Acute care nurse practitioners: The role in neuroscience critical care

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Abstract

In order to meet the needs of the high acuity population in today’s critical care environment, the role of the Acute Care Nurse Practitioner (ACNP) has been adopted by many intensive care units (ICU’s) across the country, including specialized neurocritical care units. In this chapter we will provide a brief historical review of the ACNP as well as their function in various ICU settings. Lastly, we will describe the current role of the ACNP in the Neurosciences Critical Care Unit at the Johns Hopkins Hospital as well as future plans and challenges of the role.

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1. Introduction

The field of neuroscience critical care has expanded well beyond the “decade of the brain”. In order to meet the needs of the high acuity population in today’s critical care environment, the role of Acute Care Nurse Practitioner (ACNP) has been adopted by many intensive care units (ICUs). Of all of the neuroscience critical care units in the country, about one half employ ACNPs in some capacity. Although ACNPs have been practicing in the neuroscience critical care arena in recent years, the role is relatively new when compared to how many decades the nurse practitioner role has been in existence.

2. Certified registered nurse practitioners: a brief historical overview

The nurse practitioner role was pioneered in the 1960s in response to the growing need for the delivery of primary care to underserved children in rural areas [1]. Over the next 40 years the role evolved and other subsets of advanced practice nursing emerged, including nurse midwives and certified nurse anesthetists. As the needs of the patient populations changed, nurse practitioners began specializing in adult primary care, pediatrics, neonatology and most recently, acute care [1].

The first ACNP certification examination was offered in December of 1995 [2]. Although certification for acute care nurse practitioners is relatively new, the transition of the nurse practitioner from the primary care setting to tertiary care first occurred in 1975 when rural emergency departments had a need for additional support [1]. The field of graduate studies for acute care nurse practitioners has grown tremendously since its inception. In 1993, only 13 ACNP education programs existed [2]; currently there are approximately 75 ACNP education programs in the United States (www.allnursingschools.com).

3. Certified registered nurse practitioners in acute care (CRNP-AC)

One of the first questions that most ACNPs get asked as they embark on their new career is “What is an acute care nurse practitioner?” Almost inevitably, the next question is “what can an ACNP do?”. The American Nurses Association (ANA) Task Force on ACNPs and the Joint ACNP Work Group developed a statement defining the scope of practice of the acute care nurse practitioner. According to the ANA task
force, the purpose of the ACNP is to provide advanced nursing care to patients who are acutely ill across the continuum of care (American Nurses Association and American Association of Critical Care Nurses 1995). In operational terms, the ACNP strives to stabilize the patient, minimize complications, provide physical and psychological support, facilitate restoration of maximal health potential, and evaluate health risk factors [3].

The major impetus to integrate ACNPs into the critical care arena occurred in the late nineties as a direct consequence of decreases in the number of medical residents and an increase in the acuity of the patient population. Additionally, the mandatory limitation on resident work hours coupled with the requirement of resident training in the ambulatory care setting amplified the need for ACNPs in the ICUs [4]. Presently, critical care units that employ ACNPs report being able to meet the Accreditation Council for Graduate Medical Education’s (ACGME) standard for the 80 hour work week for their residency programs (http://www.acgme.org). After adding two ACNPs to their trauma service, Christmas et al. [5] were able to obtain compliance with residency work hour limitations by decreasing the average number of hours worked per trauma resident per week from 86 to 79 h. An added benefit to the addition of the ACNP role was a statistically significant reduction in floor, intensive care unit, and overall hospital lengths of stay. For these reasons, many hospital administrators in large teaching hospitals view the ACNPs as “filing in the gap” in services made by the changes in resident training. There are surplus of data that reveal that ACNPs in the critical care arena do more than simply fill a void. They can actually “bridge” the gap between medicine and nursing, provide continuity of care to patients and their families and offer advanced assessment and technical skills [2]. Reports indicate that NPs provide safe, highly skilled, cost effective care that results in a high degree of satisfaction as well as substantially better documentation of quality of care [4].

