

special communication

The current status of medical education in the Gulf Cooperation Council countries

Khalid A. Bin Abdulrahman

From the College of Medicine, King Saud University, Riyadh, Saudi Arabia

Correspondence and reprints: Khalid A. Bin Abdulrahman, MD, ABFM, MHSc (MEd) · Associate Professor of Family Medicine, Director of Meical Education Center · College of Medicine, King Saud University · PO Box 2925, Riyadh 11461, Saudi Arabia · T: +9661-467-2495 F: +9661-481-1853 · Khalidab@ksu.edu.sa, drkhalid63@gmail.com · Accepted for publication November 2007

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BACKGROUND AND OBJECTIVES: In the last two decades, the curriculum in medical education has changed so as to maintain its efficiency and effectiveness. Considerable changes are underway in many medical colleges worldwide. This study assessed the current status of the undergraduate curricula in the medical colleges of the Gulf Cooperative Council (GCC) countries, in relation to the SPICES (student-centered, problem-based, integrated, community-based, elective and systematic) model.

METHODS: A structured open-ended data form was used in the collection of information from the appropriate authorities in 30 medical colleges of the GCC countries (Saudi Arabia, Oman, Kuwait, Qatar, Bahrain, United Arab Emirates and Yemen) in the year 2005.

RESULTS: Of 30 medical colleges, 13 (43.3%) were located in Saudi Arabia. The annual intake of students in the year 2005 in these 30 colleges was 3225, of which 64.15% were males. Twelve colleges (40%) followed the traditional curriculum, while the remaining (60%) followed a hybrid problem-based learning (PBL) curricula. Most of the colleges were moving towards the more desirable aspects of the SPICES model. The majority of the traditional colleges were planning to change their curricula to hybrid PBL curricula. Almost all new medical colleges were adopting the hybrid PBL curricula.

CONCLUSION: Despite the diversity in the curricula followed in medical colleges in GCC countries, most of these colleges either are following or are moving towards the new trends in medical education curricula.

The main mission of medical education is to maintain and improve the quality of health care delivered by doctors to patients. This process is directly related to the quality of medical education, and nowadays there is growing concern among medical educators that conventional modes of teaching medical students neither bring out the right qualities in learners nor impart a life-long respect for learning.¹ In 1899, Sir William Osler² realized that the complexity of medicine had already progressed beyond the ability of the teachers to teach everything that students would need to know. Osler recommended abolishing the lecture methods of instruction and in this way allow students more time to study on their own.

Recent years have witnessed profound changes in political systems, epidemiological patterns, demographic transition, micro-economic strategies, technological trends as well as health care systems. To cope and conform with these changes, medical colleges around the world have been increasingly confronted with the challenge of making their curricula more meaningful and

relevant to the needs of the day and to produce doctors oriented to the real needs of the community. Many authorities have highlighted the need for reorientation of medical education and suggested strategies for directing such changes.³⁻¹² The Edinburgh Declaration of World Federation for Medical Education (WFME)⁵ and Tomorrow's Doctors of the General Medical Council (GMC) of the UK⁶⁻¹² outlined a number of specific strategies to guide reform and bring about need-based changes in medical education. The most recent recommendations of the GMC Education Committee were intended to promote a new approach to undergraduate medical education and to give a perspective on its aims, which differ substantially from those of traditional curricula.⁶ The Edinburgh Declaration, currently translated into all major languages, has been very widely adopted as a basis for reform of medical education.¹³

Most medical colleges in Asia have traditional, teacher-centered and hospital-based training.¹⁴⁻¹⁶ The Arabian Gulf countries (Bahrain, Kuwait, Oman, Qatar, Yemen, United Arab Emirates, and Saudi Arabia), oth-

erwise known as countries of the Gulf Cooperation Council (GCC), are a rapidly developing part of the world. Their total population is about 33.5 million.¹⁴ These six countries share cultural, religious and geographic characteristics. Over the past two decades, these countries have experienced significant growth in health care facilities, including new educational and research institutions. The first medical school, in Saudi Arabia, was started in 1969, and in the 1970s other schools opened in Bahrain, Kuwait and Yemen, whereas Oman and UAE only joined in the mid-1980s. In 2002 the first medical college was established in Qatar. Most of these colleges, like many similar institutions worldwide, apply Abraham Flexner's report (1910) on North American Medical Schools that defined the vision on medical education. This proposed vision is characterized by a dichotomy between basic and clinical sciences. The basic sciences are termed pre-clinical, which were taught in the first 3 years to be later followed by the clinical phase. Even though the medical education paradigm has evolved over the years, an increasing number of medical schools are working to improve and maintain curriculum, aiming to increase the effectiveness of the process of medical education.¹⁷⁻¹⁹ Periodic reviews of medical school curricula were carried out in each medical school, independently, and these efforts have generated useful reforms through the years.^{20,21}

Curricular innovations should be implemented in new medical colleges upon their establishment, whereas established medical colleges could implement these innovations in a phased manner. In this respect, Professor Harden highlighted the importance of student-centered learning as being pivotal to the thinking about learning and teaching.²² The SPICES (student-centered, problem-based, integrated, community-based, elective and systematic) model or elements of it, which he has proposed, was used as the educational approach in many schools, with a focus on PBL²³⁻²⁶ and community orientation.^{22,26-28}

The current descriptive study was carried out with one main objective: to assess the current status of undergraduate medical education curriculum in the medical schools of GCC countries, in relation to the SPICES model.

