

INNOVATIVE CURRICULA WHILE TRAINING FUTURE AMERICAN MEDICAL SPECIALISTS IN THE 21ST CENTURY: A BRIEF REVIEW

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ABSTRACT: *The article highlights innovative curricula while training future American medical specialists in the 21st century to develop the necessary professional competences and correspond to reality. „The Undergraduate Medical Education for the 21st Century” program led to numerous innovative curricula to evolve communication skills, leadership, and teamwork. The Pfeifer curriculum dealt with reducing training time and enhanced preparation for the „Step” exams. Warren Alpert Medical School at Brown University created and implemented the Schwartz Communication Sessions. In the context of the Introduction to Clinical Medicine (ICM) HST 200 course, medical students at Harvard University-MIT improved their professional communication skills.*

KEY WORDS: *American medical education, medical schools, educational process, innovations, innovative curricula, future doctors.*

The United States is one of the world leaders in innovations and innovation activities. The historical reality, numerous social, political, economic, cultural challenges, the thirst for constant development in the global context has led to the emergence of new processes, things, phenomena in almost all spheres of human life.

Today, in the 21st century, with the rapid development of scientific and technological progress, there is a significant question concerning the future specialists, their quality training, taking into account many factors. After all, a future specialist must be in demand in the domestic and the international labor market, have decent working conditions, adequate salary, and demonstrate professional competences. Moreover, under the influence of evidence-based medicine, modern students prefer „hard” clinical knowledge to „soft” skills in the case of health promotion or disease prevention (Kotwal, 2013, p.144–146).

As for medicine and innovations in medical education, there is a bright comparison provided by C. Bland et al.: „Just as a continual stream of new technologies and discoveries brings advancements to patient care, so do innovations in teaching methods and curricular design constantly evolve to provide students with „cutting-edge” curricula. But implementing curricular change to incorporate these innovations is often a challenge even for dedicated medical school personnel who strive for the highest possible quality in their programs” (Bland, Starnaman, Wersal, Moorhead-Rosenberg, Zonia, Henry, 2000, p. 575–594) and the successful formation of the optimal set of professional competences.

According to A. Kotwal, „medical colleges have the responsibility to direct their education, research, and service activities toward addressing the priority health concerns of the community/region/nation” (Kotwal, 2013, p.144–146).

Therefore, covering briefly the issue of innovative curricula while training future American medical specialists in the 21st century is the aim of our study.

In general, at different times, innovative curricula in American medical education have been the subject of numerous discussions by foreign scholars. In the article, we have relied on the publications by N. Ali, C. Bazell, C. Bland, R. Fox, A. Kotwal, T. Lawley, C. Pfeifer, S. Seifer, G. Thibault, G. Whitman, and others. These works are devoted to both the theoretical aspects of innovative curricula and outlining the experience of their implementation with recommendations for further improvement. However, this issue has not received

enough attention in the domestic pedagogical space. Therefore, we believe that our study will benefit future changes in Ukrainian medical education.

STAGES OF EDUCATIONAL INNOVATION DEVELOPMENT

Since we consider the innovative curriculum as a kind of educational innovation, we will highlight its development stages. Overall, educational innovation involves four stages of development: planning, initiation, implementation, and institutionalization (see Table 1).

Table 1. Four stages of educational innovation development

Stage	Characteristics
Planning	There are proposals for an urgent change due to explicit and implicit factors. There is a development of a change vision. The organizational aspects of a change are also significant in this case
Initiation	It lasts for a year, old organizational models are unlocked, and innovation is introduced in the workplace or the educational environment
Implementation	At this time, the innovation continues to be implemented in practice. However, trial and error modification occurs
Institutionalization	Innovation becomes a „new order” of organizational behavior. Members of the organization no longer use innovation as something new but instead appeal to it as a norm

Source: Bland, Starnaman, Wersal, Moorhead-Rosenberg, Zonia, Henry, 2000, p. 575–594.

Following G. Whitman and R. Raymond, we agree that „innovation is best measured by looking at advances that have withstood the test of time and are widely regarded as having had important positive effects on health care” (Whitman , Raymond , 2009) and development of medical education in general.

INNOVATIVE CURRICULUM AS A CHALLENGE IN AMERICAN MEDICAL EDUCATION AT THE TURN OF THE 20TH AND THE 21ST CENTURY

In 1998, S. Seifer noted that proper medical „competence for future practice will be difficult to achieve in the current medical education environment, which emphasizes the care of individual patients in specialized inpatient settings. Education and training in these competences must be balanced with the individual, organ-based, and disease-specific model that has been the predominant driving force in medical education for several decades” (Seifer, 1998, p. 400–441).

