



45(4):378-383,2004

FORUM: REVITALIZATION OF ACADEMIC MEDICINE

Temptation of Academic Medicine: Second Alma Mater and “Shared Employment” Concepts as Possible Way Out?

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Apparently, in developing and in well-developed societies we are confronted with a crisis of academic medicine in all aspects: health care, teaching, and research. Health care providers in teaching hospitals are under pressure to generate revenues, academic research is pressed to keep pace with institutions devoted solely to research, and teaching is often understood not as privilege and honor but as burden and nuisance. The key problem and the principal cause of the crisis are low interest of the best young graduates to follow an academic career in a world where the benefits and values of the private sector are prevailing. Confronted with these circumstances and the continuous perils of permanent brain-drain, we developed an innovative concept of “shared employment” where two academic institutions (one in a developed and one in a developing country) will collaborate in development and support of fresh talents, building elite academic staff. Most academic exchange programs developed so far have proved to be ineffective and of poor vitality, in spite of loud exclamations, high expectations, and a huge amount of good will involved. In contrast, the suggested cooperation will be based exclusively on mutual interest and clearly defined benefits for all involved parties.

Key words: *academic medical centers; Bosnia-Herzegovina; education, medical; emigration and immigration; staff development*

When from all parts of the globe, from developed and not-so-well developed academic communities, the voices of uneasiness and concern can be heard (1,2), something is very wrong. Under such circumstances, the call for debate on “academic medicine” must be fully supported (3); new times demand new approaches when the old ones do not work anymore. It is to be expected that a large number of us, academic medics in some way or another, with differences of ideas, cultural background, strengths, and influences in our communities will join the campaign. Hopefully, such brainstorming will end not only in “academic” debate and vague recommendations but also with a realistic action plan for rebuilding the capacity of Academia for fundamental changes.

Background

Seven years ago, soon after the end of the war in Bosnia and Herzegovina (4), School of Medicine was founded at the Mostar University to respond to the needs of a severe shortage of medical personnel (5).

The School was founded with scarce means, but with great enthusiasm, optimism, and high hopes. In spite of the meager resources during the past seven years, it runs surprisingly well, according to internal (6) and independent assessments (7,8). Over these years, temptations and challenges were numerous, the biggest being laying down a sound basis for the development of academic medicine in an environment sorely lacking academic features.

Some solutions to this challenge have been found, some are being planned. The project “*Design of an Integral Curriculum to Undergraduate Medical Education in Bosnia and Herzegovina*” (DICTUM), supported and granted by European Union “Tempus-Cards” program, is in progress and all five medical schools in Bosnia and Herzegovina are actively participating in its implementation (9). We hope that some of our ideas about academic medicine will be a useful contribution to the international campaign for its revitalization (9). At present, we are embracing the initiative as crucial for the future and prospects of our Schools. We are particularly keen on the action four

of Tugwell's list (3): we strongly believe that everything starts and ends with building the human resources of excellence. Therefore, what is instrumental is a well-structured program for recruiting young professionals, educating them properly, and treating them well along their career. The aim of this paper was to elaborate some of our ideas about how to cope with this challenge.

Problems and Threats

High-income Academic Communities

It seems that in high-income countries the main problem is low interest and the lack of motivation of young medical school graduates to follow an academic career in medicine. Academics in medicine are not held in high esteem by the public anymore, as a compensation for the lack of financial benefits granted by a non-academic career in medicine, especially in the hospital sector, general medicine, or industry (10,11). New times reshape old values and worship the new heroes, whether we like it or not (12).

In most teaching hospitals, we witness the domination of "managed care," the term interchangeably used as an euphemism for exclusively profit-oriented health care. Unfortunately, this concept is spreading to developing countries (12,13). Corporate medical practice, market economy, and consumer culture are transforming health care in a self-oriented economic category (14). There is an irresistible demand put on physicians to rely exclusively on disease management protocols to improve outcomes, reduce costs, and standardize the care (15). Personalized care tailored to individual needs of patients becomes a relic of the past. From the Academia standpoint, these changes have dramatically influenced the physician-patient relationship, medical education, and the moral dimension of health care. Consequently, the zest for research has diminished, not to speak of enjoyment in teaching.

