



ORIGINAL

Training in Intensive Care Medicine. A challenge within reach[☆]



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Abstract The medical training model is currently immersed in a process of change. The new paradigm is intended to be more effective, more integrated within the healthcare system, and strongly oriented toward the direct application of knowledge to clinical practice. Compared with the established training system based on certification of the completion of a series of rotations and stays in certain healthcare units, the new model proposes a more structured training process based on the gradual acquisition of specific competences, in which residents must play an active role in designing their own training program. Training based on competences guarantees more transparent, updated and homogeneous learning of objective quality, and which can be homologated internationally.

The tutors play a key role as the main directors of the process, and institutional commitment to their work is crucial. In this context, tutors should receive time and specific formation to allow the evaluation of training as the cornerstone of the new model. New forms of objective summative and training evaluation should be introduced to guarantee that the predefined competences and skills are effectively acquired.

The free movement of specialists within Europe is very desirable and implies that training quality must be high and amenable to homologation among the different countries. The Competency Based training in Intensive Care Medicine in Europe program is our main reference for achieving this goal.

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Scientific societies in turn must impulse and facilitate all those initiatives destined to improve healthcare quality and therefore specialist training. They have the mission of designing strategies and processes that favor training, accreditation and advisory activities with the government authorities.

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PALABRAS CLAVE

Medicina Intensiva;
Formación
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Formación en Medicina Intensiva. Un reto a nuestro alcance

Resumen La formación médica se encuentra actualmente inmersa en un proceso de cambio de modelo. El nuevo paradigma pretende ser más efectivo, más integrado en el sistema sanitario y muy dirigido a la aplicación directa del conocimiento en la práctica clínica. Frente al sistema de formación actual basado en la certificación del cumplimiento de una serie de rotaciones y estancias en determinadas unidades asistenciales, el nuevo modelo propone un proceso formativo más estructurado, basado en la adquisición progresiva de competencias específicas, y en el que el residente debe jugar un papel activo en el diseño de su programa de formación. La formación basada en competencias garantiza un aprendizaje más transparente, de calidad objetiva, actualizada, homogénea y homologable internacionalmente.

Los tutores juegan un papel esencial como gestores principales del proceso, es imprescindible el compromiso institucional con su labor, se les debe proporcionar tiempo y formación específica para la evaluación formativa, que es la piedra angular del nuevo modelo. Se deben incorporar nuevas formas de evaluación objetiva tanto formativa como sumativa, que garanticen que se están consiguiendo las competencias predefinidas.

El movimiento libre de especialistas en Europa es un objetivo muy deseable que implica que la calidad de la formación recibida ha de ser alta y homologable en los diferentes países. El programa Competency Based Training in Intensive Care Medicine in Europe es nuestra principal fortaleza para conseguir este objetivo.

Las sociedades científicas deben impulsar y facilitar todas aquellas iniciativas que mejoren la calidad asistencial y, por lo tanto, la formación del especialista. Su misión es el diseño de estrategias y procesos para favorecer la formación, la acreditación y las relaciones de asesoramiento con los gobiernos.

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Introduction

This article is based on the contents of the discussion of the round table on training in Intensive Care Medicine held during the XLVIII National Congress of the Spanish Society of Intensive Care and Coronary Units (SEMICYUC) between 9 and 12 June 2013 in Tenerife (Canary Islands, Spain). The main objective of the table was to promote debate on a new educational model based on the acquisition of specific competencies in the specialty of Intensive Care Medicine. The points of view of some of the key protagonists of post-graduate training were documented: residents, tutors, the Competency Based Training in Intensive Care Medicine in Europe [CoBaTrICE] program, and the different scientific societies as facilitators and promoters of high quality standards in teaching.

