

Global minimum essential requirements: a road towards competence-oriented medical education

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SUMMARY *With the growing globalization of medicine and the emerging concept of a ‘global profession of physicians’, the issue of the essential competences that all physicians must possess becomes sharply focused. If defined, these competences would help indicate what teachers are supposed to teach, what students are expected to learn and what educational experiences all physicians must have. The ‘minimum essential competences’ that all graduates must have if they wish to be called physicians were identified by the Institute for International Medical Education (IIME), sponsored by the China Medical Board of New York, through working groups of educational and health policy experts and representatives of major international medical education organizations. In the first phase of the project, seven domains have been identified that define the knowledge, skills, professional behavior and ethics that all physicians must have, regardless of where they received their general medical training. Appropriate tools to assess each of the domains have been identified. In the second phase of the project the ‘global minimum essential requirements’ (GMER) will be implemented experimentally in a number of Chinese medical schools. The aim of the third phase will be to share the outcomes of this educational experiment, aimed at improving the quality of medical education, with the global education community.*

Introduction

Physicians are now members of a global community. Created by interlocking economies, a global language, the informatics revolution and rapid travel, globalization has penetrated all aspects of human existence including science, public health, the environment, law, security and religion. Medicine will not be left untouched by those forces and will at a minimum be required to address the question ‘What kind of physician does this global village require?’

This development is quite natural, as medicine has always considered itself to be a global profession and medical knowledge, research and education have traditionally crossed national boundaries. Furthermore, many aptitudes of physicians are universal, such as the doctor–patient relationship. This relationship, with its implied obligations by the physician and the patient, does not vary by time or place and it is a universal part of any good medical education program (Schwarz, 2001).

During the past decade, various multilateral trade agreements and commercial conventions have pointed to the time when a freer flow of physicians across international boundaries will occur. This development has pushed medical leaders in various countries to look at their

educational programs, qualifications standards and certification processes through new, ‘global’ glasses. Often, new multinational agreements have emerged from this analysis. For example, Mercado Común del CONO SUR (MERCOSUR)—the southern Common Market, an agreement between Brazil, Paraguay, Uruguay and Argentina—addresses the need for physicians for a single continent. Furthermore, the Treaty of Rome declared that all professional services, including that of doctors, would be freely exchangeable.

International standards are emerging as the way to secure compatibility of different areas of people’s lives across international boundaries. International standards already exist for financial transactions and telecommunications, enabling people to communicate and transact business with each other internationally. They are also emerging in such areas as environmental protection, food safety and the pharmaceutical industry. Medical education will not escape this movement, in large part because when Western people see doctors in countries other than their own, they expect the same professional conduct and assume the same level of expertise as they would find in their physicians ‘at home’. It follows that medical education institutions in the foreign countries will also be expected to produce graduates that meet these minimum expectations.

Over the past few years, several national and international groups have proposed recommendations to improve the quality of international medical education and adapt it to the rapidly changing global situation. However, most of these efforts have not received proper international or national recognition. One such important initiative was a meeting organized jointly by the World Health Organization (WHO) and the Educational Commission for Foreign Medical Graduates (ECFMG) in 1994 in Geneva. This meeting brought together 28 experts from 20 countries to discuss the topic: ‘Toward a Global Consensus on Quality Medical Education: Serving the Needs of Populations and Individuals’. The focus of this conference was undergraduate medical education, which laid the foundation for future professional life. Undergraduate medical education is the first step and in many ways the most important part of the three-part medical education continuum. At the conference, there was agreement that since many competences required by physicians across the world were

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identical, the goal of producing global medical education standards would be fully justified. It was agreed that besides general core competences such as a knowledge of the sciences basic to medicine and clinical skills there are other competences specific to medicine such as the ability to communicate effectively, teamwork, critical reasoning, ethics, self-assessment and self-directed learning.