4. CRNP-AC in critical care environments

ACNPs are currently utilized in every subspecialty of critical care including medical, surgical, cardiac, pediatric, neonatal, neurosciences, trauma and emergency medicine [1,7]. In data collected over a 5 year time period from 437 ACNPs, most reported working in tertiary care settings. 20% to 26% listed coronary ICUs as their main place of practice, 14% to 18% listed surgical ICUs, 17% to 19% listed cardiothoracic ICUs, 13% to 16% listed medical ICUs, 6% to 8% listed neurological ICUs, 5% to 8% listed trauma ICUs, and 3% to 4% listed transplant ICUs [8]. These various areas have reported much success and no negative outcomes with the addition of an ACNP to the team [6,9–12]. Since the ACNP role in neonatal ICUs is the most established, there are many studies demonstrating that NP care in the NICU is comparable to and in some cases superior to that of resident physicians in terms of knowledge, problem solving, and communication [13], as well as in outcomes of morbidity, mortality, number of hospital days, and costs [14,15], and patient profiles [16].

5. CRNP-AC in neurosciences critical care

There are approximately 6000 intensive care units (ICUs) in the United States managing large numbers of patients with critical care needs. Research demonstrates that when ICU care is carried out by a critical care team led by a specialty trained intensivist patients have better outcomes than those managed by generalists [17]. This research has been broadened to include the neuroscience critical care patient population. In a study conducted by Varelas et al. [18], patients that were managed by an in-house neurointensivist had better outcomes including decreased length of stay, lower complication rates, and higher discharge to home rates [18]. Data from a study by Dimiger and Edwards revealed that admission to a neuro ICU was associated with decreased in-hospital mortality rate for patients with a diagnosis of intracerebral hemorrhage [19]. With excellent foresight, a neurologist at The Johns Hopkins Hospital decided to create what would become one of the nation’s top neuroscience critical care units.

6. The Johns Hopkins’ Neurosciences Critical Care Unit

The Johns Hopkins Hospital (JHH), an 800-bed university teaching hospital located in Baltimore Maryland, has 10 ICUs and employs approximately 100 nurse practitioners. There are at least 30 ACNPs within the institution. The Neurosciences Critical Care Unit (NCCU) houses 22 critical care beds. The population of patients in the NCCU is diverse and includes critically ill patients with multisystem disease and neurological dysfunction. Since its inception in 1982, the Hopkins NCCU has strived to deliver the highest quality of care utilizing a collaborative, evidence-based approach to management. What started as a simple venture to hospital administrators has grown into one of the institution’s most successful critical care units.

The NCCU at Johns Hopkins began in 1982 as a closed 4-bed unit located in the back of an existing surgical intermediate care unit (IMC). The team included 1 neurology attending, 1 fellow and a complement of nurses with little or no neuroscience experience. By 1985, the unit had moved to its own location and expanded to 8 beds. The newer NCCU included the addition of another clinical fellow as well as 3 residents. The residents were a mixture of neurology, neurosurgery and anesthesia residents. By this time, the nursing staff had become more experienced with neurological critical care issues and had increased comfort in training newer staff.

The trend toward increasing acuity in hospitals in the early 1990s was apparent in the neurosciences arena and the need to further expand the neuroscience critical care beds was evident [20]. In 1993, the NCCU expanded to include 3 additional beds with the main goal of providing an intermediate level of care to the acutely ill neuroscience patient.
population. Thus the Hopkins Neuroscience Progressive Care Unit was established (NPCU). The introduction of the NPCU was so successful that 3 years later, 3 more beds were added and by 1996 the Johns Hopkins Neurosciences Critical Care Division was comprised of 8 critical care unit beds and 6 progressive care beds. There were now a strong complement of neuroscience trained nursing staff and a very solid fellowship program. It was not necessary for the resident supply to increase with the increase in unit size and therefore the monthly resident numbers remained at 3.

