

# Medical Education Units History, Functions, and Organisation

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## وحدات التعليم الطبي التاريخ و الوظائف و التنظيم الإداري

نادية الوردية

**الملخص:** أُنشئت أكثر الكليات الطبية وحدات تعليم طبية أو ما شابهها لتحسين التعليم الطبي. مثل هذه الوحدات لها عناوين مُختلفة وتعمل إما بشكل مستقل أو تحت إشراف مكتب عميد الكلية. نشاط الوحدات المذكورة يتضمّن إجراء بحوث تربوية. إضافة إلى التعليم وتزويد الخدمات وتطوير المستقبل الأكاديمي للموظفين. وقد يتعدى مجال نشاطاتها خدمة الكلية الطبية ليشمل كلّ محترفي الصحة الآخرين في المستويات الجامعية وما بعدها. توجد عدّة عوامل تُساهم في نجاح وحدات التعليم الطبي ويرى أن تأسيسها له أثر إيجابي على الكليات الطبية.

**مفتاح الكلمات:** التعليم الطبي . التنظيم والإدارة . عمان.

**ABSTRACT** Most medical schools have established a medical education unit (MEU) or similar bodies in response to various reforms in medical education. Such units have a variety of titles and operate either independently or under the office of the dean. Their activities include conducting educational research, teaching and providing service and career development of academic staff. The scope of their activities ranges from serving medical faculty only to all other health professionals at either the undergraduate or postgraduate levels. Several factors contribute to the success of MEUs and their establishment is seen to have a positive effect on their medical school.

**Keywords:** Education, Medical. Organisation and administration; Oman.

**M**OST MEDICAL SCHOOLS HAVE WELL established independent medical education units or similar bodies. Such units have various titles,<sup>1</sup> but the ones in common use are: office, division, department, centre, and unit.<sup>2</sup> In this paper, the term 'medical education unit' (MEU) will be used to refer to such titles.

The development of MEUs has been triggered by several factors such as curriculum reforms, need for faculty training, new methods for student selection, advances in medical informatics, the requirements from quality assurance and accreditation bodies, and education becoming a viable faculty career track. In the UK, in response to the recommendations of Tomorrow's Doctors,<sup>3</sup> many such units were established

and charged with the responsibility for overseeing staff development. These units took on additional roles that were crucial to introducing changes in the curriculum.<sup>4,5</sup>

The functions of MEUs include research, teaching, service and career development of staff and the scope of their activities ranges from undergraduate to postgraduate programmes and from uni-professional to multi-professional audiences. The balance of these activities varies according to the mission and scope of the units; however, the right balance is important for their continuity and stability.<sup>6</sup>

Many MEUs started as administrative units in the medical school's dean's office,<sup>2</sup> but then slowly evolved into independent academic units or departments. The

staff of the unit includes a range of expertise and comes from different professional backgrounds including medical and educational with part-time or full-time commitments. Several sections can exist in the unit to fulfill its mission.

Backup and support is important to sustain MEUs. This support can come from the dean and higher administration. Financial support can come from the medical school, university, government, or external sources.

The establishment of MEUs has several positive effects on medical schools. It enhances the quality of medical education<sup>7</sup>, increases the publication of scholarly articles as well as the productivity of educational research<sup>8,9</sup>, leading to the commitment of universities to their continuation.<sup>10</sup> The units continue to provide important benefits to the educational mission of their institution and, by supporting the professional identity of medical education scholars, they are essential to the continued development of medical education as a discipline.

This review attempts to document the development of such units, the need for their establishment, their functions and organisational structure, thus providing useful information for those intending to establish one.

#### WORLDWIDE DEVELOPMENT OF MEDICAL EDUCATION UNITS

Many medical schools around the world have well established MEUs. However, the process of their establishment has been slow. From 1958, when the first medical education unit was started, until the 1970's, there were only 72 MEUs worldwide.<sup>1</sup> From then on, the number of MEUs steadily increased.