The concluding remarks were made by the lead author of this paper, M. Roy Schwarz, MD, who at that time served as Senior Executive Vice-President of the American Medical Association. Reviewing the changes in global economics, telecommunication and informatics, international travel and various trade agreements among the nations and regions, a vision was presented of medicine and medical education in the next century. Indicating the growing global cooperation in medical research, public health and medical education, and stressing views expressed during the past days' discussions, he predicted the emergence of the 'global physician' who should possess universal core competences required for medical practice throughout the world. He has also considered, as an unavoidable future development, a process of international certification of physicians based on these universal core competences and an international accreditation of medical schools. Since a global profession cannot be a reality without a set of core competences that define what a physician is, regardless of where he/she is trained, he suggested that a process be put in place, including the formation of an international expert group to develop global recommendations on the core competences, core curriculum, and evaluation methods. Despite the lack of an immediate response to this plea, the changes that have occurred since this conference increase the desirability of defining the meaning of being a physician in a global community (World Health Organization/Education Commission for Foreign Medical Graduates, 1995).

In the meantime, the WHO, which for a long time was active in all efforts aimed at improving the quality of medical education, has shifted its interest and support to other health areas. More recently, a very active role on the international education scene was undertaken by the Association for Medical Education in Europe (AMEE) in the form of a global forum for research. This forum has led to many innovative initiatives in medical education. In addition, in late 1999, the World Federation of Medical Education (WFME) started to develop a set of standards to be used for the global accreditation of medical schools (World Federation for Medical Education Task Force, 2000). This set of international standards addressed the *process* of medical education and focused on the structure and function of medical schools, including educational procedures, duration of programs, facilities, number of staff available for instruction, and other resources necessary to provide educational experiences for students. Such process standards have been used for years by the US Liaison Committee on Medical Education for the accreditation of the medical schools in the United States and Canada and have also been adopted for use in a small number of other countries.

Although the proper admissions policies, a relevant curriculum, competent teachers and essential educational facilities are necessary for a quality education, these

elements alone do not guarantee that graduates will have acquired the competences necessary for high-quality medical practice. In short, a medical school could meet accreditation requirements without educating graduates who are necessarily competent in all the desirable areas. In part, this is because the minimal competences that every student should have at the end of medical school training have not been defined nor have the proper methods been developed to assess whether these competences have been acquired by the graduates.

With the growing globalization of medicine and the emerging concept of a 'global profession of physicians', the issue of the essential competences that all physicians must possess becomes very sharply focused. If defined, these competences would help indicate what teachers are supposed to teach, what students are expected to learn and what educational experiences all physicians must have. In addition, mechanisms to assure that all graduates of medical schools possess these competences at graduation must be developed (Schwarz, 1998; Hamilton, 2000).

In 1999, the China Medical Board of New York created the Institute for International Medical Education (IIME), which was entrusted with the responsibility of defining the 'minimum essential competences' that all graduates must have if they wish to be called physicians (Wojtczak & Schwarz, 2000, 2001). With these competences in hand, graduates will be prepared to enter specialty training. The IIME project consists of three phases, as follows:

Phase I: Definition of minimum essentials:

- Develop the 'global minimum essential requirements' (GMER) that define the knowledge, skills, professional behavior and ethics that all physicians must have regardless of where they received their general medical training.
- Identify and develop the methods necessary to assess graduates' competences and to evaluate whether a school is providing the educational experiences that allow for the acquisition of these competences.

Phase II: Experimental implementation:

- Use the competence assessment methods to evaluate the educational outcomes of a small number of leading Chinese medical schools.
- Initiate programs to remedy envisaged weaknesses in the educational process and repeat the evaluation to determine whether the weaknesses have been eliminated.

Phase III: Globalization:

- Share the outcomes of this educational experiment, aimed at improving the quality of medical education with the global education community.
- Facilitate the development of a global medical education network.

