Chapter 1

Challenges in contemporary critical care

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Introduction

The long-held traditional view that critical care nursing is regarded to be a 'speciality within nursing that deals specifically with human responses to life threatening problems' (American Association of Critical Care Nurses, 2009) is being increasingly challenged. The concept of the traditional intensive care unit (ICU), where patients, staff and equipment are geographically co-located is being increasingly challenged by the concept of 'critical care without walls'.

This chapter examines contemporary aspects relating to critical care nursing, with practices at both national and international levels being explored. Implications regarding new roles and new ways of working for the critical care nurse are also considered.

Critical care without walls

The philosophy of 'critical care without walls' has gained increasing momentum over the past decade, especially with support from policy documents such as *Critical to Success* (Audit Commission, 1999) and *Comprehensive Critical Care* (DH, 2000). Brilli *et al.* (2001) translate this contemporary view of critical care as being the appropriate medical care given to any physiologically compromised patient. Consequently, the underpinning philosophy to 'critical care without walls' is that any patient whose physiological condition deteriorates should receive both the appropriate medical and nursing care to which their condition dictates, no matter where they are physically located within the primary or tertiary care setting.

Importantly, Endacott *et al.* (2008) argue that this new approach to the delivery of critical care will aim to address Safar's long-held concerns from as far back as 1974 that critical care is no more than an increasingly unnecessary and expensive form of terminal care in a lot of cases (Safar, 1974). Similarly, Rosenberg *et al.* (2001) suggest that mortality rates and lengths of stay are also enhanced through a more effective and coordinated approach to the discharge and follow-up of patients from the critical care unit.

To facilitate this shift in the approach to the delivery of critical care, Endacott *et al.* (2008) argue that there is now an emphasis on empowering both the medical and nursing staff, who work within the acute care settings such as acute medical and surgical wards, with the knowledge, skills and attitude to recognise and effectively manage the deteriorating patient before they become severely and critically ill. Endacott *et al.* (2008) believe that

it is the critical care nurse consultant who is ideally placed to support the empowerment of nurses working on general wards, particularly with regard to the development and assessment of decision-making skills.

Coombs *et al*. (2007) also support the empowerment of nurses with regard to clinical decision-making skills. They found that the nurses have become proficient at managing patients with long-term conditions such as chronic renal failure and respiratory failure. They argue that by pushing the boundaries of the traditional nursing role, the nursing contribution to the delivery of care has been enhanced.

Advanced practice

The expansion in the role of the nurse has not been confined to the United Kingdom. Kleinpell-Nowell (1999) and Kleinpell (2005) studied the steady growth of the acute care nurse practitioner (ACNP) role within the United States. Coombs *et al*. (2007) now see such opportunities developing within the United Kingdom. Such roles tend to come under the umbrella term of 'advanced practice'.

The concept of advanced practice is gaining increasing momentum within contemporary health-care practice. The notion of advanced practice is being driven by such factors as the demographic changes associated with an increasingly elderly population, budgetary constraints and workforce considerations, such as the European Working Time Directives, and the impact these have had on junior doctors' working hours and the General Medical Council (GMC) contract. Such factors demand a more streamlined and efficient health service. As a consequence, inter-professional groups within health care are developing additional knowledge, skills and practice, which were formerly the domain of other health professional groups. Within current health-care practice, some members of inter-professional groups such as nurses, paramedics, pharmacists and health scientists are developing advanced roles within their scope of practice. However, such advanced roles do not simply revolve around the ability to develop invasive procedures such as line insertions or intubation.

Despite its proliferation, there is much ongoing debate around the definition of 'advanced practice' (Furlong and Smith, 2005) along with acknowledgement of advanced skills being practiced in a huge variety of clinical settings. On the whole, many agree that 'autonomy' is the central ethos for advanced practice and the freedom to make informed treatment decisions based on acquired expertise within the individual's area of clinical practice.

