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Outcome-Based Education is the Future

On 20 July, 1958, delegates of the professional organisations representing medical specialists of the six member countries of the very new European Community (EEC) convened in Brussels and created the European Union of Medical Specialists (UEMS), which later came to define the basic principles involved in training the community's medical experts. Over the years, amid developments and the expanding EU, requirements and ideology have evolved to reach an ever more appropriate guideline for education.

The objectives of the European Union of Medical Specialists (UEMS) are, among others:

• The study, promotion and harmonisation of the highest level of training in healthcare, medical practice and medical specialities within the EU; and

• The study and promotion of free movement of specialist doctors within the EU.

To achieve these objectives, the UEMS has set up sections and boards for each medical specialty (UEMS Statutes). Multidisciplinary boards, such as the Multidisciplinary Joint Committee of Intensive Care Medicine (MDJCICM), cover special competence areas that are not covered by a basic specialty.

If you are on the specialist registry in any European country, then you are automatically entitled to be registered as a specialist in the other EU countries. But that does not mean that you are equally fit to practice in every country. If we want to continue having a common market for doctors in Europe, then we must aim for a common setup of postgraduate training, even though each individual country is responsible for its own training and certification.

Some years ago, the duration of specialist training in anaesthesiology varied from three to seven years throughout Europe (Egger-Halbeis et al. 2007). The EU Directive 2005/36/EC on the recognition of professional qualifications requires three years, but this rule was based on information from a time when the specialty was far less complex than today. Concerning intensive care medicine, anaesthesiologists led development in the field from the first stages; yet, the required duration of training in intensive care medicine in anaesthesiology varies between three months and two years throughout the EU.

Since the first postgraduate training guidelines were published by the European Board of Anaesthesiology (EBA) in 2001, the EBA has worked to harmonise training in anaesthesiology, reanimation and intensive care medicine. This guideline described the basic knowledge, skills and methods that a modern practicing specialist in anaesthesiology must possess. It consisted of a list of aims, basic science content, physiology, pharmacology, physics and measurements, and anatomy. There was a core syllabus for anaesthesia, pain management, pre-hospital, emergency and intensive care medicine. The latter was divided into diagnostic and therapeutic problems of the respiratory system, the cardiovascular system, head injury, affection of the central nervous system, multiple organ system failure and communication skills.

A European Hospital Visitation Programme was introduced to ensure the quality of training, while logbooks were recommended as a tool to record the number of procedures undergone.

The minimum duration of training was set to five years, of which a minimum of six months should be spent in intensive care and three months in both pain and emergency medicine.

A Change of Course

In 2005 and 2007, the EU expanded. With several new countries with varying training programmes entering the community, the 2001 guidelines needed revision (Carlsson et al, 2008). The EBA acknowledged that simply listing the duration of time spent in various fields, and doing any procedure a certain number of times, would not ensure a candidate's competency in taking care of patients. Hence, the objectives have now been changed from process-oriented specialisation to outcome-based training. This work led to the announcement of a completely revised set of guidelines and curriculum in 2011: "Anaesthesiology, Pain and Intensive Care Medicine UEMS/EBA Guidelines" (http://www.eba-uems.eu/resources/PDFS/ANAESTHESIOLOGY- PGT-guidelines.pdf), which were detailed in an editorial this year (Van Gessel et al 2012).

The competencies as endpoints of training and the focus of evaluation were described:

• To demonstrate clinical skills in pre-, periand postoperative clinical management;

• To improve familiarity with chronic pain management both in acute and postoperative situations;

• To ensure specialists are able to safely handle critical situations, including resuscitation;

• To ensure provision of general intensive care for adult medical and surgical patients and general paediatric patients;

• To ensure functionality in pre-hospital and emergency medicine;

• To show activity in the development and science of the specialty;

• To demonstrate satisfactory behavioural and professional attitude towards patients and hospital employees at large; and

• To ensure specialists are able to function as role models and teachers for younger colleagues.

The protocol includes an emphasis on progression from easier to more difficult situations, on the use of mentors and simulators, and on evaluation of each trainee at regular intervals.

Following the outline of broad competencies in these guidelines, the EBA decided to develop much more specific tools to facilitate the setting up of training programmes in each individual nation.