Even in the most distinguished and highly ranked medical schools and teaching hospitals, teaching is handicapped by the institutional value system. Research accomplishments and generation of clinical revenues are rewarded; excellence and innovations in teaching are neglected and underestimated. To

quote Ludmerer (16): "...indeed, the folk wisdom of academic medicine has long held that a sure way for an instructor not to be promoted is to win an award for good teaching." As result, fewer and fewer clinical faculty members are willing to serve as teachers and mentors, being under permanent pressure to be "clinically productive". "Clinical productivity" is another euphemism referring to the amount of fees generated rather than to the excellence in treatment. Outstanding care for charity patients is not "clinically productive" as is ordinary care for paying patients. Who are the enthusiasts, under these circumstances, to volunteer for an academic career (10,11)? To quote the advice of a chairman of internal medicine department at a prestigious medical school (17): "If you want to teach, do so at lunch – and keep your lunches short."

To bring some optimism to this rather gloomy scene, we must mention the University of California in San Francisco, where an Academy of Medical Educators has been recently created, with 20 endowed chairs for unusually accomplished medical teachers (18). This is the first time that an American medical school has systematically attempted to reward good teaching with institutional resources (16). Others are also trying to follow their example (19).

Low-income Academic Communities

In low-income countries, general trends and attitudes described in the previous paragraph are also gaining ground. Everything looks even more desperate if we take into account: 1) poor or non-existent research infrastructure, 2) poor intellectual stimulation, 3) limited career structure, 4) insufficient funding, and 5) low and irregular personal income. The personal income is sufficient just to cover the basic needs of young (and senior) academics (Table 1).

The situation, in general and in financial sense, is not much different in other academic institutions and countries in the region. We performed a small survey among fifth- and sixth- year medicine students in Bosnia and Herzegovina about their plans for future professional career, and wish to stay in their home country or to leave, temporarily, or permanently. We also asked them to estimate their proficiency in English. The sample included 60 students from Sarajevo University, 72 from Foča/Srbijne, 55 from Mostar, 105

Table 1. Students' wishes for future employment, their fluency in English language, and salaries of junior teaching staff at the five medical schools in Bosnia and Herzegovina

Parameter	No. (%) of students in the school (number of surveyed students)				
	Sarajevo (n=60)	Tuzla (n=55)	Mostar (n=55)	Banja Luka (n=105)	Foča/Srbijne (n=72)
Place of future study:					
Bosnia and Herzegovina	34 (56.7)	29 (52.7)	18 (32.7)	32 (30.5)	13 (22.2)
Abroad	3 (5.0)	9 (16.4)	11 (20.0)	50 (47.6)	43 (59.7)
Abroad temporarily	23 (38.3)	17 (30.9)	26 (47.3)	23 (21.9)	16 (18.1)
Field of work:					
Primary health care	5 (8.3)	5 (9.2)	4 (7.2)	17 (16.2)	2 (2.7)
Public health	6 (10.0)	4 (7.2)	3 (5.5)	0 (0.0)	4 (5.6)
Basic sciences and research	4 (6.7)	4 (7.2)	2 (3.7)	8 (7.6)	4 (5.6)
Clinical medicine	43 (71.7)	39 (70.9)	42 (76.4)	72 (68.6)	60 (83.4)
Health management	2 (3.3)	3 (5.5)	4 (7.2)	8 (7.6)	2 (2.7)
Proficiency in English language:					
Excellent	8 (13.4)	9 (16.4)	14 (25.5)	9 (8.6)	2 (2.7)
Satisfactory	32 (53.3)	26 (47.3)	33 (60.0)	61 (58.1)	38 (52.7)
Poor	20 (33.3)	20 (36.3)	8 (14.5)	35 (33.3)	32 (44.6)
Present salary of young residents*	359	303	365	198	196

*€/month.

from Banja Luka, and 55 from Tuzla School of Medicine, a total of 347 medical students (Table 1). We found that students from Sarajevo and Tuzla (predominantly Muslims-Bosniak) mostly wanted to stay in Bosnia and Herzegovina, students from Banja Luka and Foča/Srbinje (predominantly Serbs) wanted to emigrate permanently, whereas students from Mostar (predominantly Croats) mostly wanted to work abroad temporarily. More than 70% of all students wanted a career in clinical medicine (Table 1).