METHODS

A structured data form was sent to all the 30 medical colleges in GCC countries in year 2005. It requested data on type of college (government/private), annual intake of students, number of annual graduates, criteria of admission, type of curriculum and status of hot topics in the curriculum. The colleges were asked to compose

their curriculum with the SPICES model and to record their future plans towards curriculum development. The completed data form had to be signed by the Dean or Vice-Dean of each one of the designated colleges.

The SPICES model leads to six educational strategies, which represent a continuum from (i) teacher-centered to student-centered learning, (ii) information gathering to problem-based learning (iii) disciplined-based to integrated learning, (iv) uniform to having electives in addition to a core curriculum, and (v) apprenticeship-based to a systematic approach in curriculum planning and delivery. In addition to the paradigm shift to a student-centered, problem-based and integrated curriculum, the SPICES model for curriculum planning also includes a shift from hospital to community-based, from a uniform course program to offering of electives, to further encourage self-directed learning and from a rigid to a more systematic approach in designing and planning the curriculum. The checklist in Table 1 was used to evaluate the present curricula in medical schools in GCC countries. It helped in assessing the status of current undergraduate curricula between innovative and traditional curriculum.

RESULTS

The response rate for the completed data forms, duly signed by the dean and vice-dean of the colleges was 80% (24 out of 30). As for the colleges that did not respond, the required information was obtained by telephone, fax, emails and/or from websites. Of the 30 medical colleges, 13 (43.3%) were from Saudi Arabia, 9 (30%) were from Yemen, 3 (10%) were from the UAE, 2 (6.7%) were from Oman, and there was 1 each from Kuwait, Bahrain and Qatar. The distribution of type of medical colleges (Table 2) shows there were 21 (70%) government colleges and 9 (30%) were private.

The annual intake of students in the year 2005 in these colleges was 3225, of which 2069 (64.15%) were males. The number of graduates in the year 2005 was 1787, of which 1121 (62.7%) were males. Access to medical colleges in all of the GCC countries was by high school entry followed by a premedical preparation year, except in one college in Saudi Arabia (King Saud bin Abdulaziz University for Health Sciences). The traditional curriculum was followed in 12 (40%) colleges, whereas 18 (60%) colleges were following hybrid form of problem-based learning curriculum (Table 3).

When the curriculum for each college was tested against the SPICES model, the responses of 27 colleges are shown in Table 4. Information gathered by questionnaire, as summarized in Table 4, shows that the curriculum trends appear to move towards integration,

Table 1. Checklist for assessing innovative versus traditional curricula.

Innovative curriculum	Where is your curriculum located? Please tick the appropriate. Example:							Traditional curriculum
Student-centered				√				Teacher-centered
Problem-based		√						Subject-based
Integrated	√							Discipline-based
Community-based						√		Hospital-based
Elective			√					Standard program
Systematic		√						Opportunistic

- Student centered: The most important consideration is that students should learn excellently. Teacher convenience and status come second.
- Problem based: Students learn to solve problems (clinical and management ones) rather than just memorizing facts.
- Integrated: Many subjects are taught together; all those parts which deal with a specific problem. Separate 'subjects' are no longer taught.
- Community based: Students learn new knowledge and skills in community settings and not just in large hospitals as in the past.
- Electives: The curriculum is not completely fixed; students get opportunities to pursue their individual interests.
- Systematic: Students learn to manage all important problems, carefully by practical planning. Students are no longer put into the ward (or clinic) where we hope for the best.

PBL and community-oriented medical education. The distribution of the current status of hot topics in the curriculum of 19 colleges is shown in Table 5. Only 19 (63.3%) colleges indicated a future plan of curriculum development and most had a short-term plan to develop their curriculum (37%) or to change from traditional to a hybrid PBL (26%) (Table 6).

DISCUSSION

Change in medical education is currently a universal phenomenon. Recent trends in medical education reflect major shifts in educational paradigms arising from reappraisals of the relevance and the effectiveness of traditional medical education in the context of fast changing, complex and ever-increasing demands on the health care delivery system, including changing patterns of disease. It is not surprising to see medical educators continue to evaluate and introduce innovations into their curricula aiming to achieve appropriate outcomes for their graduates to enable them to meet the healthcare needs of the society locally and globally.¹⁷⁻²¹

The current study was carried out to gain an understanding of the current nature of the undergraduate medical curriculum in GCC countries. The study results indicate that undergraduate medical education is steadily taking the direction drawn by different medical educators and bodies around the world.^{5,8,10,29} This represents a healthy trend towards the evolution of curricula that strive to meet the needs of the local community and at the same time cater for the ever-demanding globalization of health care. The results also indicate that much attention has been paid to local requirements and available resources, as shown by the fact that 53.3% of schools were following a hybrid PBL teaching meth-

Table 2. Types of medical colleges in the GCC countries.

