Journal of Critical Care 35 (2016) 223–228

Contents lists available at ScienceDirect

Journal of Critical Care

journal homepage: www.jccjournal.org

Special Feature

The Intensive care unit specialist: Report from the Task Force of World Federation of Societies of Intensive and Critical Care Medicine☆,☆☆

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ARTICLE INFO

ABSTRACT

The role of the critical care specialist has been unequivocally established in the management of severely ill patients throughout the world. Data show that the presence of a critical care specialist in the intensive care unit (ICU) environment has reduced morbidity and mortality, improved patient safety, and reduced length of stay and costs. However, many ICUs across the world function as "open ICUs," in which patients may be admitted under a primary physician who has not been trained in critical care medicine. Although the concept of the ICU has gained widespread acceptance amongst medical professionals, hospital administrators and the general public; recognition and the need for doctors specializing in intensive care medicine has lagged behind. The curriculum to ensure appropriate training around the world is diverse but should ideally meet some minimum standards. The World Federation of Societies of Intensive and Critical Care Medicine has set up a task force to address issues concerning the training, functions, roles, and responsibilities of an ICU specialist.

1. Background

> "It's an opaque term, intensive care. Specialists in the field prefer to call what they do critical care, but that still doesn't exactly clarify matters."— Atul Gawande: The Checklist Manifesto.

The presence of a well-trained intensive care unit (ICU) specialist has been shown to improve outcomes in ICUs worldwide [1-3]. Nevertheless, the role an ICU specialist portrays has to be clearly defined. Training programs in intensive care medicine (ICM) are becoming established in some countries, yet there is no yardstick to determine the best modality, nor is there a stipulated duration of training or competencies in some countries. Needless to say that in addition to the presence of an ICU specialist in an ICU, a multidisciplinary approach is essential in the care of the critically ill. The debate for a presence of an ICU specialist round the clock and the excessive risk of burnout in this highly volatile environment is a reality. The ICU is truly a hospital within a hospital needing checklists and a high level of coordination with different specialties.

☆ Financial support: None.
☆☆ Conflict of interest disclosures related to this manuscript: None declared.
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http://dx.doi.org/10.1016/j.jcrc.2016.06.001
0883-9441/

2. Objectives and methods

The World Federation of Societies of Intensive and Critical Care Medicine (WFSICCM) represents more than 80 intensive and critical care medicine societies and has set up a task force to define an ICU specialist.

The WFSICCM communicated with member societies to designate experts from the field in their country to contribute to the task force. This document is the culmination of discussions occurring through e-mail, video conferences, and a satellite meeting during the 2015 World Congress of the WFSICCM in Seoul, where synopses of the responses of experts from the member societies were shown and deliberated.

2.1. Who is an ICU specialist?

Intensive care medicine involves the assessment, resuscitation, and ongoing management of critically ill patients with life-threatening single and multiple-organ system failure. An intensivist or an ICU specialist is a medical professional trained in intensive or critical care medicine usually according to the standards set by a certifying body. This physician ideally has no outpatient responsibilities and spends most of his/her professional time in the ICU, together with other intensivists. The intensivist should make all decisions regarding the care of the patients, including admissions and discharges, which physicians to consult, and daily care. This may also include protocol and procedure development and the extent of patient monitoring. The intensivist must ensure that all procedures are carried out safely and competently.

The optimum intensivist-to-patient ratio may vary [4], but should ideally be not be lower than 1:15 [5] and preferably not be lower than 1:8. The best outcomes in the ICU result when the intensivist leads a multidisciplinary team consisting of nonintensivist physicians or physician assistants as well as other allied health professionals including specially trained nurses, nutritionists, physiotherapists, pharmacists, and in some countries respiratory therapists [6]. In addition to the maintenance of the best-quality practice an important leadership roles of the intensivist include controlling potential situations of conflict and maintaining safety standards. The intensivist has a vital role in communicating both patients and their families the disease state, prognosis, and possible outcomes. Training and teaching junior colleagues will guarantee quality measures among the trainees. Research at any level should also be promoted. Finally, the ICU specialist must recognize that intensive care may be futile and is often responsible for initiating end-of life discussions.