So, at the beginning of the 21st century, the American educational space faced the necessity for each medical school to review the curriculum to see if it was obvious and responsive to society’s needs at the time. Most of those education institutions had problems making the curriculum changes and developing new educational strategies for further incorporation into the curriculum. Thus, innovative health curricula have never been more critical than they were then (Miner, Richter, 2008, p. 1–4).

According to R. Fox, innovative curricula:

- deal with the support of self-realization and positive self-esteem of a student;
- help the student to develop and clarify his/her values;
- focus the student on ways to overcome changes and problems, and solve them;

stimulate the development of skills that are important for further learning and efficient problem-solving (Fox, 1972, p. 131–143).

Therefore, the main challenge of American medical education in the early 21st century was creation of such curricula that would be innovative in practice. Thus, before developing innovative curricula, some American medical schools took into account the faculty and students’ views and analyzed them in detail, concentrating on future risks.

For example, in the early 2000s, Emory University School of Medicine surveyed whether the curriculum at the time was as innovative as it needed to be to prepare those involved in medicine and innovations soon, or whether it could be improved. Moreover, the survey concerned curriculum integration with

clinical and research missions, etc. As a result, constructive ideas were proposed, further discussed, and developed. Equally important was the fact that the teaching staff consciously and voluntarily sought to improve the curriculum and had the belief that change could be positive in the process of training a new generation of specialists (Lawley, Saxton, Johns, 2005, p. 311–320).

So, in the 2010s, many projects and programs were developed and proposed. They aimed at the development and implementation of radically new curricula in American medical schools.

TYPES OF INNOVATIVE CURRICULA IN U.S. MEDICAL SCHOOLS IN THE 21ST CENTURY

The beginning of the 21st century marked the emergence of „*The Undergraduate Medical Education for the 21st Century*” (the UME-21) program. Firstly, it was to encourage medical schools to work with managed care organizations. Secondly, it became a basis for developing innovative curricula related to preparing medical students to provide quality care and management of this care within an integrated health care system. All in all, the UME-21 was focused on leadership and teamwork (O’Connell, Pascoe, 2004, p. 51–56).

Therefore, this project demonstrated that leadership in health education could lead to innovative changes in curricula. Besides, teachers of three disciplines (family medicine, general internal medicine, and general pediatrics) were able to work together to make such changes by sharing the time and content of work responsibilities (Bazell, Davis, Glass, Rodak, Bastacky, 2004, p.15–19).

M. O’Connell and J. Pascoe stated that eight medical schools involved in the program developed leadership and teamwork curricula. Three medical schools had didactic sessions and seminars to focus on leadership and teamwork. One college used anatomical posture commands as a „laboratory” to demonstrate the material. Medical students positively assessed these curricula (O’Connell, Pascoe, 2004, p. 51–56).

C. Haq and others add that in the context of the UME-21, curricula have been developed to improve the medical students’ communication skills during twelve years of work in twelve participating medical schools. Students acquired professional communication skills through various teaching methods and applied them in interaction with patients, medical teams, and members of society.

Educational topics included conflict resolutions, unfortunate news, patient care, communication with patients' families, communication with patients from different segments of the population, and so on. Students' communication skills were assessed using various methods, including objectively structured clinical examinations, observations, and feedback (Haq, Steele, Marchand, Seibert, Brody, 2004, p.43–50).

In 2008, K. Miner and D. Richter pointed out that innovations in the curricula and ways of applying them would allow the scientific community to expand the contingent of students it served (Miner, Richter, 2008, p. 1–4).

There are the following significant aspects of an innovative curriculum:

- teaching methodology that focuses on the beliefs, values, and behavior of teachers and learners; relevance of the content of a specific discipline; improvement of technologies; benefits of competences; the expediency of distance learning; exercises/training, game programs, and new formats;
- current topics that are often associated with the role of teachers. These topics are usually based on theory and evidence but are related to the specific disciplinary interests of the faculty (Miner, Richter, 2008, p. 3).

Curriculum transformation and proper communication skills of future professionals during preclinical training have become relevant for American medical education in the early 21st century.