Brain-drain

The major concern in low-income academic communities is a permanent threat of brain-drain: the best and the most talented are leaving the country. So far, nobody and nothing can stop people in their quest for better life and proper working environment, where their talent will be appreciated, and properly awarded. A cohort study among 70 medical postdoctoral fellows from Croatia, sent over the 15 years period to postdoctoral research positions in Germany and United States (20), showed that half of them decided to stay abroad after training and continue their career in a foreign country. The other half returned, third of them because they failed to meet the requirement of host institutions, whereas only 5 continued their work at an international level of excellence. To avoid such experience in the future, small scientific communities should devise new strategies, bearing in mind that building the human resources is keystone of "revitalizing academic medicine."

There are surprisingly few studies addressing this problem in developing countries, where resources are already severely depleted (20-23). There is an estimate (official statistics are inaccurate or non-existent) that only in Africa, the annual lost of physicians is around 23,000 and 150,000 of Filipino nurses and technicians emigrate each year. In London alone, 23% of doctors and 47% of nurses were born overseas (21).

It should be noted that there is an increasing awareness among the First World nations and international organizations of the dimension of the brain-drain problem confronting the underdeveloped countries. They acknowledge that the old practice of merciless recruitment, without regard to the interest of underdeveloped countries, is not longer acceptable. There are some voices that, if intellectual property rights are protected and regulated worldwide, a similar scheme has to be applied on larger scale. The term "intellectual property of the nations" should be accepted as an internationally recognized value (21,24). The UK Department of Health guidelines has recently addressed the ethical issues involved in international recruitment of nurses and physicians (25). Similarly, there is an initiative to convene a forum of interested governments and international organizations, under auspices of the World Health Organization, to agree on a declaration and issue a code on ethical guidelines in recruitment procedure for the future (26).

Solving the Problem through Structured Partnership

General Idea

It is well known that low-income countries have talented people (some of them surprisingly well trained) but meager resources to support their work and advancement in academic career. They produce professionals whose expectations cannot be met by an underdeveloped society. At the same time, paradoxically, this very society badly needs such professionals as a prerequisite for advancement and development. The result is the old and sad story about permanent brain-drain, the rich becoming richer, and poor poorer (20-23,26,27).

The utopian appeals and requests aimed at the government to seriously address this problem in a systematic way do not work, as proved so far many times and everywhere all around the world. Completely opposite to the "peoples' representatives" in developed countries, who are fully aware of the significance of an academic community and research for progress and well-being of society as a whole, their counterparts in developing world looks at Academia as extravagant nuisance and money spending body, good for nothing "in real life." On the other hand, call on the patriotic feelings and national pride of "brains ready to be drained" does not make much more sense: when confronted with their own well-being and that of their families, the arguments to persuade them to stay are weak.

Under the circumstances, we believe that a well-defined partnership between academic institutions with resources and those with a lack of it could be a solution to this problem, with state bureaucracy being involved as little as possible. Such a partnership should be founded on the sound mutual interest and should clearly determined the benefits for each participating party including a) model ownership, b) mutual courses organization, c) diploma recognition between collaborating countries, and d) balancing and equalization of postgraduate studies. Postgraduate education may require a different model design.

Concept of "Shared Employment"

How to provide an excellent postgraduate training for the most talented young academics in first-level institutions, fill the available teaching and research position, and slow down the brain drain, offering candidates proper working conditions and decent living circumstances? So far not many countries or institutions have found an appropriate answer to this challenge. A single institution cannot meet all expectation of young professionals, but if two join resources, they can easily fulfill even most ambitious dreams. Therefore, why not establish a model of double employment of academic staff from developing countries, who could thus work at both their home institution and the institution in the developed partner country?

Formal Cooperative Agreement between Academic Institutions

The first and most important task will be the drafting of an official agreement on cooperation be-

tween the two academic institutions, one from developed and the other from a developing country. This agreement has to be based on firm ethical rules and fair play. If such an approach is truly accepted by both sides, the cooperation can be fruitful and beneficial for all involved parties. There would be no reason for bitterness and hard feelings, only prosperity. A talent will be officially linked and financially supported by both institutions; her or his status unchanged wherever the person is working. After training, the trainees will return to their home institution to be the core of new academic environment, but staying permanently connected with their second *alma mater*, working in both institutions as agreed and as needs arise. Such a position certainly puts many requirements on young candidates that only the best will meet. It is understandable that the members of newly established "elite academic corps" have to be awarded accordingly for those special efforts. Such an approach will, on the other hand, at least partially reduce the financial burden. The few trainees who disregard the money, attention, and efforts invested in building their career are free to leave, in accordance to the best tradition of rights of free movement and free career choice, but the Letter of Reference would be duly denied to them.