In the USA, as of 2001, there were 61 formal MEU.<sup>2</sup> Some of these units started as offices of research in medical education<sup>11, 12</sup> while others have started as audiovisual units.<sup>13</sup> In Canada, the trigger for the establishment of MEUs was the innovative initiative of problem-based learning<sup>14</sup> and in Latin America, MEUs began to be established around 1968<sup>15</sup> as a result of lack of coordination in activities related to teaching and learning.

In the UK, several MEUs were set up during the 1970s to support the undergraduate curriculum and to act as a national resource in medical education.<sup>1</sup> Several more were established as a result of financial support that was provided for medical schools to ap-

point facilitators to help faculty respond to the recommendations of Tomorrow's Doctors. These facilitators, and the offices that supported them, were the precursors of many MEUs in Britain.<sup>4,5</sup> Now, all new medical schools in the UK have MEUs to help underpin teaching with a strong research base.<sup>16</sup> In other countries in Europe, MEUs were established in the universities of Geneva, Bern<sup>1</sup>, the University of Maastricht<sup>17</sup> and the Università Campus Bio-Medico, Rome, Italy.<sup>18</sup>

The WHO played a leading role in creating a system of Regional Teacher Training Centres (RTTCs) to provide training to future national leaders to establish national centres in their countries. The creation of such a centre in Iran in the early 1970s had a remarkable impact on the region.<sup>11</sup> In South East Asia, RTTCs were established at the Chulalongkorn University in Thailand and the University of Sri Lanka.<sup>11, 19</sup> These played a critical role in the establishment of the first National Teacher Training Centres (NTTCs) in Philippines, Republic of South Korea, India, Bangladesh, Myanmar and other countries in the South East region of the World Health Organisation (WHO). In India, however, the withdrawal of funding to these NTTCs led to their withering, but not before fostering the development of MEUs in other medical colleges.<sup>20</sup>

In China, the first medical education unit was established as a medical education research unit in China's Shanghai First Medical University in October 1978. Its purpose was to evaluate and promote the quality of medical education.<sup>7</sup> Later, more research units were established in China's other medical schools. In South East Asia, many medical schools have a medical education unit or a similar structure in place. The majority of these MEUs were established during or since 1990.<sup>21</sup> In Japan, only 8 MEUs were founded in 1995, but by the year 2000, the number of MEUs reached 20.<sup>22</sup>

In the African continent, MEUs were established in several medical schools in response to issues such as deteriorating student performance in medical exams,<sup>23</sup> and the growing demands of the countries and the region for qualified medical teachers.<sup>24, 25</sup>

In Australia, the RTTC established by the WHO in Sydney (which is also the Centre for Medical Education at the University of New South Wales) in the early 1970s, played an important role in creating a critical mass of concerned and informed individuals and in matching training programmes with the identified needs of a regional constituency.<sup>11, 26</sup> Later, curriculum reforms, with the introduction of gradu-

ate-entry programmes and new admission criteria, led to the establishment of several MEUs in the 1990s.<sup>10</sup> Now, almost all medical schools in Australia have set up similar bodies to lead and support this curriculum reform.<sup>16, 27</sup>

A survey that was conducted to look at the establishment and role of MEUs in the Gulf Cooperation Council (GCC) medical schools showed that 10 out of 13 medical schools had such units (unpublished data). MEUs exist in several medical colleges in Saudi Arabia, Kuwait, Bahrain, the United Arab Emirates and, recently, a medical education unit has been established in the College of Medicine and Health Sciences at Sultan Qaboos University, Oman.

### THE NEED FOR MEDICAL EDUCATION UNITS

#### CURRICULUM CHANGE

Medical curricula around the world are undergoing reform. The introduction of new student selection criteria, integration of basic and clinical sciences, emphasis on relevance, increased attention to personal and professional development, problem-based and self-directed learning, the emphasis on information technology to support learning, community-based initiatives and the introduction of graduate-entry programmes are all major innovations to which medical schools have to respond. As a result, many medical schools have set up these units to lead, support and evaluate curriculum reform, with many being the driving force behind curriculum change.<sup>16</sup>

#### ACCREDITATION REQUIREMENTS

Accreditation and quality assurance bodies are demanding greater scrutiny of the education process, the number and qualifications of teachers and teaching/learning and assessment methods. This has resulted in the design of outcome-based curricula,<sup>28</sup> audits of teaching, and appraisal activities that are now normal processes in many medical schools around the world. A medical education unit can provide major support for these initiatives and a home base for staff involved in this process.<sup>1</sup> In fact, certain accrediting bodies list the existence of a medical education unit in their criteria for accrediting new medical schools.