The need for critical care beds continued to grow in the new millennium. Better technology led to new treatment options and higher risk interventions; in turn this resulted in the need for more intensive monitoring of a greater number of patients in ICUs [21]. At Hopkins, the growth of critically ill neuroscience patients continued and in 2002 a 22-bed combined critical/progressive care unit was established. With this new unit, it was apparent that the size of the medical team would increase; unfortunately there was a decrease in availability of residents. As a result, an alternate staffing model was proposed and adopted by the NCCU. In August 2003, an ACNP was added to the team of attendings, fellows and residents in the NCCU. The success of that role was so positive that 2 more ACNPs were a part of the health care team by 2005. Although it is still in the early stages, the ACNP role at The Johns Hopkins NCCU has developed into an autonomous, comprehensive and rewarding position.

7. CRNP-AC practice in the JHH Neurosciences Critical Care Unit

The range of neuroscience critical care experience among the 3 ACNPs in the Hopkins NCCU is 5–17 years. In addition to being certified registered nurse practitioners, all 3 nurse practitioners have passed the American Board of Neuroscience Nursing’s esteemed certified neuroscience registered nurse (CRRN) examination. The ACNPs practice within the guidelines of the Johns Hopkins Hospital and in accordance with the Nurse Practitioner–Physician Written Agreement required and approved by the State of Maryland. They are granted affiliate staff privileges by the Johns Hopkins Hospital Medical Board; these privileges list specific tasks and are reviewed annually.

The NCCU ACNPs work Monday through Friday 6:00 am–6:30 pm and provide coverage until 11:30 pm 3–4 evenings per week. This schedule allows for some non-clinical time to work on administrative, educational and research activities. In keeping with the hospital’s commitment to education, all 3 ACNPs are faculty with The Johns Hopkins University School of Nursing. Additionally, the NPs offer clinical rotations for acute care nurse practitioner students locally and nationally. Although the NCCU is located in one physical location, the 22 beds are divided into 2 distinct sections, or pods, with 2 separate nurses’ stations. The population of patients is similar and the nurses work on either side on any given day. The day-to-day management, however, differs. A team comprised of the patient’s nurse, three residents, one fellow, and the attending performs daily rounds on the patients in the “resident” pod. The residents thereafter manage any patient care issues/admissions in their pod.

The NP pod is managed by the CRNPs with the same attending and fellows. Daily patient care rounds on both pods are done simultaneously with the attending physically located in the resident pod during rounds and one of the fellows present during the NP pod rounds. Once both pods have completed morning rounds, the CRNP and fellow review the plan of care with the attending. Overnight, the in-house NCCU fellow follows the patients in the NP pod. The CRNPs ensure that all foreseeable patient needs (pain management, blood glucose control, fluid status, blood pressure control, etc.) are addressed prior to sign out in the evening. This keeps the presence of the fellow limited in the NP pod thus allowing him/her to be readily available to the resident overnight. On the weekends the residents are responsible for managing patients in both pods. The patient load for both pods is quite manageable since the census over the weekend declines considerably.

The type and degree of invasive procedural work that ACNPs are responsible for vary from practice site to practice site, depending on the different patient populations and the institutions policies [2]. In the NCCU, all patient care management in the NP pod is performed by the ACNP. Each of the ACNPs possesses the ability to perform advanced clinical skills including lumbar puncture and vascular access device placement. Although the patient populations are similar in diagnosis on both the NP and resident pods, there are some differences. Since the ACNPs do not rotate off the unit, they offer greater continuity of care. Therefore, patients with a long projected length of stay are admitted to the NP pod when possible. Additionally, patients that have a very high acuity and require minute-by-minute management tend to be admitted to the resident pod since that is staffed by the resident 24 h per day, 7 days per week. On any given day, the patient population in the NP pod varies. This has been positive for the CRNPs. They enjoy caring for their own primary patients and are especially adept at managing the “problematic” chronically critically ill patient population. The CRNPs are much more satisfied with the collaborative, autonomous process.

