

Reform of Medical Education in Bosnia-Herzegovina: Luxury or Necessity?

Vladimir J. Šimunović, Hans-Günther Sonntag¹, Richard März², Axel Horsch¹

Mostar University School of Medicine, Mostar, Bosnia and Herzegovina; ¹Heidelberg University School of Medicine, Heidelberg, Germany; and ²Medical University of Vienna, Vienna, Austria

We present the current status of medical education in Bosnia-Herzegovina to set the stage for the curriculum reform. Two principal questions are asked: is the reform necessary, and is it possible? In spite of the differences in size and tradition of medical schools in Bosnia and Herzegovina (BH), they have more features in common than not: all of them are under internal and external pressures for change and reform, which will eventually be inevitable. The history and strategy of reform in Heidelberg, Germany, and Vienna, Austria, are described and recommendations are made on the basis of their experience. The consensus on the need for reforms has to be reached by all parties involved, ie, faculty, administration, students, and the medical community. After that, the reform process must proceed according to the agreed timetable. The job should be delegated to a dedicated task force and work coordinated through the ongoing "Dictum" project, directed exclusively at reform of medical curricula in BH. The project is funded by a European Union TEMPUS program.

Key words: *Bosnia and Herzegovina; curriculum; education, medical; international cooperation; quality control; schools, medical; teaching*

Both academic and non-academic circles would probably unanimously agree that in post-war, politically undefined, unstable, and economically destroyed Bosnia and Herzegovina (BH), there are more important goals to reach, tasks to accomplish, and priorities to follow than the reform of medical education (1,2). However, we – medical teachers from all five BH Medical Schools and four European Union (EU) countries (Austria, Belgium, Denmark, and Germany) joined around the "Dictum" project funded by the EU TEMPUS program – strongly believe that medical curriculum reform in Bosnia and Herzegovina is a top priority. If successful, it could exert considerable influence on the quality of medical education and consequently on the quality of the health care system nationwide.

Our reasoning is simple: there is no future without high-quality education capable of producing fully trained experts in all disciplines. To realize this prerequisite, society will have to adhere to contemporary trends and developments in education (3). We believe that there is a mutual consensus on all levels in BH that education is the key to any development strategy.

The founding father of modern clinical teaching, Sir William Osler (4), said a hundred years ago: "We ask too much of the students in limited time. We can only instill principles, put the student in the right path, give him methods, teach him how to study, and early discern between essentials and non-essentials."

There is still nothing much to add, except that we need to keep pace with time.

Academia is permanently under demand by different ranks of society to provide a "new education" in the third millennium – "new" in terms of educational philosophy, content, and methodology. This "new education" has to be interwoven with comprehensive use of new learning resources (5,6) provided by contemporary information and communication technologies. This, however, is a source of concern in academic circles that someday technology will overwhelm both the scholars and Academia (6).

Another somehow neglected issue today is the teacher-student relationship, which demands a substantial reevaluation. Are students going to become pure clients/customers to whom the market (University management) provides the services needed (5-7)? Are they not members of an academic family to be not only taught, but also respected and loved? All these issues need to be reconsidered to achieve a sustainable balance between these two "sides" of the educational system.

Medical Education in Bosnia and Herzegovina: Present Status

Quality of Education

BH Medical Schools are faced with many difficulties, which they commonly share. Although each School proudly claims that it offers "excellent and

state-of-the-art education to students, equal to European standards", we cannot tell whether it is true because there are no proper indicators and evidence to support such claims. On the other hand, there is both official and unofficial evidence that medical education in our region is not considered to be of high quality. Our graduation certificates are not readily accepted worldwide, the number of international students in BH is lower today than 30 or 40 years ago, and our students and teaching staff are not included in the European mobility scheme. Thus, the reality is not as bright as we would like it to be. Blaming the war and post-war times for all our problems, misconducts, and failures is not a good excuse anymore (1,2,8-11). Hard work needs to be done and a strategy devised to solve the problems and supply the missing ingredients.