Phase I: Definition of minimum essentials

The first phase of the project, which is devoted to defining the 'Minimum Essentials', began in 1999 with the establishment of the IIME and the appointment of three committees. The first committee or *Steering Committee* was given the role of advising the leadership of the Institute on the implementation of the project. This 'brains trust'

consists of eight senior educational and health policy experts with broad national and international experience.

The second committee was given the task of defining and formulating the 'Global Minimum Essential Requirements' (GMER). This committee was called the *Core Committee* and it consisted of 17 experts in medical education selected from around the globe. The GMER were to include the knowledge, skills, professional attitudes and behavior that each graduate should possess at the time of graduation from medical school regardless of where he/she is trained. They also were to represent the 'essential (core) requirements' necessary for a physician to start graduate medical education (specialty training) or in some countries to practice medicine under specified supervision.

The third committee, or *Advisory Committee*, consists of representatives from every major organization in the world with an interest in medical education. This committee is composed of Presidents or Senior Representatives of 14 major international organizations with a long history of devotion to medical education. Included in this group are the Accreditation Council for Graduate Medical Education, the American Association of Medical Colleges, the Association for Medical Education in Europe, the American Medical Association, the Education Commission for Foreign Medical Graduates, the National Board of Medical Examiners, the Pan-American Federation of the Association of Medical Schools, The Network: Community Partnerships for Health through Innovative Education, Service and Research, the World Federation for Medical Education, the World Health Organization, and other national medical education associations. The Advisory Committee provides the forum for exchange of information and advice based on the perspective of these organizations. To date, the advice and counsel received has been invaluable.

Membership of the committees can be found on the IIME website: www.iime.org/committee/index.htm

Global minimum essential requirements

The IIME Core Committee has defined the minimum essential core competences and grouped them under seven broad educational domains. These domains were identified through a review process involving literature searches, obtaining input from unpublished sources and from educational experts, and by a pooling of the experience and expertise of the committee members. Every existing major published listing of standards, outcomes and processes of medical education was incorporated into reference materials for the committee.

The seven domains that emerged from these deliberations included the following:

- (1) Professional Values, Attitudes, Behavior and Ethics
- (2) Scientific Foundation of Medicine
- (3) Clinical Skills
- (4) Communication Skills
- (5) Population Health and Health Systems
- (6) Management of Information
- (7) Critical Thinking and Research

These domains are considered to be truly 'essential', i.e. every physician must have them if he/she wishes to be

called a physician. As such, they are considered to be of crucial importance for practicing medicine in the 21st century. The meaning of each domain may be found in the 60 learning objectives that define what each domain is intended to cover.

The importance of the two domains called '*Scientific Foundation of Medicine*' and '*Clinical Skills*' is well understood and universally accepted since they have always created the foundation for effective medical care. The remaining five domains, while acknowledged as being important, have not been 'codified' or defined to the degree included in the IIME effort.

There is no doubt that the domain entitled '*Professional Values, Attitudes, Behavior and Ethics*', which reflects the essence of medical and public opinion, is essential to the practice of medicine. Many of the daily complaints against physicians and medical services relate to this area. Physicians must be prepared to meet the consequences of the rapid advances in biomedical sciences, information technology, changes in organization and management of healthcare and increasing economic constraints without losing the traditional values that have guided medicine for thousands of years. In addition, the advances bring their own unique and new ethical, social and legal challenges that physicians must respond to.

No one doubts the importance of '*Communication Skills*' as an essential tool for all physicians. This follows since effective communication is necessary to create an environment in which mutual learning occurs among patients, their relatives, members of the healthcare team, colleagues and the public. Communication is essential if the physician is to understand the context of the patients' beliefs and cultural values. In addition, the physician must be able to teach, advise and counsel patients, families and the public about health, illness, risk factors and healthy lifestyles.

