Activities on Restructuring of High Education in Bosnia and Herzegovina**

In Europe, the future of academic medicine is related to the ongoing restructuring and harmonization of higher education, defined in the Bologna Joint Declaration of the European Ministers of Education in 1999. Bosnia and Herzegovina, like other Central and Eastern European countries in post-communist transition, have specific problems related to the political and socioeconomic framework in which their medical curricula have been shaped in the past (25). Bosnia and Herzegovina has the additional heavy burden of immense war destruction and population migration, which also affected medical education (26, 27).

Despite these disadvantages and exceptionally complex political, ethnic and religious situation in the country, medical schools in Bosnia and Herzegovina were pioneers in revitalization of academic medicine, not only in the region but in the global context (27, 28). The schools functioned normally

during and after the war, and established fruitful collaboration in many areas (29), contributing to the peace process in the country (30), and confirming positive experiences from other political conflicts (31). All five medical schools in Bosnia and Herzegovina joined together to work on medical curriculum reform under the framework of the Trans-European Programme for Co-operation in Higher Education in Central and Eastern Europe (Tempus project “Design of an Integral Curriculum to Undergraduate Medical Education in Bosnia and Herzegovina – DICTUM”) (25, 27, 28). The European partners in the project were medical schools from Austria, Belgium, Denmark, and Germany. Within the framework of the DICTUM program, all five medical schools performed a structured and well planned internal and external assessment of the medical curricula (25), as an exercise in generating an objective insight and generate ideas for institutional development and joint curriculum reform.

In fact, the activities currently under way at the medical schools in Bosnia and Herzegovina have many elements of the most desirable scenario for global future academic medicine – global academic partnership. Actually, researchers within the framework of the DICTUM project were the first to propose dual commitments of academics from developed and developing academic communities as a possible solution to bridging academics and learning from each other (29).

With a new journal dedicated to academic medicine, *Acta Medica Academica*, the academic community in Bosnia and Herzegovina is on the best way to make “Global Academic Partnerships” not only most desirable, but also very likely future of academic medicine!