Prior to hiring the full accompaniment of CRNPs, rounds on the entire unit were combined and often took as long as 4 h. With the introduction of the two distinct pods and simultaneous rounds, the time for rounds has been cut in half thus allowing more time for direct patient care activities. The new care design has increased satisfaction among all members of the NCCU team. The nursing staff report less confusion in terms of who manages which patients and are pleased with the increased availability of the healthcare team members. With the decrease in the workload, the residents have more time to focus on primary patients and educational activities. As with any new change in an existing structure, there are challenges and the implementation of the ACNP role in the NCCU was no exception.
The challenge of introducing acute care nurse practitioner role is well documented in the literature [22]. Although the medical director of the Neuroscience Critical Care Division and the ACNPs shared the same vision for the role in the NCCU, there was a lack of knowledge of the role on part of some of the faculty and staff. Education of the position was needed and had to begin with the basics; it included specifics on each nurse practitioner’s educational background/credentials as well as an account of the functions of an acute care nurse practitioner. Reinforcement and repetition as well as the “tincture of time” have aided in increasing the knowledge and comfort of the medical staff with the CRNP role. Currently, all faculty have adapted to the new structure and fully support the role.

As noted by Richmond [23], successful implementation of advanced practice nursing in the acute care setting requires not only collaboration between disciplines, but also within. Consequently, the NCCU nursing “intra” disciplinary practice involves the staff nurses, the nurse manager, clinical nurse specialist (CNS) and the CRNPs. Formal communication occurs twice a year and informally, the nursing team communicates daily regarding various issues such as research protocols, practice concerns and patient care management. Since the CRNPs all have neuroscience backgrounds, they are an excellent resource for the newer nursing staff in the unit. They are available for bedside hands-on teaching as well as classroom lectures. Additionally, all of the NCCU NPs have worked in the Hopkins system and are well versed in the hospital policies and procedures.

The neuroscience ACNPs are small in number and account for approximately 10% of the acute care nurse practitioners in the hospital. There is one stroke CRNP and the three NCCU CRNPs. Early in the program, the four CRNPs recognized the importance of networking and began brainstorming on ways to achieve that. Currently, the plan is quarterly meetings with the Director of Neuroscience Nursing as well as keeping the communication open with colleagues in the medicine, surgery, cardiac and oncology departments. Additionally, all NCCU CRNPs are members of associations, which afford them the opportunity to stay connected with their acute care CRNP peers.

With the introduction of the CRNP role, the process of discharge planning became formalized and weekly multi-disciplinary rounds were instituted. The multi-disciplinary rounds include members from rehabilitation services, nutrition, pharmacy, respiratory therapy, social work as well as the NCCU attending and CRNPs. The rounds have helped streamline care and also serve as educational opportunities to the NCCU healthcare team on the appropriateness of ordering services rendered by these disciplines.

8. Future plans and challenges

Since the NCCU ACNP model is relatively new, there is no formal data collection regarding the impact of the role. Future plans include creating a system to evaluate the effectiveness of the ACNP role and look at the outcomes of having implemented the role. To assist with further continuity of care, the NCCU ACNP service would like to extend beyond the “walls” of the ICU and follow some of the high risk primary patients once they are transferred to the nursing wards. This will require an increase in manpower.

The justification for additional ACNPs in the JHH NCCU should not be difficult. With an ever increasing aging population and a predicted shortage of critical care practitioners, there is a greater demand for ACNPs in acute settings such as neurosciences [24]. As the number of specialty neuroscience critical care units increases, the continued use of ACNPs in this setting is a rational, safe and effective practice that can lessen the inevitable paucity of critical care practitioners. Ensuring that the critical care environment is attractive enough to recruit and retain staff as recommended by the Committee on Manpower for Pulmonary and Critical Care Societies (COMPACCS) is a goal of the NCCU division. By creating a positive, open environment where all members’ opinions are valued, the aim is to encourage the existing ACNPs to remain in the unit and entice new graduate ACNPs to join the division.

References