Medical training is a crucial aspect of healthcare quality. Offering better doctors and therefore better care for patients must be a priority concern for all advanced societies. The medical training model is currently immersed in a process of change.¹⁻³ The new paradigm is intended to be more effective, more integrated within the healthcare system, and strongly oriented toward the direct application of knowledge to clinical practice. The aim is to teach how to use knowledge to solve problems, perform techniques, communicate effectively and make correct decisions. The

end product (the kind of specialist that has been trained) is more important than the way in which it has been produced (educational program). The ultimate aim of any specialized medical training program should be to afford high quality care in the context of a system that works well, and this implies ethical values, communication, teamwork, commitment and knowledge of the system.⁴ Training and accreditation in Intensive Care Medicine are rapidly changing in this direction all over the world,⁵ and if harmonization among the different countries is not achieved, the young specialists in future will have to overcome important barriers in order to carry out their professional activity.

Intensive Care Medicine is dedicated to the care of patients with serious or potentially serious acute organ dysfunctions that are susceptible to recovery. The aging of the population and the increasingly frequent use of invasive techniques and immunosuppressor drugs imply a constantly increasing demand for intensive care.^{6,7} In turn, the presence of intensivists in the Intensive Care Units (ICUs) has been associated with a significant reduction in mean stay and in hospital mortality.⁸ Becoming a competent intensivist requires the integration of solid scientific knowledge, excellent technical and clinical skills, and other qualities such as effective communication with patients, their relatives, and with other healthcare professionals. Intensivists

are also required to behave professionally, cultivate awareness of personal values and prejudices, and to provide care and attention to patients while understanding their cultural and spiritual dimensions.⁹⁻¹² In this context, competencies are defined as the body of knowledge, skills, behaviors and attitudes required of a professional in order to satisfy the needs of patients and to resolve the problems they pose. All the elements of the training program, i.e., contents (curriculum), activities, evaluation methods, quality control of the training process, accreditation of teaching units, etc., must be designed with the purpose of guaranteeing acquisition of the predefined competencies, which will serve as a constant reference of the entire process. The new regulatory framework (Spanish Royal Decree 183/2008),¹³ and its development by the different Spanish Autonomous Communities, will allow us to advance in this direction and adapt ourselves to the international standards in the field of specialized training.

The point of view of the specialist in training

Specialists in training require an educational program that views learning of the specialty as a continuous and structured process based on the progressive acquisition of competencies and responsibilities. The program moreover should be flexible, and the residents should be able to personally play an active and relevant role in designing it. There is great interest in ensuring that the system guarantees training that is of objective quality, up to date, homogeneous and homologated within the European Union. A teaching strategy based on a more international view is regarded as a must. Not only is there a clear preference

for scientific exchange with other countries through external rotations, but residents also have a clear desire to cross frontiers.

Residents in training firmly support a process that contributes to the harmonization of competencies with other countries, allowing them to serve as intensivists in any country once their training period has been completed. It is assumed that homologation entails personal and collective commitment to the quality of the training received, which must be high.

The tutor is recognized to be important as a guide for the correct application of the training activities, and as an evaluator of the trajectory of the resident. The residents have a positive opinion of the results of the current system, and consider that it may be further improved by the incorporation of new educational resources such as structured training assessments and clinical simulations. They consider quality control of the training received, and periodic auditing of the units accredited for teaching activities, to be very important issues.

The competency based training program

A training program has been developed that fulfills these expectations: it is a European initiative and is known as the Competency Based Training in Intensive Care Medicine in Europe [CoBaTrICE] program (www.cobatrice.org).¹⁴ The competencies are clearly defined and are compatible with many national training programs. The system has already been adopted by 15 European countries (Fig. 1),^{15,16} and is in the course of being adopted in the United States.¹⁷ In Spain the CoBaTrICE program was adapted in a study