The selection of '*Population Health and Health Systems*' as one of the essential domains reflects the growing conviction that it is no longer sufficient to focus on the understanding of diseases, how a given disease affects an individual and the diagnosis and management of that disease. Given the global epidemics facing medicine including HIV/AIDS, tobacco and violence, there is a need for knowledge and skills in the health of populations. Physicians must work in teams with other health professionals to promote, maintain and improve the health of a given population.

Such efforts often must be conducted in the context of the existing healthcare system. Hence, physicians must also know the principles upon which health systems are built, their structure, and their economic and legislative foundations. Anything short of this will result in a physician who cannot care for the health of a given population.

The domain '*Management of Information*' is justified by the fact that the practice of medicine and the management of a health system, now and even more in the future, depend on the effective flow of knowledge and information. Therefore, physicians need to know how to use modern communication and information technology to access and manage medical information. They also have to understand the capabilities and limitations of information technology, and be able to use it for medical problem solving and decision making.

Finally, 'Critical Thinking and Research', as a priority domain, reflects the need for critical evaluation of existing knowledge, technology and information. This is essential if a physician is to be able to solve health problems. In caring for individual patients, physicians must apply the principles of evidence-based medicine in making decisions about the utilization of limited medical resources. Graduates have to learn how to critically evaluate various data and information and understand the role of research in quality medical practice. This is especially true since the medicine of today will not be the medicine of tomorrow.

Advances in genetics, immunology, neuroscience and proteomics are transforming the face of medical practice. Educators face the challenge of how to prepare trainees of today for tomorrow's medicine. It is clear that the continued acquisition of new knowledge, technologies and skills will be required. Hence, graduates have to be committed to lifelong learning and they have to know how to go about such learning in this new information age. In addition, they have to be aware of their own limitations, be ready for regular self-assessment and peer evaluation and be willing to undertake continuous self-directed study.

It is worthwhile to say that in many recent publications dealing with various aspects of medical education, one can find many similarities in the learning objectives. This indicates a broad consensus among the global medical academic community about what constitutes the most important competences required for high-quality medical practice today and tomorrow.

The concept of 'Global Minimum Essential Requirements' implies a set of global minimum learning outcomes for graduates of medical schools. However, it is essential to understand that local, national and even regional needs must also be taken into account. This may translate into a need to understand cultures, socioeconomic conditions and patient-physician relationships at a non-global level. A particular school must be responsive to these needs even if the needs are not global in nature. Hence, a curriculum to provide the 'global minimum essentials' would be incomplete without the addition of the unique educational experiences necessary to address the local, national or regional health needs. The concept of 'GMER' does not imply a global uniformity of medical curricula and educational processes. Medical schools should adopt their own particular curriculum design, but in so doing they should first assure that their graduates will possess the core competences stated in the GMER document and, second, the competences necessary to meet the unique healthcare needs of the area they serve.

The acceptance of the 'Essentials' and the incorporation of them into curricula are not in and of themselves likely to change graduates' competences unless they are linked to an evaluation process. The assessment of the learning outcomes expressed in 'GMER' should ensure that educators will focus on these outcomes when they are planning educational programs and that students will try to acquire them before the time of evaluation. Therefore, before starting the implementation of the project, a special *Task Force for Assessment* was established consisting of experts in assessment technology. The overall goal of this Task Force was to develop a set of methods to be used in the assessment of each of the stated learning objectives. At the

present time, the universally accepted measurement instruments for all of the objectives set forth in the GMER do not exist, particularly those related to professional attitudes and values. However, the time has come to begin the quest to develop instruments, methods and processes that will be used to assess these competences. Clearly, a research agenda will emerge from further experience in this area.

To further support the implementation of the GMER, the Institute has created a 'Glossary of Medical Education Terms' giving the definition of the terms used in IIME documents, and an online 'Worldwide Database of Medical Schools', which will be reproduced in this and the following five issues of *Medical Teacher*. They are also available on the Institute's website.

