

# Towards Evidence-Based Medical Education in Saudi Medical Schools

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Evidence-based medical education (BEME) is an attitude of mind that entails the creation of a culture in which teachers think critically about what they are doing, look at the best evidence available and on this basis, make decisions about their teaching practice, and subsequently, undertake the necessary revision and change. More medical schools have opened in Saudi Arabia in the last few years than have existed over the last three decades. Currently, the education of health professionals is based on assumption and traditions and rarely on research findings. Medical teaching has evolved from being opinion-based to evidence-based and the art of teaching is rapidly becoming the 'science' of teaching. The need for evidence in our teaching and medical education practices is as important as it is in assessing a new therapy. This approach to education is not only associated with better results in terms of better learning, from the side of the students (the consumers), but also has a wider impact on patient care and the community. Moreover, in this age of accountability, litigations and quality assurance, the need for BEME becomes greater. Some suggestions to implement BEME in Saudi Arabia have been put forward and these are the training of medical education professionals in the use of the existing information systems, and disseminating information through the creation of a BEME journal (secondary publication) that publishes a critically appraised summary of medical education articles that are both valid and of immediate clinical use.

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*Accepted for publication  
September 2006*

Ann Saudi Med 2006;26(6):429-432

Medical educators in Saudi Arabia stand at a crossroads, a special point in time; either we move forward and change direction or stay behind. These impressions were prompted by the recent opening of more medical schools in Saudi Arabia than have existed over the last three decades. There is longstanding dissatisfaction with the teaching strategies followed in many medical schools.<sup>1,2</sup> This is in view of the fact that the currently adopted learning processes promote memorization at the expense of understanding, which leaves students ill-equipped to be lifelong learners. This is probably because teachers are using the same teaching strategies that were in place when they were students. It has therefore become necessary to adopt viable and effective curricula and teaching strategies in the medical schools in the hope of preparing a medical graduate better equipped to meet community health needs.

Before preparing the current review, we undertook a comprehensive literature search using the following key words; evidence-based medical education (EBME), evidence-based medicine, teaching, and learning in the following databases: Medline, Cochrane Controlled Trial Register (CENTRAL), Campbell Collaboration, and the ERIC database. This information, coupled with our vision and opinion on how to tackle this issue,

are the topic of this paper. Medical teaching has evolved from being opinion-based to evidence-based and the art of teaching is rapidly becoming the 'science' of teaching, and this is a relatively new phenomenon. It may come as a surprise that up until about 30 years ago teaching had not been systematically examined in a scientific manner. This is not to say that effective teaching strategies were absent before 1970. At the beginning of the 1970s, researchers began to study the effects of instruction on student learning in a scientific manner.<sup>3</sup>

What is the trigger for EBME? Nowadays, health care delivery is undergoing extensive change and re-organisation, and therefore, concurrent and appropriate changes in medical education, particularly our approaches to teaching and learning, have become not only an obligation but a necessity. In this respect, the educational interventions that are supported by research evidence are no doubt more convincing to educators and likely to be adopted with the least resistance. This approach is associated not only with better results in terms of better learning, from the side of the students (the consumers), but also has an impact at the bedside, in the consulting room and in the wider community.<sup>4</sup> There is also the issue of accountability and quality assurance, which is starting to dominate the educational process, and this brings with it the need for convincing justifications for the current approaches adopted in teaching and learning, whether in curriculum planning and management, or in teaching methods and assessment. The need for evidence in our teaching and medical education practices is as important as it is in assessing a new therapy.<sup>5-7</sup>

### **Are we using the available evidence in medical education?**

Currently, the education of health professionals is based on assumption, traditions and rarely on research findings.<sup>8,9</sup> This could be the result of the slow dissemination of research evidence<sup>10</sup> and the following examples illustrate this point: firstly, marks alone were not shown to predict the performance of students in medical schools; however, the admission based on marks alone is still the current selection criterion dominating the admission to medical schools.<sup>11</sup> Secondly, the oral examination (called wrongly "long cases" in medical examinations) which is based on a single case, has long been discredited by medical education researchers; yet, the long case is still alive and well in most under- and postgraduate examinations worldwide.<sup>12</sup>

Despite the plethora of published studies, medical teachers are usually not familiar with the relevant literature on educational approaches in the medical journals,

especially those specialized in medical education. The result has been a widely held view among clinicians, medical researchers and medical teachers that evidence to support (or reject) a change in the direction of educational approaches is lacking. There is a huge body of research evidence, but it is either not known about or ignored. This lack of awareness stands to be one of the major difficulties in implementing an evidence-based approach to teaching. In the area of teaching and learning of communication skills in medicine, Aspegren et al identified 180 pertinent papers, including 31 randomized studies.<sup>13</sup>

Therefore it is clear at present that a gap exists between educational researchers and prospective users of the results of educational research.<sup>14</sup> Often those who are concerned about a lack of evidence either have not looked or have looked in the wrong places. Campbell and Johnson (1999), for example, concluded on the basis of a literature survey restricted to Medline that there was no evidence to support multi-professional or multi-media education.<sup>15</sup> Such a restricted literature survey excludes many research studies that address these areas. However, when the search strategy was extended to other databases, studies were found evaluating multi-professional or multi-media education.