According to this agreement, the host academic institution in a high-income country is responsible to provide the academic environment for trainees with all features of good research and teaching practice, usually involving them in running projects and both the teaching and learning process. Beside their work, they will attend compulsory and elective courses and will be submitted to other learning experience, such as postgraduate or postdoctoral study. They will be involved in all academic activities offered by the host institution, their progress permanently evaluated and followed. From the very beginning, a reliable mentoring and monitoring structure has to be established, the progress of young academics-to-be permanently supervised and full assistance offered whenever needed.

Selection Procedure

Proper, uncorrupted and carefully controlled selection procedure of candidates for the program will be the responsibility of the academic institution in underdeveloped country. From the pool of final-year undergraduates and fresh graduates, the candidates for academic career will be identified using strictly developed and applied criteria. The identification and selection process of academic talents will start early during their undergraduate studies, since the last-minute selection carries the risk of failure (20).

Preparatory Phase

Another responsibility of the institution in a less developed country will be the organization of a program to prepare the selected candidates for work and life in partner country. In this period they could be taught basic research skills, their language proficiency could be upgraded, and missing links added or adjusted. They should be submitted to "crash courses" in scientific thinking, speaking, and writing –

skills proved instrumental in the development of young academics (20,28,29). It is also important that they receive information on their responsibilities, work requirements, and cultural differences they are going to face. Such a preparatory phase could significantly increase their performances in host institution.

Question of Research Infrastructure

As pointed out in Tugwell's editorial (3), as no country has spare financial resources, we have to look for a possible relocation of funds. For many research laboratories in well-off institutions, the procurement of the latest model of research equipment is a must. In such circumstances, many reasonably good and usable items end in trash. Careful selection and repair (if necessary) of such equipment and donation to a less privileged laboratory could greatly improve the capacity for research in the developing country. This has to be done carefully and honestly, so that junk does not end up in developing countries (as was the case previously, especially during the wartime). Another issue is the prices of supplies for research laboratories in developing countries, sometimes doubled through "unfair deals" with producers and suppliers (30).

Establishing Network of "Relocated Brains"

Many argue that freedom of movement is one of the essential human rights and there is no way that such a right be denied to medical professionals and suggest the term "relocated brains" as much more appropriate than "brain drain" (27). However, this is not only the question of semantics proper, as it has more serious implications. For us, "brain drain" is a subtle form of stealing from poor nations; the term "brain relocation" implies freedom and acknowledgment of human rights and could be perceived as pure euphemism.

Certainly, the issue can be observed from the other side of the mirror as well. Every low-income developing country has a large pool of talents in emigration, with most of them well-positioned in the academic community of their new home country. Usually, they are the highest-quality academic products of educational institutions of their country of origin. In addition, they have had access to new technologies, treatments, and latest developments in biomedicine. Finally, they usually maintain strong ties with their home countries. Still, there is no officially structured mechanism to use those human resources.

Obviously, the Academia cannot expect a meaningful governmental action. On the other hand, there is no reason for academic community to take initiative and attract its "prodigal sons" into a network aimed to become a basis for mutual projects and joint enterprises. Such projects, we repeat, have to be beneficial for both involved parties; there is no future in a relationship where one side is a "permanent giver" and another "permanent receiver". The biggest obstacle in this respect is probably the establishment of faith in good-will from both sides. The academics living in the First World often feel abandoned and rejected, their accomplishments are often disregarded and poorly valued at home, where they are welcome only if they can be used in the most profane manner.

In our personal experience, many of them will be pleased to be of assistance, under condition that the rules are clear and their engagement properly acknowledged.