2.2. Does a presence of an ICU specialist make a difference to outcomes of critically ill patients?

Although most studies demonstrate positive impact of an intensivist-led ICU [7,8], a large observational study reported the opposite [9]. The possible reason for these contradictory reports may be due to organization and operational factors such as patient-mix, patient-nurse ratio, presence of other medical personnel, having and adhering to evidence-based protocols, which may also influence outcomes [10]. The most extensively studied ICU physician staffing models differ in the level to which intensivists are involved in patient management. High-intensity ICUs are those where a full-time or consulting intensivist manages most patients, or ICUs where there is a mandatory intensivist consult and rounds by the intensivist on all patients daily, whereas low-intensity ICUs either have no intensivist participation or offer elective intensivist consultations. A recent meta-analysis showed that having a high-intensity staffing compared with low-intensity staffing was associated with lower ICU mortality and hospital mortality, and a significant reduction in hospital length of stay [11].

Specialized training in critical care is currently unavailable in many countries, and the number of trained intensivists is inadequate to meet the increasing demand. The affluent countries also lack uniformity in the distribution of services of an ICU specialist [12,13]. Alternative strategies such as telemedicine [14] and use of hospitalists and nonphysician providers [15] may be considered to overcome this shortage of ICU specialists. Whether the technology in use for tele-ICU can affect clinical and economic outcomes without inculcating additional cost benefits has still to be proved [16].

2.3. What training is required for an ICU specialist?

Although anesthesiologists took a leadership role in the initial development of critical care in many countries, they are not the only ICU specialists. Qualifications differ from one country to another. In Europe, anesthesiologists represent most intensive care physicians. It is recommended that anesthesiologists when practicing their time in ICM do so exclusively. Globally, most of the curriculum in anesthesia devotes only a brief period of ICM training.

Worldwide the training of an ICU specialist varies in route of entry, which specialist is permitted to become an intensivist, and the length of training. In some countries, critical care is a specialty with direct entry from medical school or after 1 year of internship/registrar, whereas in other countries, it is a subspecialty, with training beginning after completion of specialty training, usually in internal medicine, anesthesia, surgery, or pediatrics. An international survey of ICM training programs conducted between 2003 and 2005 demonstrated wide inequalities in the structures, content, processes, and outcomes of training in ICM confirming that standards vary worldwide [17].

Of the 54 different programs identified in 42 countries worldwide, 37 were within the European region; these varied in duration from 3 to 72 months [18]. Intensive care medicine as a primary specialty is a possible path in countries such as Spain, Australia, New Zealand, Portugal, and Switzerland.

In some European countries (eg, Spain), critical care training begins after medical school and is a 5- to 6-year program, whereas in others (eg, Italy), ICM is limited to anesthesiology. In the UK, as of 2012 the Faculty of ICM provides oversight for training, examinations, and maintenance of competence. Training begins after completing specialty training and generally takes 3 to 4 years.

The structure and oversight for programs in the United States is dependent on 1 of 4 boards or colleges, and the training within these boards varies depending on the specialty. The American Board of Anesthesiology oversees the training of anesthesiologists and emergency medicine (EM) specialists. Although this training is 1 year for the former after completion of anesthesiology training, for EM specialists it is 2 years after completion of EM training. Similar training is offered to interested surgeons through the American Board of Surgery after completion of surgery training.

In Canada, ICM is a subspecialty with standards and training requirements overseen by the Royal College of Physicians of Surgeons of Canada. The training is 2 years. One year of that training may overlap with a specialty. Trainees can enter into critical care from internal medicine and all its subspecialties, EM, general and cardiac surgery, or anesthesiology and with special consideration from other specialties such as neurosurgery.

In the Oceania region, the College of ICM of Australia and New Zealand is responsible for specialty training, which can occur after a year of post-MD graduate training or after completing another specialty. Training is generally 6 years in length. This is in contrast to the remainder of Oceania, which as recently described, is generally a 1- to 2-year subspecialty program [19].

In Asia, an intensivist usually obtains additional training after a primary specialty. That training may last from 6 months to more than 1 year. In India, there are 3 training options offered by the Indian Society of Critical Care Medicine, with the duration of training being 1 to 2 years depending on postgraduate qualifications. The National Boards offers a 2-year structured fellowship program. Some universities offer a 3-year doctorate in medicine curriculum as a postdoctorate program.

A survey revealed that ICM training is available in a large number of countries (Table 1) [17]. Several of these countries share training