Skills for Health (2009) does provide a useful definition of advanced practitioners as:

> *Experienced clinical professionals*
> *who have developed their skills and*
> *theoretical knowledge to a very high*
> *standard. They are empowered to make*
> *high level decisions and will often have*
> *their own caseloads.*
>
> (Skills for Health, 2009)

The Skills for Health (2009) definition provides a generic definition for a range of inter-professional health-care practitioner's roles. For a nursing-profession-specific definition of advanced practice, the International Council for Nurses' (ICN, 2001) definition is widely considered:

> *A registered nurse who has acquired the expert knowledge base, complex decision making skills and clinical competencies for expanded practice, the characteristics of which are shaped by the context and for the country in which s/he is credentialed to practice. A masters degree is recommended for entry level.*
>
> (ICN, 2001)

Advanced practice – an international perspective

The United States has developed a variety of advanced practice roles; however, within critical care, it is the nurse practitioner and the clinical nurse specialist (CNS) roles that dominate. Ackerman (1997) argued that these two roles could be blended together, based on the finding of Forbes *et al.* (1990) that educational programmes for both roles shared the same basic curriculum; however, the nurse practitioner programme included history taking, physical assessment techniques and pharmacology. There are, however, intrinsic differences to both roles. Hravnak *et al.* (1996) found that the CNS facilitates the care of the critically sick, and consequently, Mick and Ackerman (2000) argued that such facilitation means the CNS actually provides indirect care; their overall influence on patient outcome is difficult to quantify. Hravnak *et al.* (1996) believe it is the nurse practitioner who is directly involved with the delivery of care. As mid-level practitioners in the United States, the role of the advanced practitioner is far more quantifiable in terms of patient outcome and financial savings than that of the CNS (Rudy *et al.*, 1998).

The development of the advanced practitioner within the critical care arena in the United Kingdom is to some extent being driven by a reduced number of senior medical staff within the acute care setting. This mirrors the development of such roles within the United States, with rural areas experiencing difficulty recruiting medical staff, thus necessitating the need for nurses to develop their role to address such shortfalls in care (Dunn, 1997).

Within the United States, there is now an emerging role – that of the acute care nurse practitioner (ACNP). This role was initially developed within the tertiary care setting where the need arose for an advanced practitioner with the ability to directly manage the care of acute and critically ill patients within ICUs and high-acuity settings. The role remains supported by a national educational programme, which is delivered at masters' or post-masters' level of study (National Panel for Acute Care Nurse Practitioner Competencies, 2004). The ACNP receives credentials to practice and the role is highly regulated.

Kleinpell-Nowell (1999) and Becker *et al.* (2006) examined the role of the ACNP and found that the main focus was on direct patient care. This was in the form of liaising with families regarding plans of care, discharge planning and evaluating laboratory results to enhance the management of individual patients. In contrast to a common misconception regarding the role, Kleinpell-Nowell (1999) found that the degree to which the ACNP became involved with invasive procedures depended on the local patient population and local health-care policies. Importantly, back in 1999, Kleinpell-Nowell found that the ACNP also became involved in teaching, research, project work and quality assurance, which at that time resulted in the potential to fragmentate the role.

In 2005, Kleinpell published the results of a 5-year longitudinal study into the ACNP's role, where subjects had been questioned on an annual basis to collect data. The results found that most ACNPs were practising within a variety of intensive care settings. Some ACNPs were also practising in emergency care, oncology, multi-practice clinics and paediatric settings. Similarly, Becker *et al.* (2006) found that ACNPs were practising in areas outside the normal critical care domains such as cardiac catheterisation laboratories, burns units, outpatient clinics and private practice. Interestingly, Becker *et al.* (2006) also found the ACNP focused attention on those who had experienced cerebral vascular accidents, hypoglycaemia and gastro-oesophageal reflux. Such conditions are associated more with chronic conditions and so this again indicates that the role of the ACNP is far less easily confined to the care of just those experiencing acute illness. The expansion of the role to areas outside the usual boundaries of traditional critical care settings reflects the 'critical care without walls' philosophy now being practised.

Such an expansion of the scope of critical care within the United States found that by 2005 the ACNP's role had expanded to include history taking, physical assessment and diagnosis, conducting autonomous ward rounds, managing care through formulating written plans of care, interpreting results, performing procedures, education, consultancy and discharge planning (Kleinpell, 2005). Interestingly, there still remains a common misconception that the main function of the ACNP's role is to undertake invasive procedures. In fact,

Kleinpell (2005) still found that the opportunity for the ACNP to undertake invasive procedures remained restricted by local policies, with Becker *et al*. (2006) finding invasive procedures, such as insertion of central venous lines and arterial lines, by the majority of ACNPs occurring less than once a month.

In particular, Kleinpell (2005) found that not only did ACNPs find the role interesting but also the additional benefits, such as their own continuing professional development opportunities, conference attendance and journal subscriptions, enhanced their job satisfaction and contributed to good retention rates for the role. Strong collaboration with medical colleagues was also cited as a positive aspect of the role. However, Kleinpell (2005) found that some ACNPs were still citing a lack of recognition for the role and the perception by some other health-care professionals that ACNPs were not an equivalent professional peer.