Benefits of Academic Partnership

Benefits for High-income Academic Institutions

It is certainly in the best interest of and essential for the progress of a well-organized academic institution to recruit the most talented medical graduates (or undergraduates in final years of training) for different tasks: to be teachers, clinical instructors, research apprentices, interns, or residents. In a privileged country, the talents have little motivation to join their academic institution because of inadequate social (and professional) recognition, poor investment versus financial revenues ratio, and work overload. At present, the existing program solves these problems in two ways: accepting the domestic physicians with lower level of performances than desired, and recruitment of the brains from the Third World countries. Those foreign brains are sometimes a good investment and sometimes a huge disappointment. Therefore, the principal interest for the host institution is a stable source of a number of carefully selected junior faculty members to fill available positions, bringing new blood and ideas (Table 2).

Table 2. The presumable benefits for partners

Benefits for high-income academic institutions:
1. Internalization of institution
2. Stable pool of carefully selected junior academics in training
3. Spreading the research and teaching network
4. Decreasing the differences between "to have" and "to have not"
5. Increasing the strength of academic community as a whole
6. New (different) cultural influence
7. Increased capacity for teaching and research
8. Complementary expertise
9. Access to new geographical areas and population
Benefits for low-income academic institutions:
1. Internalization of institution
2. Building the core of academic human resources
3. Introducing good research practice
4. Increasing the teaching standards
5. Building the teaching infrastructure
6. Building research infrastructure
7. Training physicians in accordance to world accepted standards
8. Influence to well-being of society as a whole
9. Strengthening democratic processes
10. New (different) cultural influence
11. Increased capacity for teaching and research
12. Access to new or previously unavailable information
13. Complementary expertise
Joint benefits:
1. Dissemination of scientific thinking
2. Spreading good research practice
3. Internalization of institutions
4. Increasing the understanding between different academic cultures
5. Strengthening the research network
6. Improving the teaching process

Benefits for Low-income Academic Institutions

For an academic institution on the other side of the mirror, the problems are similar and different at the same time. Professional recognition is inadequate and income low, work overloads is not a problem in such extent as in first-level academic institutions. The

exceptional talents are wrongly situated in profession, because they lack criteria and control, or they are leaving home countries in search for better life, never to come back. Both solutions present an indeterminable loss for their home country, and still very few of policy-makers are aware or interested in this problem. Surely, such social climate will never lead to any improvement, of generally accepted norms and standards.

For an academic institution in a low-income country, the benefits gained through this cooperation are probably the largest ones. Young academics trained according to the rules of excellence cannot be valued enough, as well as strong and permanent communication with the "big" world. New people bring new work culture with them and, when critical mass is reached, the "hard academic core" can be established to influence the others and lay down new rules in patients care, research, and teaching.

Accordingly, newly established research laboratories, information technology facilities, and teaching tools under this program have to be "public academic goods." They have to belong to institution and to the Faculty, not to be possessed by individuals, departments, or chairs. The best solution is development of "multipurpose" laboratories, where everybody will be able to use all major pieces of equipment, according to strict and democratic work schedule.

Benefits for Young Academics in Training

The young academics in training will benefit because they will acquire additional knowledge, skills, and attitudes in teaching and research, will be exposed to different culture, and finally will benefit financially. During their stay abroad, formal postgraduate study will be organized, specially tailored to suit the needs of this program, ending with a joint international diploma leading to academic title. Both postgraduate study organization and diploma/certificate issue have to be joint responsibility of home and host (developed and underdeveloped) academic institution. When trainees return to their home country they will become members of the new academic elite, continuously employed by both institutions, and rewarded for their special commitment and efforts. As the program runs on, it would become a privilege and honor to be enlisted and these individuals may be a good example motivating other undergraduate students to study hard.

Benefits for Society as a Whole

There is no need to elaborate in detail what impact on society can have better health care, improved teaching, research advancement, and internalization of Academia. In short, no society is able to advance and offer the prosperity and future for the people, if not funded and supported by work of highly educated individuals.

Acknowledgment

We are grateful to Dr Stjepan Gamulin for his critical comments and suggestions.