Partners and Traveling Companions

To travel the road of medical reform successfully, one needs good traveling companions. A considerable advance was made when all Medical Schools in BH agreed to join their resources and participate in the reform in an equal manner. Hopefully, the joint efforts of all existing academic resources in medical education will facilitate the process in all phases. Sound competition will be beneficial because not a single institution would want to stay behind, which is why a considerable engagement is to be expected. Also, some of the best European academic minds,

who already proved their expertise in successful reforms in their own countries, gladly offered their assistance in establishing the basis of a countrywide curriculum reform in BH.

Basic Statistics

We have not completed a comprehensive analysis of the present status of BH medical education, but expect to do it by July 2004, after performing internal and external evaluation of all Schools. This evaluation will be based on the fundamental principles established by Dutch researchers in higher education (12) and serve as a basis of the "Dictum" project. However, the raw data about the Medical Schools in BH (Table 1) show that they fall, at least formally, within the European standards (13,14).

How Good Are We? – Ad Hoc Opinion on Medical Schools

It has been an important question from the very beginning: are we able to offer an education comparable at least to those already existing in the region. In 1999, the Mostar University School of Medicine participated in a self-evaluation exercise within the Association of European Universities (CRE)/Phare-sponsored project "Institutional Quality Assurance" (15,16). Feedbacks received on the report that followed from this self-evaluation were extremely useful, especially those from Prof M.E. Fraser, former Chief Executive of the Higher Education Quality Council from United Kingdom (16), and other experts from University of Ljubljana, Slovenia, CRE Institutional Quality Assurance, and Phare Multi-Country Project "European Dimension of Institutional Quality Management" (17). From the report and discussions that followed we learned a number of valuable facts (Table 2).

This initial experience, followed by other internal explorations, helped us gain a better insight into

Table 1. Comparative analysis of some features in Medical Schools in Bosnia and Herzegovina

University	Established	No. of students	Hours of teaching	Preclinical vs clinical courses (%)
Banja Luka	1976	2,980	5,880	60:40
Mostar	1997	311	5,319	61:39
Serb Sarajevo	1994	301	5,515	60:40
Sarajevo	1946	1,524	4,005	62:38
Tuzla	1976	677	4,800	62:38

Table 2. Analysis of strengths, weaknesses, opportunities, and threats (SWOT) of Medical Schools in Bosnia and Herzegovina

Features assessed by SWOT analysis	Banja Luka	Mostar	Serb Sarajevo	Sarajevo	Tuzla
Strengths:					
Teaching in blocks of knowledge	no	yes	no	no	no
Rational use of laboratories	no	yes	yes	no	no
Up-to-date library	no	yes	yes	no	no
Permanent survey of students' opinion	no	yes	no	no	no
Extensive use of Internet resources	no	yes	yes	no	no
International projects	no	yes	no	no	yes
Students' exchange program	no	yes	no	no	yes
Good permanent v. visiting staff ratio	yes	no	no	yes	yes
Weaknesses:					
Visiting professor dominant	no	yes	yes	no	no
Poor interest of young MDs for basic science	yes	yes	yes	yes	yes
Poorly developed research infrastructure	yes	yes	yes	yes	yes
Lack of space & equipment	no	yes	yes	no	no
Slow Internet connections	yes	yes	yes	yes	yes
Insufficient integration in teaching	yes	yes	yes	yes	yes
Insufficient institutional support	yes	yes	yes	yes	yes
Opportunities:					
Awareness of the Bologna Process	yes	yes	yes	yes	yes
Faculty supportive of reforms	yes	yes	yes	yes	yes
New grants from the European Union	yes	yes	yes	yes	yes
Well-established cooperation on the national level	yes	yes	yes	yes	yes
Strong support from European schools	yes	yes	yes	yes	yes
Threats:					
Overall political environment	yes	yes	yes	yes	yes
Lack of institutional support	yes	yes	yes	yes	yes
Meager financial resources	yes	yes	yes	yes	yes
Legal background confusing or missing	yes	yes	yes	yes	yes
Loss of enthusiasm	yes	yes	yes	yes	yes

"how good we were". The Strength, Weaknesses, Opportunities, and Threats (SWOT) analysis (18) revealed the overall status of BH Schools of Medicine (Table 2). In Table 2, we incorporated descriptive estimates on other medical schools in the region, based on personal visits and contacts; it is not a critical appraisal or rating of the Schools.

