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### Integration of nurse practitioners into the critical care team



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## A viable approach to meet pressing challenges

As the demands of critical care medicine increase one viable option to meet needs is the addition of a nurse practitioner to the traditional structure of the critical care team. The purpose of this article is to convey our positive experience of physician and nurse practitioner integration into the critical care setting.

Critical care medicine remains a relatively young field, but remarkable strides have been made in diagnostics, interventions and technologic advances that have led to improved patient rescue. As our care has become more sophisticated and the field has grown, so have the numbers of patients receiving intensive care and the demands upon the caregivers. To meet ever increasing needs for efficacy and efficiency, modifications have been proposed (and in some cases implemented) to the traditional structure of the critical care team. Having gone through such an operational transition, we hope to convey our positive experience of physician and nurse practitioner integration into the critical care setting.

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### Rationale for revision

Intensivists now seem to be confronted by an ever increasing workload while being pulled in often competing directions. The number of critically ill patients continues to grow, as does the 'chronically critically ill' population. Demanding documentation requirements, tighter scheduling, unanticipated changes in patient status, constraints on house staff availability and duty hours, and lengthy bedside procedures can take time away from important care activities planned for the shift. The electronic medical record (EMR) has been instrumental in providing access to up-to-date data, but has also helped to physically disconnect the intensivist from patients, nurses and families as well as encouraged interruption of the needed face-to-face, short-loop feedback cycle of decision, assessment and adjustment. Adding to the complexity of the critical caregiving task are the oft-changing care guidelines, increased needs to assure safety, heightened attention to economics, and ongoing education needs. All vie for the physician's attention. Meanwhile a shortage of intensivist-trained physicians together with a high degree of burnout threatens to deplete the future workforce. How can one individual provider optimally meet patient care needs while maintaining job satisfaction within this environment? Medical complexity coupled with the potential for overextension ensures that certain aspects of patient care may be overlooked—intentionally or unintentionally. One tenable and cost-effective solution is to extend capability by collaborating with advanced practice nurses to ensure comprehensive care.

### Background

The employment of advanced practice nurses, i.e. specialty-skilled nurse practitioners, within critical care began in the 1980s. More recently, intensive care units (ICUs) across the United States have increasingly been fashioning new positions or altering their treatment models to integrate such nurse practitioners into their interdisciplinary team approaches. Now more than 35% of all academic teaching institutions in the United States employ nurse practitioners (Gershengorn et al. 2012).

The models of employment differ widely and are customisable, but three main models have emerged:

1. In the first model, nurse practitioners (NPs) are assigned to a separate team that cares for patients in collaboration with an intensivist.

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2. In the second model, NPs and house staff are combined into one team whose responsibilities overlap.
3. The third model uses a nurse practitioner as an overseer who helps manage and delegate the components of care.

These models leave ample room for overlap and flexibility. Because these specialty-focused nurses have extensive time and training in hands-on delivery of care, they are usually sensitive to the patient needs, to the demands of family, to the requirements to fulfil orders, to practical limitations, and to the discomfort to the patient imposed by management plans. Recent emphasis on 'complete' patient-centred care makes natural the integration of physician and nurse practitioners, wherein the nurse practitioner becomes a valuable resource for house staff and other members of the interdisciplinary team, often acting as a sounding board and second opinion provider for the intensivist.

The role for acute care nurse practitioners in the ICU may involve implementing the day-to-day treatment programme, including admitting patients, developing and executing the daily medical plan, participating in daily rounds, performing procedures and quickly responding to emergencies. Critical care nurse practitioners can provide continuity of care in a field where the learners (and physicians) rotate through. As a steady and anchored ICU presence who knows the workings of the relevant hospital services, the NP helps to coordinate patient care, and facilitates communications among the rest of the interdisciplinary team. Updating and educating families and furthering discussions regarding goals of care and end of life can be time-consuming services that the unaided intensivist may need help to provide.

## **An example: personal experience**

This paper is written jointly to describe our shared experience with the integration of a nurse practitioner into the critical care team as one constructive and cost-effective approach to address the evolving challenges of our discipline.

Alicia Dykstra (AD) was hired as a nurse practitioner in 2010 for the medical critical care team at Regions Hospital in St. Paul, MN. At that time there was little definition to the role, and over the following 7 years it has morphed and changed based on current needs. Our hospital, a blended community hospital and referral centre, is academically affiliated with the University of Minnesota and is widely recognised regionally for its acute care services in emergency medicine and across the spectrum of intensive care (general medical, cardiac, burn, trauma, surgical, neuro, etc.). Due to scheduling constraints and fluctuations in patient volumes, there are not always enough residents to fully staff both of the critical care teams dedicated to the medical ICU.

