

## Consensus Forum: Worldwide Guidelines on the Critical Care Nursing Workforce and Education Standards

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Every country, hospital, unit, nurse, and patient is different. It may seem at first glance impossible to establish guidelines on workforce and education standards that are applicable or acceptable to every country, hospital, unit, nurse, or patient in the world. Notwithstanding the difficulty of this task, one of the early expectations of the World Federation of Critical Care Nurses (WFCCN) was to develop practice guidelines to assist member associations to set standards of practice in their respective countries.

In May 2003, the WFCCN commenced a process of research and consultation to develop guidelines that aim to inform and assist critical care nursing associations, health care providers, educational facilities, and other interested parties in the development and provision of critical care nursing workforce and education. The position statements (workforce and education) went through three draft and consultation phases. Distribution of the drafts went to member societies of WFCCN, other international nursing and medicine organizations, and individuals with an interest in critical care nursing.

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displays at the First WFCCN Congress in Cambridge, United Kingdom, in September 2004 and received constructive and useful feedback). Second drafts were disseminated between October 2004 and April 2005. Third drafts were disseminated between May 2005 and August 2005.

The position statements were further presented, discussed, and endorsed by over 300 critical care nurses at a consensus forum during the Ninth World Congress of Intensive and Critical Care Medicine in Buenos Aires in August 2005. A full meeting of the Council of the WFCCN on August 27, 2005, in Buenos Aires, Argentina, ratified the position statements (Appendices 1 and 2) [1,2].

This article explores the key themes, evidence, and arguments that inform the current position statements. It is acknowledged that future research, evidence, and practice experience may create the need to review and change these guidelines. A sign of a dynamic, mature, and progressive specialty is the ability to grow and learn from experience and feedback. Reform and refinement of the guidelines are inevitable; however, the current guidelines represent the best attempt yet to reach international consensus on what are appropriate standards to guide critical care nursing education and workforce requirements.

## **Provision of critical care nursing workforce**

### *Background*

The shortage of nurses generally and of critical care nurses specifically has been documented in many countries around the world [3–6]. In 2001, a published study of critical care nursing organizations in 23 countries found that staffing levels, followed by working conditions, were the two most important issues and priorities facing critical care nurses at that time [7]. In that study all 23 responding countries identified staffing levels as the most important issue for their country's critical care nurses. The researchers have recently found that these issues remain among the most important issues to critical care nurses in 51 countries of the world (G. Williams, et al, unpublished data, 2006).

Yet, when the WFCCN was requested by its Council to develop guidelines on critical nursing workforce requirements, few countries actually had documented workforce guidelines in place; Australia [8] and the United Kingdom [9] were notable exceptions.

Key explanations for why workforce needs in critical care are of major concern have been described elsewhere and include but are not limited to the following:

- Patient care is labor intensive, many patients requiring one nurse 24 hours per day [10].
- Many critical care nurses are highly qualified and experienced but their remuneration and career choices does not reflect this fact compared with

other nursing positions or other jobs that they could perform for more money and recognition [11–13].

- Aspects of the role can be very demanding and stressful, resulting in burnout and frustration; hence, many critical care nurses move on to other roles [11,14].

## *Literature*

### *Patient assessment, observation, care, and supervision*

The responsibilities of the critical care nurse are complex and varied, requiring observations that involve assimilation, interpretation, and evaluation of specialized information and subtle changes in patient condition and technologic and monitoring outputs [15]. A variety of research papers explain the relationship between nurse/patient ratios, skill-mix of staff and patient care, and incidents (or error) both in nursing and in critical care specifically. Examining this research helps to inform what are considered safe and reasonable workforce standards in critical care.

It has been shown that a reduction in the number of registered nurses providing direct patient care is associated with complications, such as nosocomial infections [16], an increased risk of central line infection rates, pressure sore incidence, falls and use of physical restraints [17], medication errors, patient injuries, and death. A higher ratio of registered nurses to non-registered nurses in the skill mix improves patient care outcomes [18–20].

Furthermore, managing and supporting the transition of patients from mechanical ventilation is perceived to be one of the pivotal roles of the critical care nurse [21] and the time taken to wean patients from ventilation dramatically increases when nurse/patient ratios are reduced; this may lead to unnecessary increase in length of stay and complications [22]. Additionally, the presence of fewer critical care nurses is independently associated with postoperative complications [23] and increased risk for respiratory-related complications after abdominal surgery [24].