Internal Pressure for Reforms

Authorities of all Medical Schools expressed their willingness to increase the standards of medical education and establish a new culture of teaching, comparable with that in developed countries. However, the progress so far has not been considerable. There are no inner (obviously the most important) driving forces, and means are meager. There is no evidence that under the present circumstances and in the existing environment, any fundamental improvement can be expected. Is there any internal process that could be our ally in reform? We hope and expect there are quite a few.

Pride and Self-esteem

It is immanent to human nature to strive to be a part of an institution (movement, project, or enterprise) that is accepted and recognized on a larger scale. It is not unreasonable to expect that all participants in our project will enthusiastically join efforts with the common goal to bring their institution performance as close as possible to the existing European standards.

Fundamental Changes in the Essence of Medicine

All participants in the educational process are aware that medicine today is rather different from that just a decade or two ago. The same is true for teaching environment, methodologies, strategies, and tools. Finally, the hopes, dreams, and motifs that attract students to study medicine are different (6).

The most obvious difference is *the molecular revolution* – not an exotic issue anymore, reserved only for the especially gifted and prophets with a vision (19). We witness the scientific discoveries being embedded more and more deeply into the routine of everyday medical practice. *New technologies* reach across the borders of different disciplines, and extend the power of human senses and skills far into the universe of the human body (6,7,20). As one thing leads to another, medicine practiced in the developed world almost doubled the human life span in less than a hundred years, significantly increasing *the importance of chronic and old age's diseases*. These medical areas should be incorporated in every future curriculum (21). Thus, when defining the curriculum content, educational priorities should be to teach medical students about the chronic status of an ailing old body rather than a detailed account of craniopharyngeoma and tetralogy of Fallot.

Managed Care

We are witnessing the domination of "managed care," which is a euphemism for exclusively profit-oriented medicine, usually in Third World countries.

Corporate medical practice, market economy, and consumer culture are transforming health care (7). There is an unquestionable demand put on physicians to rely exclusively on disease management protocols to improve outcomes, reduce costs, and standardize care (22). Personalized care tailored to individual needs of patients becomes a thing of the past. From the Academia standpoint, these changes have dramatically influenced the physician-patient relationship and the moral mission of health care. How should we prepare the students to cope with the unbearable increase of hospital costs, be productive under the demand of contemporary hospital management, and still be caring, compassionate, and dedicated physicians (6,7)?

External Pressure

Pressure from the Community

The pressure of the non-academic world on Academia is growing. The society wants a simple answer to a simple question: is health care (certainly based on good medical education) good enough given the funds invested? The physicians are not the unquestioned gods in white coats anymore. The public today demands physicians who respect them, who are able and willing to communicate clearly, and who honor their wishes about health care (7).

Influence of the Political Environment

The political structures, with the main and single wish to please the public with the pretext of care for the "common good", are prone to blame the physicians for all evils in the health care structure and increasingly demand "accountability" of health care professionals.

Pressure from the "Customers"

Students and their parents ("clients/customers") want to know if the curriculum of one institution is up-to-date and comparable to its counterparts around the world. A very simple, yet very important, question is being increasingly asked (23): "Is the certificate of graduation received at the end of a long period of hard work and many sacrifices good enough to secure a career worldwide?"

Bologna Process

Beside this growing "hidden" informal pressure, it will not take much longer for formal pressure to become strong (24-26). Frankly speaking, in BH – but not only in BH – there are too many Medical Schools with respect to the size of population (27) and especially to the financial resources of the country. It is to be expected that a rational country leadership will support the very best among them and withdraw support from institutions unable to play well on the international scene.