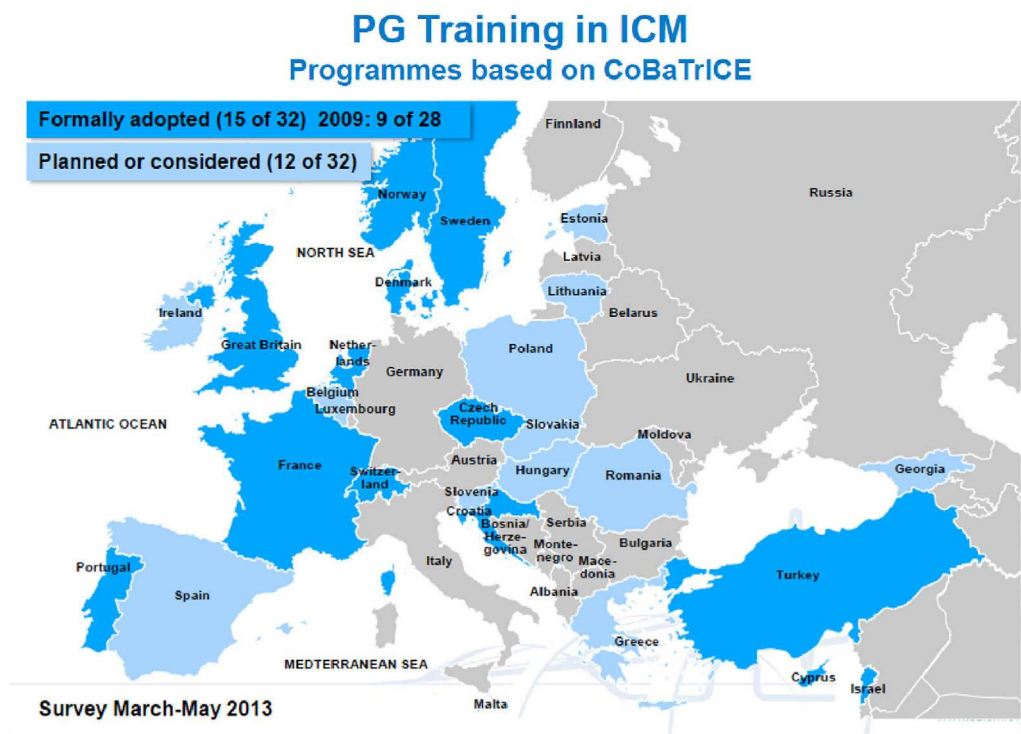


Figure 1 CoBaTrICE implantation in Europe.

auspiced by the SEMICYUC in 2007.¹⁸ It has recently been revised and included in the draft of the new Intensive Care Medicine training program¹⁹ which the National Commission on the specialty has submitted to the Ministry of Health, and which is currently pending approval. At present, Spanish Royal Decree 127/84, which regulates specialized training, is still in effect.²⁰

The CoBaTrICE project was developed with the support of the European Society of Intensive Care Medicine and two grants from the European Union corresponding to the Leonardo Da Vinci Program in 2003–2010. The ultimate aim of the CoBaTrICE program is to guarantee a high level of competency in Intensive Care, harmonize training in Intensive Care Medicine without interfering with specific national regulations, and allow the free movement of professionals throughout Europe.²¹ CoBaTrICE comprises a training program with a detailed description of the minimum competencies (knowledge, skills and aptitudes) required in order for a physician to be regarded as a specialist in Intensive Care Medicine. It also includes a standard proposal for postgraduate training, with a body of knowledge contained in an electronic multimedia application known as the Patient-centered Acute Care Training program, the basic principles of patient bedside evaluation, and a first draft of an electronic portfolio designed to document all the training experiences, acquired competencies and reflections of the specialist in training. The competencies framework described in CoBaTrICE has been developed from empirical research, educational design and the consensus of a large group of European intensivists.^{22,23}

