Australian Critical Care xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Australian Critical Care

journal homepage: www.elsevier.com/locate/aucc

ACCCN Workforce Standards for Intensive Care Nursing: Systematic and evidence review, development, and appraisal

Diane Chamberlain RN, MPH, PhD (Associate Professor)[a,e,*]
Wendy Pollock RN, PhD[b,e]
Paul Fulbrook RN, PhD[c,d,e], on behalf of The ACCCN Workforce Standards Development Group

[a] Flinders University, Adelaide, Australia
[b] La Trobe University, Melbourne, Australia; The University of Melbourne, Melbourne, Australia
[c] Australian Catholic University, Brisbane, Australia
[d] Nursing Research & Practice Development Centre, The Prince Charles Hospital, Brisbane, Australia
[e] Australian College of Critical Care Nurses

ARTICLE INFORMATION

Article history:
Received 16 May 2017
Received in revised form 28 August 2017
Accepted 28 August 2017

Keywords:
Intensive care nursing
Standards
Workforce
Staffing

ABSTRACT

Background: The intensive care nursing workforce plays an essential role in the achievement of positive healthcare outcomes. A growing body of evidence indicates that inadequate nurse staffing and poor skill mix are associated with negative outcomes for patients, and potentially compromises nurses' ability to maintain the safety of those in their care. In Australia, the Australian College of Critical Care Nurses (ACCCN) has previously published a position statement on intensive care staffing. There was a need for a stronger more evidence based document to support the intensive nursing workforce.
Objectives: To undertake a systematic and evidence review of the evidence related to intensive care nurse staffing and quality of care, and determine evidence-based professional standards for the intensive care nursing workforce in Australia.
Methods: The National Health and Medical Research Council standard for clinical practice guidelines methodology was employed. The English language literature, for the years 2000-2015 was searched. Draft standards were developed and then peer- and consumer-reviewed.
Results: A total of 553 articles was retrieved from the initial searches. Following evaluation, 231 articles met the inclusion criteria and were assessed for quality using established criteria. This evidence was used as the basis for the development of ten workforce standards, and to establish the overall level of evidence in support of each standard. All draft standards and their subsections were supported multi-professionally (median score >6) and by consumers (85–100% agreement). Following minor revisions, independent appraisal using the AGREE II tool indicated that the standards were developed with a high degree of rigour.
Conclusion: The ACCCN intensive care nursing nurse workforce standards are the first to be developed using a robust, evidence-based process. The standards represent the optimal nurse workforce to achieve the best patient outcomes and to maintain a sustainable intensive care nursing workforce for Australia.

1. Introduction

Since the publication of the Institute of Medicines report *To Err Is Human*,[1] the relationship between hospital characteristics such as intensive and critical care nurse staffing and the quality of care has become central to issues of healthcare delivery, research and policy.

In the acute hospital setting, there is a long-standing, consistent and robust evidence base that demonstrates the positive associations between the numbers of registered nurses (RN) employed to care for patients, the quality of their education, and improved patient outcomes.[2,3] Furthermore, in intensive care units (ICU), there is evidence that higher ratios of RN staff to patients (specifically, 1:1 or 1:2) increase patient safety and improve patient outcomes.[1–5] Specifically, higher ratios of RNs providing direct patient care are associated with reduced length of stay in the intensive care unit,

* Corresponding author.
E-mail address: di.chamberlain@flinders.edu.au (D. Chamberlain).

https://doi.org/10.1016/j.aucc.2017.08.007

reduced incidence of nosocomial infection, fewer adverse events, and lower ICU mortality.[6]

Although there are many factors that influence the safety and outcomes of critically ill patients, it is indisputable that patient-centred care provided by an appropriately qualified nursing workforce makes a significant difference. In 2012, the Australian Department of Health and Ageing commissioned a review of Australian government health workforce programs, with a focus on how to support the delivery of a high-quality, well-distributed, optimally utilised and responsive health workforce for Australia.[7] The chair of the review stated, "It is critical that workforce innovation results in not only improved productivity, improved retention and job satisfaction but also that the safety and quality of care is not affected" (p. 72).