### **Which direction should we follow?**

We need to adopt the best available evidence in medical education or, for the sake of simplicity, the best evidence medical education (BEME). BEME is defined as the implementation by teachers and educational bodies in their practice of methods and approaches to education based on the best evidence available.<sup>2</sup> The definition implies that evidence could be classified according to strength into different grades. It was hoped that using this terminology would avoid the perceived dichotomy of evidence-based versus non-evidence based medical education.

Decisions relating to teaching should be taken with due consideration accorded to all the valid relevant information. In this way BEME offers an opportunity for improved teaching by providing the teacher with the skills to search and critically appraise relevant research in medical education and categorize the grade of the evidence available. BEME places the decision making in the hand of the teacher but not by providing him or her with a cookbook of recipes. In addition, the approach described has immediate relevance to the planner or educational administrator, as it provides them with a powerful tool to move forward the BEME agenda.<sup>2</sup>

There are arguments for and against BEME. No doubt, the implementation of BEME is a significant

challenge to the traditional culture and practice of medical teachers, due to its undoubted attractions to educational planners and decision makers, who are desperate to improve the efficiency and effectiveness of medical education. Like many radical innovations, BEME appears to be a commonsense notion, until it comes face to face with the myriad practical difficulties of changing existing attitudes and behaviour.

An argument against BEME frequently expressed by traditional teachers is that education cannot be subject to the strict standards imposed on clinical research, which seeks evidence based on properly conducted randomized controlled trials. To address this concern, it would be inappropriate to restrict evidence in medical education to randomized controlled trials only, which is also true in many areas in clinical practice. Nonetheless, there are many studies in education that adhere to the rigorous principles of research methodology. In a review of medical education, 302 meta-analyses were found in educational and psychological interventions, involving more than 14 000 trials.<sup>16</sup> The average effect size reported across all the trials was 0.59, which was far larger than those reported from a sample of clinical trials.

### Suggestions to implement BEME in Saudi Arabia

There is much to be learned from the lessons of evidence-based medicine, and we therefore suggest the following lines of action to support the deployment of BEME:

- Develop strategies for efficiently appraising educational evidence (for its validity and relevance). We need to enhance the application of these strategies by

#### The QUESTS dimensions for evaluating evidence in educational practice

- **Quality:** How good is the evidence?
- **Utility:** To what extent can the method be transferred and adopted without modification?
- **Extent:** What is the extent of the evidence?
- **Strength:** How strong is the evidence?
- **Target:** What is the target? What is being measured? How valid is the evidence?
- **Setting:** How close does the context or setting approximate? How relevant is the evidence?

training teachers in the skills to locate and critically appraise articles dealing with educational interventions.<sup>17,18</sup>

- Increase teacher awareness of the organizations that undertake systematic reviews and concise summaries of the effects of educational intervention (a good example is the Campbell Collaboration), and encourage the utilization of such resources.
- Create a culture of BEME amongst individual teachers, institutions and national bodies.
- Train professionals involved in medical education to utilize the existing information systems to efficiently retrieve the best available evidence in medical education. Such acquired skills prepare teachers to be life-long learners and improve their performance.
- Disseminate information that allows medical teachers, institutions and all concerned with medical education to make decisions based on the best available evidence. This could be attained through the creation of a BEME journal (secondary publication) that publishes a critically appraised summary of medical education articles that are both valid and of immediate clinical use.
- Produce locally appropriate systematic reviews on medical education which reflect the best evidence available and meet the needs of the user.
- Teachers and or institutions should improve their skills in making decisions on teaching. They should take into account a range of relevant factors in the context of their own teaching practice. In this regard QUESTS (Quality, Utility, Extent, Strength, Target, Setting)<sup>2</sup> offers a model that is quite helpful to teachers and institutions.
- The concept BEME should be introduced in the staff reward system, e.g. awards for excellence in BEME teaching. It could also be used as a criterion for the appointment and promotion of teaching staff.
- The concept of BEME could be emphasized as a requirement and a mark of a 'good teacher' who has deep and enlightened insight into his teaching practice and the options available—for example, what methods should one adopt in teaching clinical skills, what purposes should be identified for lectures and how can be made more effective, and how should student competencies be assessed?
- The concept should be incorporated into the job description of posts related to education or training.
- The concept of BEME should be institutionalized into the decision making process in curriculum committees and should be adopted by accrediting bodies

and committees.

- ♦ The concept of BEME should be introduced in staff development programmes, including on-the-job learning and journal clubs.
- ♦ The concept BEME should be embraced at meetings and conferences on medical education and be highlighted in medical journals.

Ultimately, to put these ideas in practice a local unit of BEME should be established in each medical school and medical educational institute. It should have a steering group and an executive. It should also team up with the international BEME collaboration organization. Its ultimate aim should be the creation of a culture of BEME amongst individual teachers, institutions and national bodies.

## Conclusion

In the past few years, BEME has become a widely accepted concept and an urgently needed approach in medical education. Despite the foreseen obstacles to the practice of evidence-based teaching, there is an obvious need for evidence-based teaching and BEME. The adoption of BEME does not require the teacher to be a researcher in education. However, it does require the teacher to be able to appraise the evidence available and assess the quality of that evidence, and identify areas where there is a need for further research. BEME is an attitude of mind that entails the creation of a culture in which teachers think critically about what they are doing, look at the best evidence available and on this basis, make decisions about their teaching practice<sup>2</sup> and subsequently undertake the necessary revision and change.

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