Thus, in 2009, the Warren Alpert Medical School of Brown University, participating in a project initiated by the Kenneth B. Schwartz Center, received grant funds for the development and implementation of the *Schwartz Communication Sessions*. The activities targeted the first- and second-year medical students to develop the necessary skills for effective communication with patients (Shield, Tong, Tomas, Besdine, 2011, p. 408-416).

During sessions there were discussions on clinical cases in large and small groups, using various didactic methods. Before each session, students reviewed a specific case by reading materials or watching videos. After the introductory remarks before the topic, the situation was discussed and role-playing games were performed in small groups. Students also analyzed and developed communication strategies proposed by their group leaders. Finally, students and faculty joined

in a large group for discussion with a group of experts (Shield, Tong, Tomas, Besdine, 2011, p. 408-409).

Regarding the course, R. Shield and others note that „the incorporation of communications teaching directly challenges the false notion that effective communication and empathy are innate and immutable characteristics of the learner. Recommendations from faculty and students to include presentations by patients, for example, have led to enhancements to the curriculum as the program continues to evolve and improve” (Shield, Tong, Tomas, Besdine, 2011, p. 408-409) (as of 2011. – A. K. and M. B.).

There is another interesting example of the innovative curriculum focused on developing communication skills for successful interaction with patients. It was designed for medical students at Harvard University-MIT while preparing for a doctorate degree in medicine. The innovation was proposed for the first time in 2014 in the context of the *Introduction to Clinical Medicine (ICM) HST 200* course (Ali, Pelletier, Shields, 2017, p. 337–345).

In this curriculum, clinical scenarios have been developed in advance based on real patient medical histories. The scenarios concerned the announcement of bad news, features of patient care, medical errors, organ donation to a close relative, communication with family members, etc. Before starting such activities, students were sent didactic material – a brief description of the case by e-mail, with the purposes and objectives. Before working out a specific scenario, students were reminded that the main task was to demonstrate communication skills. Patients-volunteers, faculty members, and doctors were involved in such events. In the end, there was a brief analysis and discussion of the developed scenario by all participants. Thus, during such training students could not only learn more about patients but also become motivated to improve their communicative skills (Ali, Pelletier, Shields, 2017, p. 338).

The developers of this educational innovation argue that they are „the first to use real patients as volunteer co-teachers with physicians for medical students to practice communication skills during preclinical years in medical school. This curriculum creates an opportunity for students to engage with real patients in a memorable way because the cases used for training are based on the actual experiences of each patient” (Ali, Pelletier, Shields, 2017, p. 342).

Among the well-known innovative curricula in American medical education, there is the three-phased curriculum, developed by C. Pfeifer.

According to the author of this educational innovation: „Through the reduction of wasteful elements of the current system (traditional. – A. K and M. B.), a new paradigm in which all three steps of the USMLE can be taken within a four-year framework would emerge” (Pfeifer, 2018).

Thus, this innovative curriculum aims to reduce training time and enhance preparation for the exams of the „Step”.

In 2020, G. Thibault outlined six innovative trends that will dominate while the training of health professionals soon:

- interprofessional education;
- long-term integrated clinical education with a focus on the patient, community, and chronic diseases;
- focus on the social determinants of health and socio-humanistic missions of the medical professions;
- attention to the continuum of medical education professions for lifelong learning and long-term well-being of health workers;
- transition to competence-oriented, time-varying medical education;

implementation of artificial intelligence and the latest educational and information technologies in medical education (Thibault, 2020, p. 685–694).

We are convinced that these trends will contribute to the emergence of numerous innovative curricula for the future not only in the United States but around the world. It remains a matter of time.

CONCLUSIONS

Thus, the innovative curriculum belongs to the variety of educational innovations and, accordingly, has the following stages of development: planning, initiation, implementation, and institutionalization, each of which lasts for some time.

The main challenge of American medical education in the late 20th century and the beginning of the 21st century was creation of such curricula that would be innovative in practice and develop the necessary professional competences. Thus, „*The Undergraduate Medical Education for the 21st Century*” program led to numerous innovative curricula to evolve communication skills, leadership, and teamwork. The Pfeifer curriculum dealt with reducing training time and enhanced preparation for the „Step” exams. Warren Alpert Medical School at Brown

University created and implemented the *Schwartz Communication Sessions*. In the context of the *Introduction to Clinical Medicine (ICM) HST 200* course, medical students at Harvard University-MIT improved their professional communication skills.

Innovative curricula continue to appear in American medical education. They correspond to the current social, political, economic, and cultural trends and strive to prepare the specialists of the future.

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