The evaluation of competency as a motor of learning

The contribution of competency based training with respect to the traditional system is the integration of knowledge with a series of clearly defined, observable and measurable skills and attitudes. Thus, evaluation is a crucial element of the CoBaTrICE program. In addition to ensuring competency, it must be taken into account that we tend to better learn and retain things which we know will be checked to ensure that we really have assimilated the knowledge. Since the program comprises learning-oriented training evaluation, it is essential to register and file the results of the evaluations (progress, efforts and goals reached) in order to facilitate a view of growth, reflection and analysis of the evolution of learning and professional development. Such a registry is commonly made using a logbook (resident log) or, in a more thorough manner, by means of a portfolio²⁴—whether in paper or electronic (digital) format. Compared with the traditional continued evaluation system based on generally informal and generic observations, the CoBaTrICE initiative incorporates new forms of objective and structured evaluation (both training and summative) to guarantee that the predefined goals or objectives are being reached (www.cobatrice.org, www.ficm.ac.uk/) (Table 1). Training evaluation is generally based on direct observation of the performance of the resident at the patient bedside, using methods that can include the Mini-Clinical Examination, the direct observation of procedures or immediate feedback.^{25–27} Use is generally also made

Table 1 Types of evaluation.

<p><i>Observation in the work place:</i> used to evaluate knowledge, skills, behaviors and attitudes under normal working conditions.</p> <p>Direct observation of procedural skills: structured evaluation of technical skills in conducting specific procedures.</p> <p>Mini-clinical evaluation exercise or Mini-CEX: structured evaluation of clinical skills.</p> <p>Evaluation 360° (Multi-source feedback): evaluation of resident behavior and attitude by different team members, patients and relatives.</p> <p><i>Discussion based on clinical cases</i></p> <p><i>Clinical simulation:</i> ideal for evaluating the decision making process, leadership, communication and technical skills.</p> <p><i>Objective and structured evaluation of competences:</i> the resident deals with different clinical situations, including the application of techniques, presented in different clinical scenarios or settings simulated with important realism. Scales are used to score performance.</p> <p><i>Structured summaries of cases</i></p> <p><i>Portfolio:</i> reflection, critical analysis, self-learning.</p> <p><i>Others:</i> formal examination.</p>

of the discussion of clinical cases for infrequent diseases, and clinical simulations. No single evaluation method has shown sufficient validity and reliability to certify the entire learning process. Different techniques therefore must be used. On the other hand, not all competencies can or should be evaluated, since many of them share the same knowledge and skills. It is important to choose adequate instruments for evaluation, and normally more than one will be needed for each competency. Furthermore, each competency must be evaluated more than once, at different times during the residency period, and by different observers.

The specialist in training is responsible for understanding that periodic evaluation is the method to obtain evidences confirming that progress is adequate, and to collect and document them. The title of specialist is conditioned upon the completion of a training program and the demonstration of knowledge and capacities during the periodic evaluations made.

Summative evaluation, the final examination

There is broad consensus in Europe on the need to issue a certification as a consistent and reliable instrument guaranteeing safe and efficient compliance with good practice at the end of the specialist training process.^{15,16,21} In consequence, the European Society of Intensive Care Medicine has introduced the European Diploma in Intensive Care Medicine (EDIC),²⁸ which can be obtained by passing a written examination and an oral exam. In Europe, the great majority of countries require candidates to have passed a summative evaluation (final examination) in order to

receive the title of specialist. The EDIC was conceived to play a unifying and centralizing role in order to guarantee quality training. A recent survey found that the EDIC is used in 11 of 32 countries as a key element in the mentioned examination. Moreover, in 6 of these 11 countries it is mandatory to pass the EDIC in order to obtain the title of specialist.^{15,16} However, it is important to point out that the EDIC does not replace the national regulations; rather, it should be regarded as a complement to such regulations. In Spain, accreditation as a specialist is granted by the Ministry of Education and Science, and at present no final examination needs to be passed. The EDIC therefore would be regarded as a quality indicator. The specialists in those countries that do require a final examination face fewer barriers against free professional displacement across borders, without bothering about the European regulations.

The point of view of the tutor

In competency based training, the tutor plays an important role as supervisor of the learning process. The functions of the tutor include orientation, mediation, follow-up and the planning and development of educational activities that induce the resident to actively take part in his or her training process. The tutor is a key element for guaranteeing that sufficient education and evaluative activities are carried out to ensure that the resident acquires the essential competencies included in the training program.

