Leading Article

Cambridge and Riyadh Undergraduate Medicine—Two Schools of Thought

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This article compares the framework of the curriculum at King Saud University (KSU), College of Medicine with that of the University of Cambridge and its School of Clinical Medicine. Admission and curriculum requirements are compared in the light of the institutional objectives and instructional strategies of the two schools.

The approach to medical education varies greatly from one medical institution to another. In practice, the framework for the undergraduate medical education covers a wide spectrum.\(^1\)\(^-\)\(^3\) Cambridge, with its medical education established in the sixteenth century without written specific objectives and without a clinical school till 1976, represents one end of the spectrum near to the traditional medical education in which departments enjoy remarkable freedom to decide and execute instructional methods.\(^4\)

The College of Medicine, King Saud University at Riyadh, with its short life, many changes of curriculum (at a rate of once every 3–5 years) and its strategy, which falls short of that of ‘schools without walls’ represents another end of the spectrum. This article endeavours to compare the two philosophies and outlines the components of the curricula. Available resources, the sizes of the student populations, methods of instruction, internship and postgraduate training are the subjects of other articles.

Institutional Objectives

Riyadh has developed institutional and learning objectives and tasks which are summarized in Tables 1 and 2. These were arrived at in a series of conferences and workshops held during the years 1979–1984 when the college adopted the credit hours system.\(^5\)\(^-\)\(^7\)

Cambridge objectives can only truly be extrapolated from the achievement, position and status of its graduates, who are mainly academics and researchers with a lesser number as General Practitioners than any other British Medical School. This is evident from the published literature and can be seen from academic staff lists of various medical schools.\(^8\)

In practice, Riyadh, in some ways, is following Cambridge’s ‘academic’ style. The first two deans of the other medical colleges in Saudi Arabia were originally drawn from Riyadh. Although Riyadh does not particularly place emphasis on preparing its graduates for academic or research posts the top graduates are selected for a university staff-training programme.

Admission Requirements: King Saud University (KSU) College of Medicine

To be admitted to the College of Medicine at KSU the students must fulfil the following requirements:

(a) obtain 85% or more of the total marks in the subjects of the secondary school (scientific division) and 80% total marks in biology, physics and chemistry;

(b) pass a special medical examination;

(c) obtain an accumulation grade (grade point average) equal to or more than 3/5 in the premedical stage.

Some allowances can be made for transfer of University students from a scientific college to

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Table 1
Institutional objectives for King Saud University College of Medicine

1. To graduate physicians:
   (a) with the knowledge, skills and attitudes required to cope efficiently with health problems relevant to Saudi Arabia.
   (b) of an internationally acceptable standard, capable of competing for specialist training programme.
   (c) capable of handling the preventive and curative aspects of health care in an integrated manner.
2. To encourage and prepare graduates to perform research.
3. To train graduates to become self-dependent, life-long learners.
4. To emphasize the problem-solving approach to learning.
5. To provide learning environments and activities that closely reflect the practice situation and eliminate irrelevant material.
6. To achieve horizontal and vertical integration between the various medical disciplines.
7. To provide extramural, community-oriented training and learning experiences, in addition to hospital-based clinical training.

Abridged from Ref. 5.

Table 2
Learning objectives and tasks at King Saud University College of Medicine

A graduate physician of King Saud University College of Medicine should be able to:
1. Provide comprehensive individual health care.
2. Recognize his limitations and refer cases beyond his level of competence.
3. Acquire skills in ‘community diagnosis’ and the identification of community health problems.
4. Coordinate, supervise and evaluate the activities of other health workers and provide them with appropriate training.
5. Improve his level of competence through: (a) continuous learning (b) self assessment and (c) critical thinking.
7. Collect and transmit pertinent information about health in order to facilitate health status monitoring.

Abridged from Ref. 5.

Cambridge colleges which have limited quotas of students; each college has its own method of selection which usually includes an interview and a written examination. All students must have achieved ‘A’ levels.

Admission into University of Cambridge School of Clinical Medicine
In order to enter the clinical course, at the University of Cambridge Clinical School, the student must have:

(a) completed 3 years of preclinical study in medically related subjects at the University of Cambridge or an approved 3 years’ curriculum elsewhere (usually in UK)
(b) obtained an honours degree; BA or BSc or
(c) passed or gained exemption from the subjects of Second MB examination (Anatomy A, Anatomy B, Biochemistry, Pathology).
(d) been admitted to one of the Cambridge University Colleges.

In addition, the student is required to pass or gain exemption in Second MB Medical Genetics, Medical Sociology and Psychology before sitting Part I of the Final MB Examination.

Curriculum: King Saud University College of Medicine
The undergraduate curriculum at King Saud University, College of Medicine extends over 6 years (12 semesters and two summer sessions). The College has adopted the credit-hour system and accordingly the curriculum is divided into four stages as follows:

Stage I: Premedical Semesters (English, Biology, Chemistry, Physics, Mathematics)
1–3

Stage II: Basic Medical Sciences Semesters (Anatomy, Physiology, Biochemistry)
4–6

Stage III: Paraclinical Sciences Semesters (Pathology, Microbiology, Pharmacology)
7–8

Stage IV: Clinical Sciences Semesters (Medical and Surgical specialties)
9–12

There is, however, no clear cut and sharp demarcation between subjects taught in each semester. Instead there is a tendency to encourage an integrated approach of instruction. The promotion from one stage to the other is governed by successful completion of the prerequisite subjects. Core courses are offered every semester and electives are offered largely in the summer. In
addition, a fixed number of free and obligatory hours to fulfil the University requirements should be successfully completed.5

A semester extends over a 16-week period of which a week is used for review and one for examination. Upon successful completion of the courses and accumulation of 229 credit hours, a student graduates with an MBBS degree and has to start an internship programme which includes the four following medical specialities: Medicine, Paediatrics, Obstetrics & Gynaecology and Surgery.