An argument for lesser nurse/patient ratios may be grounded in the fact that sophisticated monitoring equipment and alarms may reduce the need for bedside nursing. The available evidence refutes this assertion. A Hong Kong study of ICUs found that 51% of incidents were detected by direct observation compared with 27% detection by a monitor [25]. In an Australian study, bedside staff observing the patient, chart, or equipment detected 83% of incidents, whereas 8% of incidents were detected by monitors [26]. Although sophisticated monitoring equipment is essential to contemporary critical care nursing practice, it remains an adjunctive tool for the nurses and cannot be considered a substitute for experienced and skilled direct patient care provided by a critical care nurse at the bedside.

Medicolegal responsibilities further support the need for close and continuous monitoring of the critically ill patient. Langslow [27] describes the case of Dr. Adomako, whose patient became disconnected from a

mechanical ventilator during an operation to repair a detached retina. The court used this case as an opportunity to confirm that it is a breach of duty for an anesthetist to leave an anaesthetized patient unattended and that the disconnection should have been discovered within seconds and not minutes once it had occurred. Dr. Adomako was convicted of manslaughter and sentenced to 6 months imprisonment. The inference drawn from this case is that intubated and mechanically ventilated patients ought to have a qualified and competent practitioner continuously observing and monitoring their care at all times [28].

In the United States, the Susan Von Stetina case showed that inadvertent disconnection from a mechanical ventilator resulted in financial damages to the hospital for negligence, for allowing a dangerously low nurse/patient ratio to exist that was found to contribute to the damages caused to Von Stetina. The hospital was successfully sued for over \$12 million (US) [29]. It is a false economy to save salary costs of nursing staff at the risk of patient care and safety.

So, what is the correct staffing ratio? A number of dependency scoring systems have been developed for critical care patient acuity and staff allocation measures. Although useful as a means to consistently measure workload trends retrospectively and over time, dependency scoring systems do not reflect the totality of the nursing work performed in an ICU and at best may only be used as a guide to workload [15]; the senior critical care nurse in charge must still make a judgment about the staffing allocation to each patient on each shift.

Supervision of junior, inexperienced, and untrained staff in the critical care unit requires skilled assessment by the senior critical care nurse in charge. The WFCCN workforce guidelines provide for ACCESS nurses in addition to those nurses allocated to a patient. Williams and Clarke [10] describe the role of the ACCESS nurse as providing additional Assistance, Coordination, Contingency (for late admission or sick staff), Education, Supervision, and Support to a subset of patients and nurses in a critical care unit. Staff meal breaks, admissions of additional patients during a shift, and education and support for junior, inexperienced, and locum staff are daily issues that require the provision of additional experienced critical care nurses to ensure appropriate and continuous supervision, monitoring, and care at all times.

Endacott [21] states “the 1:1 nurse: patient ratio has been the central tenet of endeavoring to maintain the level of qualified nurse and this level of staffing was stated as an explicit requirement in the recent Department of Health Guidelines of Intensive and High Dependency Care (UK).” The WFCCN supports clear nurse/patient ratios that are clinically determined and applied by the critical care nurse in charge; this reflects the Australian College of Critical Care Nurses position that also states patient ratios for critical care and high-dependency care patients [8]. A number of other nursing associations and government reports do not support nurse/patient ratios

and provide more general descriptions and principles to inform staffing needs in the critical care area [9,15,30]. The provision of ratios lessens the risk of ambiguity in what is acceptable practice, whereas if taken out of context ratios can be expensive or underrepresentative. It is clear that most guidelines do acknowledge and support the need for the experienced senior critical care nurse in charge to determine the appropriate staffing mix and number for each patient and for the shift at any given time [8,9,15,30].

#### *Team leadership and direction*

It is now well established that best patient outcomes occur in those critical care units where a dedicated medical director works collaboratively with a head nurse and together they provide policy and protocol, direction, and support to the team [31,32]. This well-established fact is promoted in the workforce statement. It is imperative that the head nurse and doctor are well educated, experienced, and respected by the team. The head nurse must have an appropriate postgraduate critical care nursing qualification and it is also recommended that they have an appropriate management qualification. Furthermore, the statement asks that there be access to medical decision making at all times. In practice this may be by telephone.