Despite this, Kleinpell's (2005) longitudinal study found that the ACNP's role did have a significant impact on health-care outcomes. Such influences included decreased cost of care due to reduced lengths of stay and readmission rates (Russell *et al*., 2002; Miers and Meyer, 2005), enhanced quality through increased compliance with clinical guidelines (Garcias *et al*., 2003), effective medical management and enhanced continuity of care (Hoffman *et al*., 2004; Vazirani *et al*., 2005). Kleinpell (2005) also identified appropriate resource management, patient satisfaction and overall education associated with the role.

Similar to the evolution of the ACNP within the United States, Australia too has adopted similar roles in critical care. Again, the reason for the emergence of such roles includes such factors as a large proportion of rural health-care settings and lack of recruitment of medical staff to such areas. However, unlike the United States where there are clear education and credentials for the ACNP, such a role in Australia is far less defined or regulated.

Despite this, there is now the emergence of the ICU liaison nurse. This role is still in its infancy; however, it appears to display similarities to the role of the critical care outreach team within the United Kingdom. The ICU liaison nurse aims to enhance the discharge of the patient from the ICU to the general ward setting. An important feature to this role is also the responsibility the ICU liaison nurse has for educating the ward team as well (Chaboyer *et al*., 2004).

Advanced practice in the United Kingdom

Within the United Kingdom critical care services, Coombs *et al*. (2007) identified two main advanced roles: the critical care outreach nurse and the consultant nurse. The consultant nurse's role was formally introduced into the National Health Service (NHS) in 1999 (Health Service Circular, 1999). The nurse consultant in critical care often has responsibility for developing the individual Trust's critical care outreach services (Coombs *et al*., 2007).

Within critical care, these roles were developed as an integral component of the changes to critical care services driven by *Comprehensive Critical Care* (DH, 2000). Similar to the Australian ICU liaison nurse model, the critical care outreach team aims to bridge the gap between critical care settings and the acute care settings, thereby facilitating a seamless delivery of care for the patients on their discharge from the critical care unit and reducing the risks of readmission. Such teams also aim to help identify and stabilise the deteriorating patient in an attempt to prevent admission in the first instance to the critical care unit (Coombs *et al*., 2007). The outreach nurse is expected to work across both professional and structural boundaries to enhance the care of the critically ill in a variety of settings. To facilitate these aims, a major role of the team is to act as an educator to both medical and nursing staff regarding the care of the deteriorating patient. Because development of such teams is relatively new, the effectiveness of the critical care outreach team is the focus of much of the research currently being undertaken (Coombs *et al*., 2007).

An example of the potential career progression of an individual nurse in the field of critical care within the United Kingdom can be found in Box 1.1.

Box 1.1 Example of career progression for a critical care nurse

Carol qualified as an enrolled nurse (EN) in 1988. She worked on a medical ward for 18 months before she moved into critical care nursing. Initially, she gained a post as a D grade staff nurse on a general intensive care unit. Carol remained at this grade for 4 years whilst she developed her knowledge and competence for nursing the critically sick individual.

Between 1994 and 1996, Carol undertook her conversion course to registered nurse (RN) and following successful completion of this she gained an E grade staff nurse post. As an E grade nurse in critical care, Carol undertook teaching and assessing in clinical practice and became a mentor and assessor for pre-registration nursing students who were on placement within the intensive care unit.

In 1998, Carol commenced her BSc (Hons) Nursing Practice, which included the intensive care nursing pathway, providing her with the opportunity to rotate around a variety of intensive care units to gain experience in specialities such as neurosurgical intensive care nursing, burns and plastics intensive care and cardiac intensive care practice. In 2000, Carol not only successfully gained a first class Honours degree but also became the senior staff nurse in a large inner city intensive care unit with 14 critical care beds.

By 2002, having completed a leadership programme, she gained the position of Sister Critical Care and commenced an MSc in Critical Care. Carol successfully completed her MSc in 2005. As part of her MSc, Carol had studied the effectiveness of the Critical Care Outreach Team, which did not exist in her Trust at that time. In 2005, she successfully put together a bid for funding to set-up and manage a Critical Care Outreach Team in her Trust.

Carol is now a consultant nurse in acute and critical care and is responsible for the management of the Critical Care Outreach team within the Trust. She is also a teaching fellow at the local university and is undertaking a research study into critical care nursing.

Interprofessional roles within critical care

Physician assistant

The physician assistant (PA) is a role that has been evolving within the US health-care system since the early 1960s. The first PA training programme was developed by Stead in 1965, with the role initially being developed to serve the shortfall in primary care provision for rural communities as well as to provide a role for ex-military personnel returning from the Vietnam conflict, who had delivered medical care during the war, though in an unqualified capacity.