Curriculum: Cambridge University School of Clinical Medicine
At Cambridge the course of study falls into three periods; study for the First MB Examination (the premedical period); study for the Second MB Examination (the preclinical period); and study for the Final MB Examination (the clinical period). Cambridge Colleges do not normally admit medical students until they have passed or gained exemption from the First MB Examination, the commonest method of qualifying for exemption being by means of GCE 'A' level passes in appropriate subjects.

The course of study for the MB,BChir (Can) is five years. Throughout the course the emphasis is on learning in a clinical setting (i.e. at the bedside, in the out-patient clinic, theatres, post-mortem, pathology demonstration and in general practitioner surgeries), and this clinical experience is backed-up by seminars, tutorials and discussion groups. Self-learning facilities are available and formal lectures are not emphasized.

Assessments
Riyadh medical course requires students successfully to pass the subjects, taken during each semester with a few exceptions where the theoretical examination is postponed until the student is exposed to clinical training i.e. Obstetrics and Gynaecology.

Cambridge, on the other hand, requires students to pass the First MB Examination (unless exempted) followed by second MB Examination and at the end of the course The Final MB Examination which is in three parts, I Pathology, II Obstetrics and Gynaecology and III Medicine, Clinical Pharmacology, Therapeutics and Surgery.

Comparative Evaluation
The main features of Riyadh and Cambridge course strategies can be summarized as follows:

1. The core of the subjects covered at the two colleges are approximately the same, with the exception of medical sociology, medical genetics and psychology which are Cambridge subjects. However, major components of pathology, pharmacology, microbiology and community health courses are covered at the stage bordering the pre- and the clinical stages within the King Saud University Curriculum. These subjects are covered in the three pre-clinical years within the Cambridge curricula (general) and mainly in 4-week course of pathological sciences (special) in addition to the clinical component being informally integrated within the relevant subjects.

2. The King Saud University clinical course covers six semesters with electives, a total of 96 weeks excluding the examinations; while the University of Cambridge clinical course covers approximately 100 weeks over a 27-month period excluding examinations and holidays. Electives are covered in each and this would add a further few weeks to the King Saud University course.

3. A comparison of the direct clinical attachment, counting a session as a full morning or afternoon, leaves Cambridge with 1000 clinical attachment sessions and King Saud University with 700 during the course. This excludes a substantial on-call attachment which is required by students at Cambridge but not necessarily at King Saud University.

4. Comparison of didactic teaching shows that King Saud University College of Medicine has approximately 730–740 lectures and 340 hours of paraclinical sciences practicals. During the clinical years no didactic teaching is formally listed. At Cambridge the students spend 3 years (in contrast to 2½ years at Riyadh) studying medical sciences. During their clinical attachments students attend variable number of lectures, seminars, tutorials and supervised clinical teaching and discussion as part of a small group teaching, depending on the departments concerned.

5. At King Saud University, following the semester system, there are two examinations (one midterm and one final) per semester making a total of 12 final examinations, each of which requires a pass on its own. The Cambridge assessment falls into three parts; First MB Examination (The premedical), MB Examination (The preclinical) and the Final MB Examination (clinical). Clinical assessment takes place first after 19 months with the Part I Final MB,B Chir (Can) and the second after further 8 months as Part II and Part III of the Final MB,B Chir (Can) (Can) together.

Conclusion
The major differences between preclinical and the clinical periods of the two Universities are the higher component of basic medical sciences and clinical exposure and responsibility incorporated in
the Cambridge course and the higher degree of didactic teaching and tutorials in the King Saud University course. The King Saud University Medical College incorporates a premedical course into its curriculum, while Cambridge admits its students after this stage, thus allowing more time for pre-clinical and clinical studies. The Cambridge clinical course entails an on-call attachment which allows students to be exposed to more clinical work during their years than the students at King Saud University. The Cambridge students do out-patient clerking and some would have the chance to act as locum house officers. These students are exposed to less formal examinations compared with King Saud University, but their Part III examination is comprehensive for the medical and surgical specialities, excluding obstetrics and gynaecology.

There are lessons to be learnt from the curricula strategies of the two institutions. The comparison reveals diversity in emphasis which is basically dictated by the general set up and the limitations imposed on both institutions. Opinions on which curriculum component is appropriately weighed and relevant would probably differ if the curricula were assessed by an 'administration/medical educationist'. As a professor and undergraduate student in one (Riyadh) and having been both an undergraduate and postgraduate student in the other (Cambridge), I believe that in their respective environments these institutions represent 'reference' medical centres against which judgment can be made. There is no poverty of genuine innovative ideas in medical education, but there is, however, always room for improvement.

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