#### *Education, quality, and research programs*

A number of important professional issues are articulated in the WFCCN document. The role of a dedicated critical care nurse educator or teacher to ensure appropriate education and development of all staff in the unit is described. Programs to support quality improvement, multidisciplinary research, and conference attendance are critical to the growth and development of a vibrant professional culture [33]. Although not directly required for patient care, the WFCCN believes these activities must be planned for, rostered, and resourced so that staff can participate in ongoing learning and development. The Australian College of Critical Care Nurses suggests that one full-time critical care nurse educator be employed for every 50 nurses employed in the critical care unit, benchmarking the standard for that country [8].

#### *Nonnursing support and assistances*

South African Society of Anaesthesiologists Guidelines for Intensive Care in South Africa states that “levels of staffing by qualified medical, nursing and ancillary and support personnel should be appropriate to the patient mix, severity of illness and level of interaction” [34]. The WFCCN guidelines articulate the need for various support staff to assist with nonclinical, non-nursing activities. These include, but are not limited to, cleaning, reception, administrative and clerical functions, and other domestic duties. It is suggested that critical care nursing skills are best used in direct patient care and in professional roles that require expert nursing knowledge, skills,

and attributes. The many other tasks that can be completed by nonqualified, unregulated, and less expensive staff should be delegated to such staff. Direct patient care in the critical care environment, should only be provided by a qualified registered (regulated) nurse [35].

It is acknowledged that in some countries health attendants that are unregulated and not qualified may provide direct patient care to critically ill patients; however, in these circumstances, it is expected that the health care attendant is under the direct supervision of the registered nurse and that the registered nurse remains responsible for the assessment, planning, and evaluation of the direct patient care provided [36,37].

### *Environmental safety*

A number of statements in the document do not contain specific evidence to support their inclusion because they are self-evident. First, occupational health and safety procedures and systems in place to minimize the potential for harm to staff working in the clinical area are essential to prevent unnecessary injury, work absences and resignation, or redundancy of the available nursing workforce. Examples of safety initiatives include reducing sharp objects in the environment (eg, needle-less syringes) or no-lift policies that ensure adequate lifting devices are available and functioning to prevent nurses being exposed to back injury through awkward lifting of heavy patients [38,39].

Second, the clinical and technical equipment used in the critical care unit is expensive, complex, and varied. It is important that the staff is trained in the appropriate use, care, and maintenance of such equipment to ensure it is appropriately and safely applied to patients. Furthermore, biomedical technicians need to provide regular checking and maintenance procedures to ensure the electrical and functional safety of the equipment to prevent unnecessary harm to patients and staff [40].

### *Staff recognition and support*

Although wages are not the primary motivator for all nurses who wish to work in critical care it remains an important element to feelings of self-worth and value in the organizational structure not to mention its practical value to provide a sustainable livelihood. The lack of an appropriate salary is a common issue identified by many critical care nurses worldwide (G. Williams, et al, unpublished data, 2006). In addition, salaries must be competitive with other roles and jobs to which critical care nurses may be attracted. A competitive salary creates an incentive for critical care nurses to stay in the critical care environment [41].

In addition to financial safety, emotional safety can be as important or more so in many cases. Nursing staffs are frequently exposed to stressful, demanding, and challenging situations that can be traumatic or lead to burn out [14]. Peer support programs, counseling, and other support arrangements need to be in place and accessible to the nursing staff as required [42].

## **Provision of critical care nursing education**

### *Background*

At the Sixth World Congress on Intensive and Critical Care Medicine in Madrid, Spain, 1993 a forum was held by a gathering of critical care nursing leaders to discuss, develop, and propose a set of guidelines that could be used to inform the minimum expectations of critical care nursing courses around the world. The nurses attending the forum and the World Federation of Societies of Intensive and Critical Care Medicine (WFSICCM) endorsed what has become known as the Declaration of Madrid on the preparation of critical care nurses. In 2003, the WFSICCM allowed WFCCN to take carriage of this document to review, research, and modify the document as required so that it may inform the critical care world of the contemporary expectations of critical care nursing courses designed to prepare nurses for the critical care environment. To the authors' knowledge the WFSICCM Declaration of Madrid had only been published and elaborated on by Australian critical care nurses [43,44].