The vision was for the PA to be a fully trained health-care professional with the ability to adopt the role of the junior doctor, that is, to take on the more routine and less complex areas of health care for the entirety of their career (Hutchinson *et al*., 2001). Throughout the 1980s and 1990s, barriers fell and the scope of practice for the PA expanded, particularly in respect to the ability for such practitioners to prescribe. Indeed in 1991, Dubaybo and Carlson found that the role of the PA had shifted and that many were now being trained to care for the acutely ill patients within acute care settings, some of whom were experiencing multi-organ dysfunction. To support such role expansion, Dubaybo and Carlson (1991) found that new curricula were being developed to support the emerging role of the PA within the critical care setting.

The typical training programme for a PA takes on average 24 months and follows very much the medical model (American Association of Physician Assistant Programmes, 2000). Entry requirements vary from school leavers to those already with a degree, with prior experience of health care also varying; however, the PA in critical care has some previous health-care experience and is often already a graduate (Dubaybo and Carlson, 1991). Awards given are generally to degree level; however, there is currently a move for the training to be increased to Masters level. Larson and Hart (2007) argue that this will restrict the entry gate and that recruitment into the role could be severely compromised, particularly in rural areas within the United States.

Box 1.2 Role of physician assistant in critical care

(1) Documenting plans of care in the notes
(2) Physical assessment of the critically sick
(3) Initiation of therapy including antibiotic therapy, blood transfusion and medication
(4) Cardiopulmonary resuscitation
(5) Haemodynamic management
(6) Management of the patient in shock
(7) Cardioversion
(8) Weaning respiratory support
(9) Invasive procedures
(10) Liaising with next of kin
(11) Record keeping

All this occurs under the direct supervision of the certified intensivist.

The role of the PA within critical care remains highly regulated (Dubaybo and Carlson, 1991). The PA will graduate with a degree. However, to be licensed and certified they also have to complete a certifying examination from the American Board of Physician Assistants.

On graduation, the PA then spends a 3-month period of consolidation, rotating with colleagues under the supervision of the certified intensivist. Following this, the PA will be formally certified. Despite this, they remain under direct supervision especially when performing invasive procedures. A summary of the role of the PA within critical care can be found in Box 1.2

In the United Kingdom, there remains an ongoing debate into the appropriateness of the PA's role within the NHS. Certainly, the PA would fill a gap at the middle level of practice, especially with the reduction of junior doctors' working hours (Hutchinson *et al*., 2001). Indeed, Hutchinson *et al*. (2001) argue that it could be a way of attracting graduates with life science degrees, who rarely move into the current health-care system. It may also be seen as a way to retain staff from other health-care professions; however, the emergence of the critical care consultant nurse addresses this within nursing (Hutchinson *et al*., 2001).

Advanced critical care practitioners

Latterly, the Department of Health has developed a *National Education and Competence Framework for Advanced Critical Care Practitioners* (DH, 2008). This role is seen by the Department of Health as a new way of working within critical care functioning, at a level similar to the specialist registrar, a role which, like the PA, is based on the medical model. The role would be fully accredited and regulated, much as that of the PA is in the United States.

A further role that is also envisaged is that of the assistant critical care practitioner. This practitioner will work with nursing staff and allied health professionals to support the work of the doctor.

After undertaking a formal training programme, the advanced critical care practitioner will work under the supervision of the medical team to undertake physical assessment: undertake or order diagnostic studies, prescribe medication and fluids, develop and manage plans of care, undertake invasive procedures, educate staff and patients alike and undertake patient transfers (DH, 2008). This role is in its infancy within the United Kingdom, with eight sites currently piloting the role; however, the benefits are purported to include reduced waiting times for procedures, appropriate investigations and treatment, expert delivery of patient care, enhancing the 'critical care without walls' philosophy, enhanced continuity of care, reduced length of stay and overall improved patient experience.

Conclusion

There has been an explosion of different roles within critical care over the past few years. It is widely agreed that such a plethora of roles has developed in response to factors such as reduced recruitment and retention of health-care staff as well as directives such as a reduction in the junior doctors' working hours. In particular, the influence of practices from the United States has been seen to have a direct effect on the delivery of health care in other countries such as Australia and the United Kingdom as well. The consequence of this is that there is now a blurring of the traditional professional boundaries, ensuring that the patient remains the focus of critical care no matter where they are located within the health-care setting.

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