References

- 1 Annan K. A challenge to the world's scientists. *Science*. 2003;299:1485.
- 2 Annan K. Science for all nations. *Science*. 2004;303:925.
- 3 Tugwell P. The campaign to revitalize academic medicine kicks off: we need a deep and broad international debate to begin. *Croat Med J*. 2004;45:241-2.
- 4 Čulo F. Mostar University Medical School, Bosnia and Herzegovina: first graduates. *Croat Med J*. 2004;45:1-7.
- 5 Šarac I, Bagarić I, Orešković S, Reamy J, Šimunović VJ, Lang S. Physician requirements for the Croat population in Bosnia and Herzegovina. *Croat Med J*. 1997;38:83-7.
- 6 Šimunović VJ, Ivanković A, Curić I. School of Medicine Mostar University institutional quality assurance. Self-evaluation report. Mostar, December 1999-2000. A document in possession of author.
- 7 Fraser ME. CRE-Phare Project: institutional quality assurance – Bosnia-Herzegovina. Feedback on self-evaluation report for Mostar University School of Medicine, 2000. A document in possession of author.
- 8 Kralj A. CRE-Phare Project: institutional quality assurance – Bosnia-Herzegovina ad-hoc review of the Mostar University School of Medicine self-evaluation report. February 24, 2000. A document in possession of author.
- 9 Šimunović VJ, Sonntag HG, Marz R, Horsch A. Reform of medical education in Bosnia-Herzegovina: luxury or necessity? *Croat Med J*. 2004;45:31-7.
- 10 Marušić B. Academic medicine: one job or three? *Croat Med J*. 2004;45:243-4.
- 11 Stefanović V. Academic medicine – experiences from Finland and suggestions for the future. *Croat Med J*. 2004;45:248-53.
- 12 Mandić Z, Vataavuk Z. Caring for academic ophthalmology in Croatia. *Croat Med J*. 2004;45:264-7.
- 13 Gamulin S. Academic approach to academic medicine. *Croat Med J*. 2004;45:245-7.
- 14 Stoeckle JD. From service to commodity: corporization, competition, commodification, and customer culture transforms health care. *Croat Med J*. 2000;41:141-3.
- 15 Gill HS, Parpura-Gill A. United States health care delivery system, reform, and transition to managed care. *Croat Med J*. 1999;40:273-9.
- 16 Ludmerer KM. Curriculum reform, 2000: an analysis. In: Association of American Medical Colleges. The education of medical students: ten stories of curriculum changes. New York (NY): Milbank Memorial Fund; 2000. p. 10-6.
- 17 Ludmerer KM. Time to heal: American medical education from the turn of the century to the era of managed care. Oxford: Oxford University Press; 1999. p. 373-5.
- 18 Irby DM. University of California, San Francisco School of Medicine. In: Association of American Medical Colleges. The education of medical students: ten stories of curriculum changes. New York (NY): Milbank Memorial Fund; 2000. p. 45-69.
- 19 Fenderson BA, Fenderson DA. Balancing traditional values in academic medicine with advances in science and technology. *Croat Med J*. 2004;45:259-63.
- 20 Marušić M. On the advancement of science in developing countries: an example of seventy croatian young scientists educated in Germany and USA. *Croat Med J*. 1996;37:273-82.
- 21 Pang T, Lansang MA, Haines A. Brain drain and health professionals. *BMJ*. 2002;324:499-500.
- 22 Levy LF. The first world's role in the third world brain drain. *BMJ*. 2003;327:170.
- 23 Seepe S. The brain drain will continue unabated. *Mail and Guardian (Johannesburg)*. 2001, 30 March.
- 24 Stein DI. Brain drain and health professionals. Is state ownership of health professionals' intellect being proposed? *BMJ*. 2002;325:219.
- 25 Department of Health. Code of practice for international recruitment. London: Department of Health; 2001.
- 26 Bundred PE, Levitt C. Medical migration: who are the real losers? *Lancet*. 2000;356:245-6.
- 27 Ssemakula JK. Brain drain and health professionals. Relocation is better term than brain drain. *BMJ*. 2002;325:219.
- 28 Marušić A, Marušić M. Teaching students how to read and write science: a mandatory course on scientific research and communication in medicine. *Acad Med*. 2003;78:1235-9.
- 29 Marušić A, Marušić M. Small medical journals and the 10/90 problem: educatione ad excellentiam. *CMAJ*. 2004;170:927-8.
- 30 Jonjić S, Traven L. Small countries receive even less of a fair deal. *Nature*. 2004;429:601.

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