#### TEACHER TRAINING

The increasing complexity of the curriculum with its new educational strategies, new assessment tools and the increased use of learning technologies, has

led to the recognition that all those who teach require some background and training in education. The General Medical Council of the UK requires that training in teaching is provided even at undergraduate level.<sup>3</sup> Many universities conduct faculty development programmes for their teachers and make use of in-house, regional and international medical centre programmes, for this purpose.<sup>4</sup> In fact, teaching constitutes a component, if not a major one, of promotion criteria in many medical school.<sup>4, 21, 29, 30</sup> Teacher training has proved pivotal in stimulating curricular changes and is becoming compulsory for all new staff members in some medical schools.<sup>21</sup> In addition, many schools have encouraged their established staff, who have major teaching responsibilities, to undertake training leading to a recognised teaching certificate or diploma. In one medical school, consultants apply to become clinical teachers and are encouraged to undertake a postgraduate qualification in medical education. Their teaching practice is reviewed as part of their regular appraisal and consistently poor performance would result in their teaching duties being withdrawn.<sup>31</sup>

MEUs can assist in this requirement of teacher training, a function that is provided by many such units around the world. In fact, some of the larger units organise award-bearing medical education programmes up to and including doctoral-level.<sup>17, 32, 33</sup> It has been reported that this teacher training had "very much" improved medical education at their schools.<sup>34, 35</sup>

#### ADMINISTRATIVE NEED

Due recognition is needed for faculty who undertake the responsibility of training staff and who conduct faculty development workshops in their 'borrowed' time. MEUs should create a proper administrative structure with appropriate job descriptions and reward structures leading to the recognition of the efforts of staff undertaking these activities on a part-time basis.

### FUNCTIONS OF MEDICAL EDUCATION UNITS

The functions of MEUs vary from institution to institution; their scope of activities can include undergraduate and postgraduate education and continuing professional education. These activities could extend not only to medical professionals but also to other health-care professions such as dentistry, pharmacy, medical technology and nursing. In general, the functions of MEUs span the areas of research, teaching, service,

workshops, evaluation, consultancies, and the career development of staff.<sup>1,36</sup>

#### RESEARCH

An essential mission of MEUs across institutions is to conduct research and provide scientifically sound information that advances and promotes medical education.<sup>6</sup> The extent and priority of research in different MEUs depends on many identified factors such as access to research expertise, protected time for scholarship, funding (whether internal or external), the institutional culture of scholarship, educational leadership, the history of medical education innovation, the quality of faculty and the complementary areas of expertise they possess, critical mass of educational scholars, status of the medical education unit, response to accreditation bodies, mentorship, faculty development, access to learners, and growth of opportunities for advanced training in educational scholarship.<sup>9, 37-42</sup> The areas of research also vary according to the mission of the unit and the need of the institution. In the Faculty of Medicine at the University of Maastricht, for example, the initial focus of research was on the evaluation of problem-based learning, but this focus widened to include the areas of student and teacher learning, learning environments, and assessment and evaluation of learning and teaching.<sup>39</sup> A wide variety of research is undertaken in other places, covering topics considered important to their governments, health system administration, communities and funding bodies.<sup>43</sup> The areas include health services research, public health, workforce and career outcomes of medical courses and their relations to student characteristics, admission and selection procedures, curriculum development, and clinical reasoning and problem solving.<sup>44</sup> Based on a survey of 25 members of the Society for Directors of Research in Medical Education (SDRME – an international organisation with primarily North American membership),<sup>39</sup> the research areas of focus were (in rank order): assessment of competencies, curriculum, student assessment approaches, standardised patients, instructional design, computer-based education applications, patient simulations, institutional research, student selection, clinical decision making, medical informatics, faculty careers, patient education, continuing education, chronic diseases, health economics and disease prevention.