There are several similar models available in the world, but the EBA decided on the CanMEDS framework, from the Royal College of Physicians and Surgeons of Canada, for doctors' roles when it developed a programme, for all aspects of anaesthesiology (Figure 1). The CanMEDS framework describes six roles of a doctor - professional, communicator, collaborator, manager, health advocate and scholar - coming together to form the seventh: the medical expert. Each of the roles was descried in more detail, with special attention placed on the anaesthesiologist.

Another important inspiration was the Competency-Based Training in Intensive Care Medicine in Europe (CoBaTrICE) collaboration. This was the first example, and an excellent one, of competencies being defined in an effort to harmonise training throughout Europe. Pursuing a similar note, the EBA training programme aims to educate a primary specialist in anaesthesiology, who can then undergo further training in an area requiring particular qualifications, one of which is intensive care medicine. The EBA defined the programme's domains of general core competencies, in addition to more specific core competencies.

The 10 Domains of General Core Competencies Identified are:

1.1 Disease management, patient assessment and preparation;

1.2 Intraoperative patient care and anaesthetic techniques;

1.3 Postoperative patient care and acute pain management;

1.4 Emergency medicine: management of critical conditions, including trauma, and initial burn management;

1.5 Medical and perioperative care of critically ill patients / multidisciplinary intensive care medicine;

1.6 Practical anaesthetic procedures, invasive and imaging techniques, as well as regional blocks;

1.7 Quality, safety, management and health economics;

1.8 Anaesthesia: non-technical skills;

1.9 Professionalism and ethics; and 1.10 Education, self-directed learning and research.

The 7 Domains of Specific Core Competencies Identified are:

2.1 Obstetric anaesthesiology;

2.2 Airway management and surgery;

2.3 Thoracic and cardiovascular anaesthesiology;

2.4 Neuroanaesthesiology;

2.5 Paediatric anaesthesiology;

2.6 Anaesthesiology in remote locations / ambulatory anaesthesiology; and

2.7 Multidisciplinary pain management.

Both general and specific core competencies in each domain were expressed in a list of competence statements. These were compiled using Miller's pyramid of competence (Miller, 2001) as a model, starting from A at the bottom of the prism (those who have knowledge and describe) to D at the top (those who teach or supervise others).

For each domain of expertise, EBA developed a detailed list of learning objectives, which have been listed in the syllabus (ht tp://www. eba - uems.eu/resources/PDFS/ Anaesthesiology-syllabus.pdf). The learning objectives were broken down into knowledge, skills and attitudes that are necessary to achieve the competences. Hence, this approach still requires that the learner knows his/her basic sciences, as this knowledge is a prerequisite to obtaining the competences.

The shift of mind-set with the new guideline also extends to the stage of evaluation of progress and outcomes from training (Van Gessel et al. 2010). EBA recommends repeated assessment throughout the training period, with methods including:

• Formative in-training evaluations, including case-based discussions, peer assessment and direct observation –intended to give feedback and monitor progress;

• Self-assessment tools, including portfolios and logbooks;

• A credit point system–with points following courses, e-learning and other training approaches; and

• Summative evaluations and examinations – eg. the European Diploma of Anaesthesiology (which includes intensive care medicine). In the opinion of the EBA, these guidelines should apply to any curriculum:

1. Clinical competencies should be clearly stated in the curriculum (learning objectives and outcomes);

2. Clinical competencies should be realistic and measurable, and thus be assessed;

3. Multiple evaluation tools should be considered to assess different aspects of competence and performance;

4. Evaluation tools should be used frequently;

5. Summative examinations should be considered as one of the most important tools to assess and evaluate a trainee's progress and achievement.

6. Training and recognition of the faculty that provides medical education will stimulate creativity.

This new training model means that any "year counting" is meaningless. It takes the time it needs to obtain the competences. We do, however, state that it will take at least five years to do so, of which one year needs to be in intensive care medicine. The EBA does not regard all specialists in anaesthesiology as competent in running advanced intensive care departments; however, after this training, our colleagues will have a good base to build upon to fulfil the requirements in the CoBaTrICE programme. The EBA is aware of the efforts to get intensive care medicine recognised as a primary speciality. The board believes that this approach for defining required competencies is far better than installing new borderlines between yet more specialities. In this respect, the CoBaTrICE initiative has served as a guiding star for medical education in Europe.

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