Although Australia adopted intensive care nursing as a speciality in the 1970s,[8] its clinical context and nursing provision are quite different to most other nations.[9] Australia boasts high quality intensive care nursing clinical practice, education and research; specialist intensive care nursing postgraduate education is well established and national specialist practice standards guide clinical practice.[10] Specifically, practice is equitably collaborative and requires high levels of knowledge, technical skills and critical thinking.[9,10] Australian intensive care nurses routinely operate mechanical ventilators, independently assess and adjust ventilator settings to patient needs, suction and maintain an airway. They manage highly technical devices such as extracorporeal therapy and intra-aortic balloon pumps, measure cardiac output from highly technical hemodynamic devices and titrate vasoactive drugs. They have not only technical skills but also knowledge, and can apply these skills and knowledge to patient-centred care. It is usual that each specialist critical care nurse cares for and manages the multiple and complex needs of one critically ill intensive care patient. Unlike some other countries, the intensive care workforce is not complemented by specialised allied health practitioners such as respiratory therapists or dialysis nurses. Normally, one appropriately qualified RN operates, manages and problem-solves all the technical equipment issues required to provide life support to a critically ill patient. All elements of patient care, including those that may seem basic and non-technical, such as washing and patient positioning, enable the intensive care nurse to gather vital information about the patient. For instance, skin condition and venous return to dependent body parts, haemodynamic stability when re-positioned, and purposefulness of patient interaction and movement when sedated are all evaluated during routine patient care activities. The bedside nurse provides the constant surveillance and decision-making that is required to optimise outcomes and reduce complications in the critically ill patient. This somewhat unique advanced Australian critical care clinical practice model provides less variation in practice and more stability in critically ill patients' condition.[11] Notably, Australian ICUs have among the best patient outcomes in the world, including a lower prevalence of hospital acquired infections, lower rates of patient restraint and comparably reduced sedation levels which is due, at least in part, to the patient-centred focus of its nursing workforce.[9,11,12]

An intensive care nurse providing direct patient-centred care is the conduit for information, effective communication and consultation from the many medical units and intensive care specialists that have input into a patients care.[13] The intensive care nurse is also a vital support person for family members of critically ill patients, providing information, guidance and support during the patient's stay in the intensive care unit.[14–16] To subdivide elements of care between different care providers is inefficient as it would fragment care and potentially compromise patient safety, especially as the critically ill are so vulnerable. The provision of direct patient- and family-centred care to a critically ill patient is a key strength of Australian intensive care provision, and this model of care should not be dismantled without good evidence that adverse outcomes will not occur as a result.[9,14–16]

2. Background

In 2001, a senate inquiry[17] into the critical care workforce developed key statements that were later included in the *ACCCN ICU Staffing Position Statement (2003) on Intensive Care Nursing Staffing*.[18] This position statement was informed by a literature review of existing evidence and an expert panel review, from which consensus recommendations were made for ICU staffing requirements.[19] It served the profession well until the cuts in healthcare spending that resulted from the global financial crisis; which led to reductions in the critical care nursing workforce and affected the quality of patient-centred care.[20] Such decisions were based on simplistic assumptions about the numbers of nurses, rather than on evidence from research about critical care nurse staffing and workforce, such as their experience, qualifications, education and fitness for purpose.[21] The reduced staff numbers and overall staff quality after the global financial crisis resulted in an increased number of health-related adverse events, poorer productivity and poorer outcomes for patients.[20–22] While the 2003 position statement provided important national guidance on intensive care nursing staff levels, its effectiveness was limited because it did not establish specific standards for practice.[19]

In the wake of the workforce issues described above, ACCCN received requests from the critical care nursing profession to develop a more robust evidence-based position on the ICU nursing workforce so that the quality and safety of patient-centred care of critically ill patients could be protected and maintained.

2.1. Aim

The aim was to develop a set of standards that defined a safe and sustainable intensive care nursing workforce that would ensure the best outcomes for critically ill patients. The scope of the standards was to include all adult, paediatric or mixed adult/paediatric intensive care units in Australia with the intention that they would be used by intensive and critical care nurses; ICU managers, allied health and medical staff; hospital managers; health service district managers and executives; government health services administrators, managers and executives; hospital-based and university-based educators; and the public.

3. Methods and Results

The ACCCN Board of Directors established a working party that consisted of experts from each state and members of the *ACCCN Workforce Advisory Panel* to review the 2003 position statement and its evidence base, and use it as a baseline from which to develop new standards. The standards were developed in several stages. Initially, expert consultation and a systematic review of relevant evidence was undertaken. The National Health and Medical Research Council (NHMRC) standard for clinical practice guidelines methodology was employed which included a systematic review and then an evidence review.[23] Draft standards were then produced. A consultation and review phase followed in which the standards were revised, followed by independent appraisal using the AGREE II tool.[23,24]

3.1. Consultation and systematic review

Several teleconferences and a face-to-face workshop of the Workforce Standards Development Group were conducted, to identify the overall approach to the development of the Standards,

Please cite this article in press as: Chamberlain D, et al. ACCCN Workforce Standards for Intensive Care Nursing: Systematic and evidence review, development, and appraisal. *Aust Crit Care* (2017), https://doi.org/10.1016/j.aucc.2017.08.007