MEUs play an important part in creating a culture

of research by innovating, developing new approaches to medical education and publishing their findings. Fellows of MEUs are authors of a substantial number of peer reviewed manuscripts.<sup>6, 37, 38</sup> Communication concerning research such as running journal clubs, circulating medical education newsletters, and conducting medical education rounds<sup>45</sup> are also ways used by the units for promoting this culture.

#### TEACHING

The major role of the MEU in the teaching aspect of their function is to help equip the teaching staff with the necessary abilities to undertake effectively their roles as medical teachers. Teaching areas vary according to need. They can range from teaching and learning, medical student assessment and selection, curriculum development and evaluation, course design, research in medical education,<sup>1,15</sup> instructional material design, and e-learning.<sup>1</sup> Again, based on a survey of 25 members of the SDRME<sup>39</sup> the teaching areas of MEUs were (in rank order): research skills, educational methods, statistics, academic skills, test taking/preparation, computer applications, clinical education, medical humanities, clinical decision making, international medical education, enrichment programmes, basic sciences, patient education, health economics/policy, and disease prevention. Some MEUs in GCC medical schools also took responsibility for running continuing medical education (CME) activities, conferences, workshops on evidence-based medicine and running the clinical skills laboratory.

Types of educational activities were workshops, seminar series, short courses, individual or augmented feedback and site visits. Longitudinal programmes (e.g. fellowships, Masters and PhDs) were also offered by some units. Target audiences were both practising clinicians and basic scientists from either one or more disciplines<sup>34</sup> or a mixture of health professionals. A wide range of instructional methods were used such as lectures, small-group discussions, interactive exercises, role plays and simulations, films and videotape reviews of performance.<sup>34</sup>

#### SERVICE PROVISION

Many MEUs are service providers within an institution. For some, a service responsibility was the main rationale for their establishment.<sup>13</sup> The service areas include: service on committees and task forces; consultancies to educational providers; curriculum development, planning and administration, for example, assistance

in defining objectives and curriculum organisation; assessment and evaluation, for example, curriculum and programme evaluation, test administration and scoring, developing and maintaining examination databanks; educational support services, for example, computer classroom/laboratory administration, computer support, standardised patient programme administration, clinical skills laboratory administration and preparation of teaching material; data analysis and statistical support; undergraduate and graduate student selection and admission to the medical programme; coordination of clinical elective placements; mentoring and student counselling and other services such as media production, printing, copying, medical illustrations and graphics production.<sup>1, 15, 39, 46</sup>

#### ACADEMIC DEVELOPMENT AND SUPPORT

An important role of MEUs is to provide an academic home for and nurture the careers of faculty members wanting to focus on educational scholarship and develop as future medical educationists. By ensuring that these faculty members are given the necessary exposure to the field, and are allowed to develop their studies and publish research in medical education, MEUs help them to gain academic rewards and recognition for their expertise.

### ORGANISATIONAL STRUCTURE

#### ADMINISTRATIVE STRUCTURE

The structure and organisation of an MEU depends on its position within the university's structure i.e. whether it is within the medical school, within an institute of health sciences, or within the university. The units are usually administrative structures within the medical school dean's office, but a few are free-standing departments. They are headed by persons who hold titles such as head,<sup>45</sup> coordinator,<sup>47</sup> director, chair, assistant or associate deans.<sup>2, 39</sup> These lead persons report to individuals with 7 different administrative titles, again, depending on the position of the unit within the university. If within the medical school, then the lead person reports to the dean or associate dean; if outside the medical school, then he/she reports to vice-chancellor, vice-president, or vice-provost.<sup>39</sup>