## References

1. Tugwell P. The campaign to revitalize academic medicine kicks off: we need a deep and broad international debate to begin. *Croat Med J.* 2004;45(3):241-2.
2. Marušić B. Academic medicine: one job or three? *Croat Med J.* 2004;45(3):243-4.
3. Awasthi S, Beardmore J, Clark J, Hadridge P, Madani H, Marušić A, et al.; International Campaign to Revitalize Academic Medicine. Five futures for academic medicine. *PLoS Med.* 2005;2(7):e207.
4. Marušić A. Revitalization of academic medicine: looking into the future. *Croat Med J.* 2005;46(1):1-3.
5. International Working Party to Promote and Revitalize Academic Medicine. ICRAM (the International Campaign to Revitalize Academic Medicine): agenda setting. *BMJ.* 2004;329(7469):787-9.
6. International Working Party to Promote and Revitalize Academic Medicine. Academic medicine: the evidence base. *BMJ.* 2004;329(7469):789-92.
7. Berkow R, Cohen J. The Crisis in academic medicine. *Croat Med J.* 2005;46(1):4-9.
8. Grković I. Transition of the medical curriculum from classical to integrated: problem-based approach and Australian way of keeping academia in medicine. *Croat Med J.* 2005;46(1):16-20.
9. Roshi E, Burazeri G. Revitalization of academic medicine in Albania. *Croat Med J.* 2005;46(1):10-5.
10. Gamulin S. Academic approach to academic medicine. *Croat Med J.* 2004;45(3):245-7.
11. Donev DM. Revitalization of academic medicine in Macedonia – an urgent need. *Croat Med J.* 2004;45(6):677-83.
12. Burger EJ, Ziganshina L, Ziganshin AU. Academic medicine in Russia. *Croat Med J.* 2004;45(6):674-6.
13. Muula AS, Lau C. Academic medicine in a southern African country of Malawi. *Croat Med J.* 2004;45(5):556-62.
14. Kardas P. Dilemma of an indigent country: Is academic medicine a good investment? *Croat Med J.* 2004;45(5):553-5.
15. Marušić A, editor. Revitalization of academic medicine. Zagreb: CMJ/Medicinska naklada; 2005.
16. Papanikolaou PN, Christidi GD, Ioannidis JP. Patient outcomes with teaching versus nonteaching healthcare: a systematic review. *PLoS Med.* 2006;3(9):e341.
17. Sambunjak D, Straus SE, Marušić A. Mentoring in academic medicine: a systematic review. *JAMA.* 2006;296(9):1103-15.
18. Straus SE, Straus C, Tzannes K; International Campaign to Revitalize Academic Medicine. Career choice in academic medicine: systematic review. *J Gen Intern Med.* 2006;21(12):1222-9.
19. Patsopoulos NA, Ioannidis JP, Analatos AA. Origin and funding of the most frequently cited papers in medicine: database analysis. *BMJ.* 2006;332(7549):1061-4.
20. The Mont Fleur Scenarios. What will South Africa be like in the year 2002? *Deeper News.* 1992;7(1):1-19. Available from: [http://www.arlingtoninstitute.org/future/Mont\\_Fleur.pdf](http://www.arlingtoninstitute.org/future/Mont_Fleur.pdf). [Last accessed: 3 January 2007.]
21. UNAIDS. AIDS in Africa: three scenarios to 2025. Geneva: Joint United Nations Programme on HIV/AIDS (UNAIDS); 2005. Available from: [http://www.unaids.org/unaid\\_resources/images/AIDSScenarios/AIDS-scenarios-2025\\_report\\_en.pdf](http://www.unaids.org/unaid_resources/images/AIDSScenarios/AIDS-scenarios-2025_report_en.pdf). [Last accessed: 3 January 2007.]
22. Picker Institute: Patient-Centered Care 2015: Scenarios, Vision, Goals & Next Steps. Camden (ME): Picker Institute; 2004. Available from: <http://www.altfutures.com/pubs/Picker%20Final%20Report%20May%2014%202004.pdf>. [Last accessed: 3 January 2007.]
23. Clark J. Five futures for academic medicine: the ICRAM scenarios. *BMJ.* 2005;331(7508):101-4.
24. Academic medicine scenarios: final votes. *BMJ.* 2005;331(7518):672.
25. Šimunović VJ, Sonntag HG, Hren D, Dorup J, Krivokuća Z, Bokonjić D, et al. A comprehensive assessment of medical schools in Bosnia and Herzegovina. *Med Educ.* 2006;40(12):1162-72.
26. Čulo F. Mostar University Medical School, Bosnia and Herzegovina: first graduates. *Croat Med J.* 2004;45(1):1-7.
27. Šimunović VJ, Sonntag HG, Marz R, Horsch A. Reform of medical education in Bosnia-Herzegovina: luxury or necessity? *Croat Med J.* 2004 Feb;45(1):31-7.
28. Šimunović VJ, Sonntag HG, Horsch A, Dorup J, Nikolić J, Verhaaren H, et al. Temptation of academic medicine: second alma mater and 'shared employment' concepts as possible way out? *Croat Med J.* 2004;45(4):378-83.
29. Burazeri G, Čivljak M, Ilakovac V, Janković S, Majica-Kovačević T, Nedera O, et al. Survey of attitudes and knowledge about science in medical students in southeast Europe. *BMJ.* 2005;331(7510):195-6.
30. Sambunjak D, Kovačić L. Guard against the oblivion: a role of public health in war. *Eur J Public Health.* 2006;16(3):231-2.
31. Dajani KK, Carel RS. Neighbors and enemies: lessons to be learned from the Palestinian-Israeli conflict regarding cooperation in public health. *Croat Med J.* 2002;43(2):138-40.