Accreditation Process Pending

The Schools that will be able to pass through an accreditation process in the near future will be accepted in respectable company (28-31). The principal features of an institution capable of producing the type of physician that society needs and which are scrutinized during any accreditation process are the

following (25,28-32): (a) competency to offer the curricula in accordance to European standards, (b) recognition on the basis of its achievements worldwide, (c) eligible partner in European students mobility scheme, (d) recognized as participant in credit transfer system, and (e) linked to the global network.

Medical Education Reform in Heidelberg University School of Medicine

The first serious indicator pointing out that something was deeply wrong with the medical education in Germany arrived from the German Federal Ministry of Education. In the mid-1990s, the Ministry performed a survey among the students of medicine (33) to get an objective insight to the teaching at German Medical Schools (Table 3). On the basis of this survey results, we were able to summarize the principal negative features of the medical education in Germany at the time and identify what had to be changed. The main negative features of medical education in Germany (33) were the following: (a) insufficient preparation of teachers for teaching; (b) poor active participation of students in lectures, courses and seminars; (c) insufficient communication between students and teachers; (d) insufficient guidance of the students by the teachers; (e) sparse information about the results of tests and examinations; (f) poor planning of time; (g) overload with unnecessary facts; (h) basic principles are not separated from less important material; (i) teaching staff not prepared to accept criticism; and (j) poor integration of teaching material.

Table 3. Quality of teaching in Germany: German Ministry of Education*

Education's feature	Student assessment (%)		
	good	poor	non-adequate
Curriculum content	45	33	22
Curriculum structure and quality	33	50	12
Teaching quality	26	20	54
Student guidance	12	17	71

*According to ref. 34.

The turning point in the curriculum reform was the international congress on *New Methods in Medical Education*, organized by students in Heidelberg in 1996, when the authorities from Academia were submitted to heavy criticism. In 1998, the Federal Ministry of Health in Germany issued a new bill on medical education (33). Due to favorable circumstances, experts leading the medical curriculum reform in Germany were also involved in quality assurance processes on larger scales over the last decades and were therefore familiar with its merit and significance (34). When the reform of medical education in Germany in the mid-1990s became inevitable, it was only a short step to the decision to apply the principles of quality assurance to all its aspects. The task force of teachers responsible for internal evaluation also performed an external evaluation of traditional medical education between 1999 and 2001. In 2001, the new clinical curriculum, *Heicumed*, introduced a propedeutic block as a first step towards the reform. In 2002, another external evaluation took place, this time to as-

sess the changes resulting from the introduction of the new medical curriculum (33). In April 2002, a new law on medical education was passed by the German parliament (33).

Medical Education Reform at the Vienna University School of Medicine

With some minor modifications to the curriculum, the Vienna University School of Medicine has remained the same for the last 100 years (35). Both the curriculum and the examinations were department-based. The applied teaching methodology consisted mainly of traditional lectures, and some subjects lasted more than one semester. Textbooks were the main learning tools. The university offered a large diversity of electives, but they accounted for only 2% of the curriculum (36). Equally troubling was the fact that during their studies, most students never discovered how medical knowledge was generated. Thus, they were unable to develop a critical eye to discern between "scientific" and "pseudo-scientific" diagnostic and therapeutic procedures. In addition, the use of new information and communication technologies was marginal in most student professional training. Communication skills were not part of the curriculum either.

Phases of Curriculum Development and Implementation

In 1997, the Austrian parliament passed a new law charging the Education Committees (*Studienkommissionen*) of individual faculties, with the task to design new curricula to be implemented not later than October 1, 2002. Moreover, the faculties were granted a real autonomy to do so. On January 1, 1998, the Medical Curriculum Vienna (MCW) project group started its work to assist the *Studienkommission* of the Vienna Medical School in planning the new curriculum (37,38). The process of curriculum development was carefully planned and divided into several phases (Table 4). Once a blueprint for a phase was accepted by majority vote, there was no possibility to reverse the decision.