#### SIZE AND STAFF PROFILE

The size of the MEU varies from very small to very large depending on its role in the wider institution. In North America, on average, MEUs employ 5 professional or faculty staff and 3 clerical staff or support

staff.<sup>6</sup> The degrees held by faculty/professional staff were mostly PhD or EdD while few were MD. Around 68% of heads has a PhD while only 16% has an MD.<sup>39</sup> The technical support staff has varied titles: Systems Analyst, Standardized Patient Coordinator, Research Scientist/Statistician, Instructional Technology Manager, Information Analyst, and Data Manager.<sup>39</sup> The same author reported that the average number of years of experience of professional staff in medical education was seven and their average annual salary (based on 100% FTE) 56,000 U.S. dollars. A mixture of tenure and non-tenure staff with full-time or part-time commitment contribute to the activities of the unit.<sup>1, 23, 39, 47</sup>

#### INTERNAL ORGANISATION

Different kinds of sections exist within MEUs depending on their size and mission. Examples of these are course administration unit, computer assisted learning unit, clinical skills and simulation unit,<sup>46</sup> community based education unit, ethics unit, staff development unit, communication skills unit, international programme unit, graduate studies unit, medical humanities unit, and research unit.<sup>1</sup>

#### FINANCIAL SUPPORT

Financial support can come from the university, hospital, medical school or government funds.<sup>1</sup> In Australia, for example, grants from the health department enabled the establishment of MEUs in 3 universities.<sup>10</sup> However, constraints on funding led the consortium of graduate medical schools in Australia to create different resources for their programmes.<sup>27</sup> In developing countries, the WHO played a substantial part in setting up MEUs in several medical schools.<sup>11, 20, 26</sup>

In the North American context the median budget for each medical education unit was \$650,000 with 75% of support coming from 'hard' university funds. The remainder of support came from research and training grants, services, and contracts with other institutions and government agencies.<sup>6</sup> On average, the level of unit activities supported by external funds accounted for approximately 16% of unit finances in 2002<sup>39</sup> which is in contrast to 25% in 1998.<sup>2</sup>

## OPPORTUNITIES AND CHALLENGES FOR THE ESTABLISHMENT AND CONTINUATION OF MEDICAL EDUCATION UNITS

The calls for reform in medical education created opportunities for the establishment of MEUs and the support came from a variety of sources, one of the key points of their success. Financial support whether it is from the university, hospital, external, or from international programmes, is important at least at the early stages of setting up the unit.<sup>1</sup> Other important factors that contribute to the success and sustainability of the units are: MEU leaders able to motivate and provide a role model;<sup>48</sup> educational relevance and professional alignment of the activities of the units; diversity of ideas and research methodologies; access to research expertise; focused and collaborative research; a culture of mutual support and mentorship; a clear faculty development initiative; access to learners; and protected time for scholarship.<sup>37-42</sup>

Several challenges are faced when setting up MEU such as lack of full-time dedicated faculty, appropriate financial support, and finding the right balance between the research and service functions of the unit. Many units employ part-time faculty, but demands on productivity in their own professions might restrict their participation in the activities of the unit. To encourage their involvement, appropriate reward structures need to be set up.

Appropriate financial support is needed for setting up the unit and a great deal of this comes from 'hard' university funds.<sup>6</sup> However, at times when institutes are becoming increasingly dependent on research grants there is paucity of funding for medical education research.<sup>40, 49</sup>

Finding the right balance between the research and service functions of the medical education unit is important for its continuity. If the unit concentrates on service at the expense of research, it will reduce its innovative capacity and wither. Several units have closed or downsized because the sole responsibility of the unit was service provision.<sup>1</sup> On the other hand, if the unit concentrates on research at the expense of service it might come into conflict with the administration of the medical school whose interest lies in solving immediate institutional needs and problems.<sup>6</sup> Finding the right point on the research-service continuum is a challenge. The units sometimes become

entrapped in service provision because of the urgency of institutional needs. A solution for this would be to highlight to the medical school administration the enhanced reputation that the institute receives by being an innovator in educational research. Members of the medical education unit can also learn from their service activities and so generate scholarship material relevant beyond the home institution.

### CONCLUSION

MEUs have been established in response to several contemporary needs. By providing specialised resources for teaching, service and a focus on educational research, they are essential to the continued development of medical education as a discipline.

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