A survey has recently been made through the webpage of the SEMICYUC to know the profile of the tutors in Intensive Care Medicine in Spain, their concerns and needs in carrying out their work. In brief, their basic needs are specific training in tutorship, collaboration on the part of the rest of the Department personnel in teaching and, especially, time to carry out the training and docent activities. The application of a teaching system centered on the learning individual, and with predefined specific goals (competencies), requires frequent contact between residents and tutors. Training evaluation in turn must be objective and structured, and must serve to generate constructive discussion based on the analysis of the performance of the resident, with the adoption of a consensus-based, individualized plan for improvement in order to correct deficiencies and guarantee progress. All these tasks inevitably imply improvement of the professional and teaching qualifications of the tutors. With the exception of a few European countries in which tutor activities are regulated by contract, in the great majority of cases the work of the tutor is vocational, and institutional commitment is essential in order to afford more time and specific training in this field.¹⁵ Lastly, competency based training requires the participation of the entire Department in the resident training evaluation process, and likewise requires increased healthcare protocolization and greater adherence to the clinical guides in order to lessen variability in clinical practice. Evaluation of the specialist in training should be a standardized routine activity in the Departments of Intensive Care Medicine. However, on the basis of the results of the abovementioned survey, the implementation of this model in Spain is still limited.

The scientific societies

It is not the task of the scientific societies to impose organizational changes or programs; these activities and also quality control correspond to the respective governments. However, the societies can impulse and facilitate all those initiatives that serve to improve healthcare quality and the training of specialists. Their mission is to design strategies and processes for favoring training, accreditation and relations with the government authorities, as well as to provide the latter with technical counseling. Training is a priority concern for the European Society of Intensive Care Medicine, as is reflected by the creation of quality educational instruments, in which the representatives of the SEMICYUC have also participated, such as: (1) the CoBaTrICE program, which offers the opportunity of selecting European training in Intensive Care Medicine; (2) the definition of quality standards for the teaching units and training programs²⁹; (3) advances in accreditation/certification through the creation of an EDIC renewed and improved in terms of structure and objectiveness, designed to offer guarantees of homogeneous and excellent training in Intensive Care Medicine throughout the world; and (4) negotiations with the European Parliament to secure the recognition of our specialty—a goal we are now closer to reaching. Recently, Intensive Care Medicine has been acknowledged by European Union Directive 2005/36/EC as possessing “particular medical competence” associated to a primary specialty. While not revolutionary, this is a step in the right direction for securing the recognition of our discipline as an independent specialty, homologated as such throughout the European Union. Our main strength for reaching that goal is the fact that Intensive Care Medicine is the first specialty in Europe to apply a competency based training program that is moreover being adopted by countries with a long tradition in medical training, such as the United Kingdom, France, Holland, Switzerland and the Scandinavian countries.¹⁵

Lastly, medical education and training do not end here. As recently pointed out by the Base Declaration 2011 of the European Union of Medical Specialists (www.uems.net), continued or ongoing professional development serves to improve the quality and safety of medical practice. Continued training throughout professional life is a need that should be supported by all physicians, with due recognition of their own responsibility in ensuring that this is done.

Conclusions

The profile of the competent intensivist which European society and the specialists in training demand has been clearly defined by the CoBaTrICE initiative. This training program meets the requirements of current legislation and allows the international harmonization of knowledge and competencies—thereby contributing to facilitate cross-frontier mobility for professional practice of the specialty. The implementation of a competency based training system requires specific training of the tutors and collaboration on the part of the entire healthcare team for training evaluation—this being a key element of the system that differentiates it from traditional training practice. Our challenge is to understand the importance of the cultural change

required to improve specialist training and implement the CoBaTrICE program at national level, within an economical setting characterized by limited resources.

Conflicts of interest

The authors declare that they have no conflicts of interest.

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