Table 4. Work on the development of the new curriculum at the Vienna University School of Medicine

Phases of the process	Duration (months)
Definition of a profile of competencies	6
Design of the Vienna Curriculum Model	5
Preparation of a rough draft of the new curriculum	7
Detailed curriculum design	18
Implementation planning	12 (+ continual monitoring)

Phase 1. The initial step consisted of defining the goals of the educational process at the University of Vienna Medical School. Our students had to become competent; factual knowledge was not sufficient anymore. A list was created of all (i) knowledge, (ii) skills, and (iii) attitudes that our graduates should acquire. The profile of student competencies finally approved by the *Studienkommission* consisted of (a) knowledge and understanding; (b) clinical skills; (c) communication skills, (d) medical professional attitudes, and (e) general professional skills.

Step one in this phase was preparing materials for the profile of competencies and determining relevant internal standards: laws, statutes, guidelines, and structures and values of the institution. In addition, relevant external standards had to be considered.

Step two consisted of extensive communication with all stakeholders, in the form of committee meetings, plenary meetings, newsletters, published surveys, and interviews. All information collected was placed on the MCW homepage (39) and finally discussed during a 3-day workshop with international experts.

Phase 2. A fact-finding mission of the *Studienkommission* and the MCW working group to the Universities of Liverpool and the Academic Medical Center Amsterdam yielded important information. At a meeting chaired by the Dean and attended by all members of *Studienkommission*, MCW group, and key faculty members, it was agreed to proceed with the reform. Among the guidelines agreed to at this stage were the centralization of both the curriculum and the exam system and organization of integrated block courses instead of the systematic approach (35). Emphasis was to be put on acquisition of clinical skills and students were to be given more time to pursue electives (35). Also, research theses were to be required from students and courses preparing them for their projects were to be part of the curriculum (40).

Phases 3 and 4. The outline of the curriculum contained vital planning coordinates (37). A sequence of integrated blocks was defined by (a) title, (b) a brief and very general description, (c) the position in the curriculum; and (d) exact time of duration (3-6 weeks). Blocks were titled so as to prevent individual departments to arrogate them to themselves, e.g., "From Molecule to Cell" or "Respiration". Each block was planned by a coordinator appointed after an application process, who was assisted by a small team. Each academic week had to consist of 20 academic hours of didactic teaching, 4 academic hours of problem-based learning and skills training, and 20 hours of studying. Electives, constituting approximately 15% of the curriculum, offered students to learn about the basics of research, information retrieval, and management skills (40). These elective courses consisted of special study modules and thesis work (35). In addition, each student was to choose 10% of all credit hours required for graduation freely from any course offered by a domestic or foreign accredited university (41).

Phase 5

In the fall of 2001, students admitted to the Vienna University School of Medicine started their medical studies according to the new curriculum. They could gather information regarding the curriculum and access study guides and lecture notes through the School's website (41). By 2003, they had entered the third year of their studies, and two more generations were enrolled to the School in 2002 and 2003 according to the new curriculum.

Stages of Resistance

In Vienna, the reform affected students, faculty members (as individuals), hospital personnel (physicians, nurses, and technicians), patients, pre-University education requirements, University administration, hospital administrations, nursing homes, physicians as a profession and their professional associations, and society as a whole (including health insurance systems and health politics). Of course, the reform provoked some resistance from the faculty, the most frequent counterarguments being that curriculum reform was not necessary; that minor adjustments would suit our needs; that curriculum reform, although necessary, was impossible to carry out at our University; and that there was more time needed to plan the curriculum reform. However, there were those that firmly believed that curriculum reform was inevitable, and this attitude finally was accepted by entire faculty.

Indeed, the reform of medical curriculum in Vienna was possible because there was a small but committed group of faculty who kept pushing against all odds, the administration supported the reform efforts at all times, and there were indeed few who supported the old curriculum on its merits.