Country	Medical Colleges		Total
	Governmental	Private	
Saudi Arabia	12	1	13
Kuwait	1	-	1
Bahrain	1	-	1
Qatar	-	1	1
United Arab Emirates	1	2	3
Oman	1	1	2
Yemen	5	4	9
Total	21	9	30

Table 3. Types of undergraduate curricula in the GCC medical colleges, 2005.

Country	Type of curriculum		Total
	Traditional	Hybrid problem-based learning	
Saudi Arabia	7	6	13
Kuwait	1	-	1
Bahrain	-	1	1
Qatar	-	1	1
United Arab Emirates	1	2	3
Oman	-	2	2
Yemen	3	6	9
Total	12	18	30

Table 4. Where does GCC medical schools located in the SPICES model? (n=27*)

Innovative curricula	←					→					Traditional curricula
Student-centered (n=16)	2	3	5	6			2	4	5		Teacher-centered (n=11)
Problem-centered (n=16)	5	2	6	3				2	9		Subject-based (n=11)
Integrated (n=16)	9	5	2					3	8		Discipline-based (n=11)
Community-based (n=16)		1	4	5	6		5	4	2		Hospital-based (n=11)
Elective (n=16)	2	1	6	3	4		1	4	6		Standard program (n=11)
Systemic (n=16)	5	3	2	6			1	1	5	4	Opportunistic (n=11)

*Three colleges responded to SPICES model

Table 5. Distribution of responses towards hot topics in the curriculum (n=19).

Topics	Not included	Separate required course	Part of required course	Separate elective course	Part of elective course
Communication skills	2	6	11	-	-
Evidence-based medicine	5	1	13	-	-
Complimentary/traditional medicine	14	1	13	-	-
Genetic counseling	2	3	14	-	-
Geriatrics	7	1	8	-	-
Health care system	4	3	11	-	-
Medical informatics	6	5	7	-	-
Medical ethics	1	10	8	-	-
Health education	5	-	14	-	-
Research methods	2	7	10	-	-
Nutrition	1	2	16	-	-
Practice management	6	-	11	-	-
Other	2	-	-	-	-
Internet	5	-	-	-	-
Psychology	-	-	-	-	-

od, rather than a PBL teaching method. Nowadays, the trend in medical education is towards integrating pre-clinical courses, and making them student-centered, problem-based, within a system-centered curriculum and this approach has been adopted by some of the GCC countries and numerous countries in Asia.^{30,31} However, some of the GCC medical colleges are still suffering from a curriculum based on the traditional lecture method, which is not competent enough, and the doctors graduating from these institutions might have standards which are far from satisfactory when compared with graduates from medical schools in the UK, USA, and some European countries such as the

Netherlands. Disappointment with traditional education has arisen because too many students memorize, forget, fail to apply or integrate knowledge and resist further learning³² and as a result the traditional curriculum is not well accepted by the students, as it does not prepare doctors to meet the needs of the community they will be serving. The advantage of integrated curriculum was brought out in a recent study, in which the author concluded that the PBL method improved the student's ability in problem solving and their use of learning resources.³³

The need for greater integration of subjects in the medical curriculum has featured prominently in many

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reports on medical education including the GPEP report,³⁴ 'Educating Medical Students, the report of the ACME-TRI project³⁵ and Tomorrow's Doctors, the recommendations of the General Medical Council in the UK.⁸ Integrated teaching offers many advantages²² and may be a key factor in the delivery of an effective educational program.³⁶ Debate and discussions on integration, however, are often polarized as some teachers continue arguing as proponents and opponents of integrated teaching. In the SPICES model for educational strategies, integration is represented as a continuum, with full integration at one end, discipline-based teaching at the other, and with intermediate steps between the two extremes.²² The question to be addressed by both teachers and curriculum designers is not whether they are for or against integration, but rather where on the continuum between the two extremes should they place their teaching. The responders in the current study tried to fit the curriculum followed in various GCC medical schools between the traditional and innovative curriculum. However, the study could not identify the exact reasons why some of these medical schools still follow the traditional method of teaching. One possible reason for maintaining the traditional lecture method in some of the medical schools of GCC countries could be that medical teachers have an inadequate understanding or are unaware of the innova-

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Table 6. Future plans for curriculum development in the GCC countries (n=19).

Future plan	No. (%)
No plan to change the curriculum	2 (11)
Short-term plan to develop the curriculum	7 (37)
Short-term plan to change from a traditional to a hybrid form of problem-based learning	5 (26)
Long-term plan to move towards an innovative curriculum	2 (11)
Other plans	3 (16)
Total	19 (100)

tion in medical education that is taking place in recent years.

In conclusion, this study uncovered the diversity in curricula followed in medical schools in the GCC countries, ranging from the traditional to the innovative hybrid PBL-based. It is for each medical school to determine its own educational goals, to design and follow the PBL-based curriculum to fulfill these goals, to analyze the context in which the school operates, to identify the factors that constrain its operation, and to choose the curricular model and teaching and learning methods that incorporate recent developments in medical education. Incorporating these developments will also enable the college to face future challenges.

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