The provision of nurses to work in the critical care environment is variable worldwide ranging from undergraduate cadetship-style apprentice preparation, to postregistration in-house orientation and training on the job through to postgraduate university-based programs leading to higher academic degree and everything in between (G. Williams, et al, unpublished data, 2006). Realistically, it is fair to say that at this stage knowledge of the breadth of critical care nursing preparation throughout the world is limited because there are limited studies that describe the range of postgraduate education approaches in most countries in the world, Europe being the main exception [45]. Notwithstanding such limitations, the earlier work of the nursing leaders in Madrid in 1993 and the more recent work of WFCCN provides for a starting point for any country, university, or hospital wishing to provide a course of study to prepare registered nurses to work in critical care.

### *Literature*

#### *Preparation of critical care nurses through postgraduate education*

A critical care nurse is a person who provides competent and holistic care for the critically ill patient through the integration of advanced-level knowledge, skills, and humanist values [46]. The level of preparation required for the specialist nurse is beyond the scope of current undergraduate nursing programs in many countries.

For this reason, the WFCCN advocates that the preparation of a specialist critical care nurse requires postgraduate or postregistration education programs to achieve the depth and breath of clinical knowledge, skill, and attributes necessary to establish a therapeutic relationship with patients and their relatives and to empower the individuals' physical, psychologic,

sociologic, and spiritual capabilities by preventive, curative, and rehabilitative interventions [47]. Fundamental to a critical care nursing program is the provision of advanced knowledge in a range of clinical, management, and practice areas. The essential areas of curriculum were outlined in the original Declaration of Madrid [43] and in the revised WFCCN Declaration of Madrid [2].

As a specialist clinician the critical care nurse requires knowledge and skills in problem-solving, clinical decision making, critical thinking, reflective practice, leadership, and teamwork [44]. Kaplow [48] refers to the synergy model developed by the American Association of Critical Care Nurses with eight nursing characteristics that are the essence of professional practice:

1. Clinical judgment
2. Clinical inquiry
3. Facilitator of learning
4. Collaboration
5. Systems thinking
6. Advocacy and moral agency
7. Caring practices
8. Response to diversity

Postgraduate programs require a balance of theoretical content and clinical practice exposure. The specialist critical care nurse is required to actively contribute to the process of nursing research and to use relevant research for practice [33,46]. For these reasons it is necessary for the nurse wishing to specialize in the field of critical care to be prepared in a postgraduate program at the university or equivalent level [49].

#### *Agreement on expectations of critical care nursing course*

WFCCN believes that the critical care nursing profession, health care services, and the education sector need to form a partnership to establish critical care nursing courses that meet the minimum standards documented in the Declaration of Madrid. Ideally, each jurisdiction should have critical care nursing courses that meet common standards and outcomes. In some studies it has been found that critical care courses are not consistent in content, form, or outcome and this makes it very difficult for nurses and employers to differentiate between programs and what they have to offer [45,50,51].

To ensure congruence and collaboration between the profession, employer, and educational provider it is imperative that the three stakeholder groups and their representatives be involved in curriculum development and review; course implementation and evaluation; and where possible, establish joint appointments, staff exchanges, and collaborative research projects [52,53].

In Ontario, Canada, the Health Ministry is working with employers and critical care nurses to try and prepare standards and core competencies in



critical care nursing that, it is hoped, may inform a standardized curriculum for critical care nursing programs in that province (Patricia Hynes, personal correspondence, January 2006). Although only in the exploratory stage, this is the type of collaborative partnership that ought to be encouraged.

### *Balancing the theory-practice expectations*

Postgraduate critical care nursing courses must prepare specialist nurses with strong theoretical knowledge and demonstrated clinical competency. Clinical competence should be assessed against predetermined and agreed competency standards for specialist critical care nurses [46,54–56]. Postgraduate critical care educators must also maintain clinical competence to ensure academic knowledge can be integrated and applied into clinical nursing practice [57,58].

Objective structured clinical assessments may be simulated in the laboratory or in the patient care setting and provide an opportunity for the critical care nursing student (and students from other disciplines) to demonstrate application of clinical knowledge to real clinical practice [59–61]. Other clinical assessments can also be useful in the process of personal and professional development, such as clinical competencies and portfolio of written evidence and objective structured clinical evaluation [52].