(Possible) Future of Medical Education Reform in Bosnia and Herzegovina: "Dictum" Project

The project "Design of an Integral Curriculum of Undergraduate Medical Education in Bosnia and Herzegovina" (*Dictum*) had been submitted to the TEMPUS-Cards program by the December 15, 2002, deadline and approved and granted with €462.000 in June 2003. All five Medical Schools in BH expressed their intention to participate. Unfortunately, the Letter of Endorsement from the Banja Luka School of Medicine was three days late and consequently this School was not officially considered as a Consortium member. In spite of this, at the first Consortium meeting, all the Consortium members agreed upon the recommendation of the Project's coordinator to accept Banja Luka as an affiliated member for the following three-year period. The permission from the European Commission was sought and Heidelberg University, Vienna University, Århus University, Scandinavian Universities, and Gent University, Belgium, joined with enthusiasm to cover the European experience with curriculum reform and thus help the "*Dictum*" project.

Project's Background

When we started to look for the way out of the labyrinth of outdated education, we had already had some experience in international cooperation, mainly from the "Medical Library Development" TEMPUS project, executed in cooperation with Heidelberg University School of Medicine. This project implementation was highly successful and, during the TEMPUS General Assembly in Rome in September 2003, was publicly appraised as an "excellent example of a good cooperation and rational use of TEMPUS funds." We were aware that probably the only possi-

ble way to overcome the standstill could be the good will of all existing Schools to join their manpower and resources and establish a critical mass to start the (r)evolution, because none could gather enough energy and resources to start the reform on their own.

Project Objectives

The main objective was "to design a curriculum able to provide students with core knowledge and skills that can serve as basis for further education in any field of medicine" (Tables 5 and 6). The expected competencies of the BH future physicians were discussed during the first consortium meeting held in Mostar, December 12-14, 2003. We all agreed that the future physician graduating from medical schools in BH should understand the scientific basis of medicine; pay attention to common diseases and life-threatening emergencies; master the core clinical skills; develop capacity for self-evaluation and capacity to sustain a lifetime of responsible, committed, and compassionate practice; and commit themselves to continued learning and teaching of their patients and colleagues.

Table 5. Specific objectives of the *Dictum* project of curriculum reform in Bosnia and Herzegovina (BH)

- 1 Analysis of contemporary European curricula
- 2 Analysis of BH curricula.
- 3 Design the curricula to suit the needs of all Medical Schools in BH, in harmony with European standards
- 4 Devise the strategic plan for new curricula implementation
- 5 Initiate the implementation process
- 6 Meta-analysis of curricula changes and its impact on medical education in BH

Table 6. Expected outcomes of the *Dictum* project of curriculum reform in Bosnia and Herzegovina (BH)

- 1 Establishment of Project Management Units (PMU)
- 2 Analysis of BH medical schools' curricula
- 3 Joint Mission Statements for all BH medical schools
- 4 Definition of the shared goals of BH medical schools
- 5 Document to state European standards (key common features) and requirements for curricula in medical education
- 6 New curriculum, with principal features acceptable for all medical schools in BH, adjusted to European standards
- 7 Strategic plan for implementation of new courses
- 8 Training of core group of "new" teachers
- 9 Implementation of new courses in BH medical schools
- 10 Meta-analysis to describe the changes in Faculties' performance after the introduction of new curricula

There are many objectives to be reached and maybe the most important task (and probably the biggest achievement of the whole project, if reached) is the training of young teachers in new teaching methodologies and the use of the new technologies combined with skills of scientific thinking and scientific writing (42). Those newly trained young teachers can become the core group of new teaching in Bosnia and Herzegovina and in the region, and the academicians in its purest form.

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Correspondence to:

Vladimir J. Šimunović
Mostar University School of Medicine
Bijeli brijeg bb
88000 Mostar, Bosnia and Herzegovina
vsimunov@public.srce.hr