Phase II: Experimental implementation

The second phase of the project (Phase II)—the Experimental Phase—will begin in 2002. In this Phase, the 'GMER' will be used to evaluate graduates' competences of several leading medical schools in China. It may be necessary to allow a school to use evaluation methods that are consistent with its particular curriculum. However, these instruments must cover all domains and learning outcomes. Although the project foresees, primarily, the evaluation of students, it may be necessary in the beginning to use an aggregation of data from many students for the evaluation process.

Once the initial evaluation is completed, efforts then will be made to improve all areas of weakness that are found. It is hoped that then a second evaluation will then be made to see whether the weaknesses have been corrected. If a school meets all of the essentials, they will be recognized in a formal manner.

It is clear that not all aspects of each competence can be fully evaluated the first time this is tried. There will be a continuous process of improvement of the evaluation process based on the experiences gained through the evaluation.

Phase III: Globalization

Once the process has been refined, the third phase of the program, the Dissemination Phase, will begin. The evaluation instruments, the process employed, the problems and areas in need of further development will be shared with the world community. This, together with the other efforts currently under way, should provide an added stimulus for a global network.

Operational conclusions

In the course of this effort, certain principles and implications have become clear. Some of these are as follows:

- The GMER prepare physicians for the professional roles required at the present time and set in place attitudes, skills and knowledge that serve as a basis for lifelong learning. Graduates of medical schools are not to be thought of as technicians trained by a 'cook book' but are highly educated professionals capable of practicing the art and science of medicine now and in the future.

- The IIME-initiated GMER project is an experiment. It has never been done before either in its global goals or in its focus on outcome competences. Learning will occur as the project proceeds and thinking will mature and understanding will broaden. It cannot be expected to 'get it right' in all respects the first time, and adjustments and improvements will undoubtedly have to be made.
- The GMER are not American, ECFMG, AAMC or China Medical Board 'requirements'. They are 'owned' by all who have helped in their development. It is hoped that eventually they will be adopted by the global medical education community as their standards. If they are viewed as 'requirements from the USA or from the developed world', they are doomed.
- The competences contained in the GMER define what a physician is. They do not define what a specialist is. Hence, they are the 'Core' that makes for a single profession of medicine.
- This project has attempted to cooperate with all the major medical education organizations of the world. The purpose of this effort included recognizing the important and legitimate role that these organizations have played in medical education in the past and profiting from their expertise and long experience in this field. It is clear that for an effort of this nature to succeed, 'we' must all be in it together.
- It is not the intent of this effort 'to have foreigners evaluate our medical schools'. First, participation in the experiment is voluntary. Furthermore, the GMER were developed by representatives from the global medical enterprise. As such, they represent a consensus of the global-oriented Core Committee. This was and is a global community effort and not one emanating from a single country, organization or program.
- Some programs do not and may never meet these requirements. This does not mean that their products are not playing important roles in healthcare in their local setting. It does mean that these professionals are not 'physicians' in the sense defined in this project. As such, it would be useful to refer to the products by a name other than physician.

Presently, many educational leaders agree that the time is right for an effort such as this. If it is not done with a constructive approach guided by the knowledge and experience of worldwide experts in medical education, other less palatable approaches to standards development may begin to emerge. The challenge before the medical education community is to use globalization as an instrument of opportunity to improve the quality of medical education and its outcomes. In so doing the quality of medical practice will be significantly improved around the globe (Harden *et al.*, 1999).

It was understood from the beginning of the project that a focus on competences or outcomes of the medical education process would have significant implications for medical school curricula. At present, the results of implementation are difficult to predict. However, the situation can be compared to the early 1900s when Abraham Flexner defined the proper foundation of 20th-century medical education for North America and Canada. The long-term outcome of the Flexner effort was a remarkable improvement in the quality of medical education and patient care across the North American continent. It is possible that the IIME-GMER effort could have the same effect in China and around the globe.

Note: Lists of the members of the Committees referred to in this paper can be found on the IIME website: www.iime.org/committee/index.htm

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