There is a requirement for a clinical educator to provide coordination and education of the critical care and nursing students in the clinical environment and experienced critical care nurse preceptors for each of the students. The preceptor has a patient allocation and uses the clinical environment to orientate, guide, and challenge the student, finding appropriate situational learning opportunities for the student whenever possible. In addition to clinical and academic knowledge, the educator and preceptor are important role models to the student and must be motivated, enthusiastic, and supportive of the student's learning needs and display exemplary personal and professional attributes.

Both the health care service and education provider require complimentary policies to support the educators and preceptors in fulfilling their respective responsibilities and acknowledge the time and work involved in teaching novice critical care specialists.

### *Recognition of prior learning*

Education providers of critical care nursing courses are required to establish processes to assess the prior learning of the students and to give recognition or exemption to those who have successfully completed educational programs similar to components of the postgraduate course. A standardized approach to recognition and exemption is required to ensure fairness and equity for students in different programs across the jurisdiction. In addition, credit transfer between institutions is also required because some students may be required to move from one course program to another mid-course because of unavoidable personal circumstances [62]. Credit and exemption

processes need to consider past academic qualifications, past and present clinical experience, roles and professional contribution.

#### *Access to and recognition of postgraduate critical care courses*

The cost and fee structures of a postgraduate critical care course need to be set in such a way that the average critical care nurse can afford to participate. The authors recommend as a guide that a 1-year part-time critical care nursing course program not cost anymore than 10% of the average full-time wage of a critical care nurse in that country. Furthermore, the employer should allow for clinical learning time in paid work hours. Wherever possible, it is in the interests of all involved to reduce the financial and personal burden associated with the program to ensure as few barriers as possible get in the way of the student's progress toward a successful completion of the program [51]. Health care providers should also provide loans or scholarships to assist students with the financial burden of the program. The head nurse needs to consider rostering options and leave allocations to maximize the student's ability to attend to work, study, and family or personal responsibilities and show preference or at least fair consideration to these needs. Governments and employers are encouraged to provide a qualification allowance for those nurses who have successfully completed postgraduate critical care nursing courses to recognize, value, and encourage this level of personal and professional development. Other innovative ways of recognizing the achievements of specialist qualifications of critical care nurses also need to be explored and implemented [44,46].

Access to critical care nursing courses may also be limited by geography. A significant number of nurses live and work in communities that do not have universities or nursing schools, especially in rural areas. Some students have personal circumstances that limit their ability to attend regular learning sessions on campus. Educational providers are encouraged to find methods of education that are flexible, including study block options, distance learning packages, on-line chat-room tutorials, or a combination of such strategies [63–65].

Clinical experiences may also be limited in some rural settings. The educational provider needs to assess the learning needs and opportunities of each student and individually tailor a clinical learning program so that students receive the clinical exposure necessary to meet the minimum expectations of the declaration of Madrid.

#### *The role of short courses in critical care subjects*

A variety of short courses are available, which provide information and learning about aspects of critical care nursing. Although these short course programs provide an important and useful role in providing up-to-date knowledge and skill of varying levels (eg, in continuing professional development), these courses should not be seen as a substitute for specialist critical care nursing programs. Providers of such short courses are encouraged

to cooperate with university and other educational providers, however, to establish recognition of prior learning and credit toward a postgraduate critical care nursing course for the successful completion of such short course programs where appropriate [52].

## Summary

Ensuring a safe, dynamic, fulfilling, and rewarding work life for each critical care nurse is an unending task for the critical care manager. Ensuring a safe, comfortable, and secure environment for each patient and their family is equally challenging. The research into patient safety, workforce development, and educational preparation of critical care nurses conducted in many countries, however, is beginning to provide a consistent set of findings and principles that have been used to establish guidelines to support best practice workforce and education planning in critical care units and services.

The WFCCN Declaration of Buenos Aires: Position Statement on the Provision of Critical Care Nursing Workforce and the WFCCN Declaration of Madrid: Position Statement on the Provision of Critical Care Nursing Education use the best available information to articulate guidelines that can help to inform and assist critical care nursing associations, health care providers, and governments in the appropriate and safe provision of critical care nurses to support critical care services.

The authors acknowledge that further research and experience are required to help inform and develop these guidelines in the future so that aspects of the statements can be confirmed or changed depending on future findings. For now, however, they remain the only internationally endorsed guidelines for critical care nursing workforce and education and are recommended as a guide to assist those countries wishing to establish similar standards at a national or regional level.

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