During those periods, AD takes direct patient loads, developing and implementing medical plans. At other times she serves as a relief valve when the acuity and census rise, to ensure the workloads are manageable. On days when the house staff to critical care census ratio is adequate, AD works alongside the intensivist to direct management and ensure patients are receiving comprehensive care. Regardless of such modifications of assignment, on a day-to-day basis, AD participates in daily rounds, supervises or directly performs procedures, provides education for house staff and nurses, is involved in quality improvement, and sits on a number of committees. From the intensivist's perspective, the stress of periodic task overload has been substantially reduced, flexibility for educational efforts restored, and with these effects, job satisfaction raised. Finally, perhaps the most important roles have been to provide continuity from week to week among caregivers for each patient's care, to offer compassionate support to families, to offload the stress of periodically excessive caregiving demands on the intensivist, and to ensure comprehensive communication with and support of other members of the interdisciplinary team.

## **Benefits**

Perhaps the greatest benefit that a nurse practitioner can lend within an ICU setting is ensuring continuity of care. The NP can be a consistent presence as the intensivists and house staff rotate through the unit, establishing and nurturing a positive culture of communication and focus on safety. As patient stays become protracted this consistent presence helps ensure more seamless patient care and communication from week to week. Consequential nuances and details that may otherwise get missed can be carried forward. NPs are more likely than residents to discuss recurrently patient management throughout the day with the ICU nurses at the bedside, to interact with patients' families, and spend more time in research and administrative activities (Angus et al. 2000). When compared to pulmonary and critical care fellows, NPs characteristically spend more time in activities related to coordination of care and more time interacting with nursing, medical staff, patients and family members (Hoffman et al 2003). Satisfaction in the ICU is directly linked to patient and family-centred decision-making, communication, respect and compassion.

Given the always busy and occasionally frenetic pace of today's ICU, the physician rarely has enough time to spend with a patient and their family. Loved ones sense that their time with the physicians is fleeting and often hang on every word for fear of missing out. The disparate needs of families to stay informed and of physicians to tend urgently to more pressing matters offer fertile ground upon which a nurse practitioner can be well utilised. Nurse practitioners have had training from a nursing model of care, which uniquely positions the NP within the ICU setting. Nurses are primed to establish an alliance with a patient and family that allows for attentive listening, compassion and connection. Additionally, being available to provide frequent updates, assist with advanced care planning and have further conversations about goals of care is valued by families in the rapidly changing critical care environment.

One of the benchmarks of quality critical care is the prevention of complications and hospital-acquired adverse events as well as compliance with clinical practice guidelines. A critical care nurse practitioner can ensure adherence to core measures of quality and evidence-based practices. There are many ICU-specific safety and quality metrics and protocols for which the nurse practitioner can assist in educating rotating team members. For example, NPs are able to ensure increased compliance with deep vein thrombosis (DVT) prophylaxis, stress ulcer prophylaxis, and anaemia clinical practice guidelines (Gracias et al. 2008), as well as efforts to decrease the incidence of ventilator-associated pneumonia (VAP), decrease intubation time, and decrease the use of arterial blood gas (ABG) measurements for ICU patients (Gawliński et al. 2001). Many of the potential complications of ICU care are preventable, and nurse practitioners are able to devote attention to these indices, leading to shorter

ICU length of stay, lower rates of urinary tract infections and skin breakdown and shorter time to mobilisation and discontinuation of Foley catheter, in addition to shortened hospital course (Russell et al. 2002).

Lastly, there has been a steep increase in healthcare costs with higher volumes and an ageing population, which necessitates more cost-effective and innovative management. We cannot sustain the present growth of economic burdens with a physician-only decision maker model. As nurse practitioner salaries are considerably lower than an intensivist they could help fill the gap in the critical care workforce cost-effectively.

## **Supported utilisation**

Published research supports the use of nurse practitioners with no perceptible differences in quality as compared to intensivist and/or fellows providing the same services. Two recent retrospective studies demonstrated that care of patients by NPs or physician assistants (PAs) is a safe adjunct to the ICU team (Costa et al. 2014; Gershengorn et al. 2011). A large prospective cohort study looked at 90-day survival for patients cared for by a NP as opposed to resident teams and found no difference; in fact, the patients cared for by a nurse practitioner were less likely to die in the ICU and had shorter hospital length of stay (Landsperger et al. 2016).

## **Mindful collaboration**

The addition of nurse practitioners is meant to bolster the current interdisciplinary team so as to fulfil genuine and unmet needs, not to usurp or compete with the role of an intensivist. Key areas where a nurse practitioner might be of particular benefit include providing continuity of care, quality assurance and increased sense of patient and family connection with providers. The primary guide to implementing a highly functioning nurse practitioner is to assess the local environment for opportunities to improve and then to ensure that the NP's role provides care complementary to that of the intensivist. A nurse practitioner integrated into the critical care team can help fulfil the potential of our joint professional commitment and mission.

## **Conflict of interest**

Alicia C. Dykstra declares that she has no conflict of interest. John J. Marini declares that he has no conflict of interest.

## **Abbreviations**

ICU intensive care unit  
NP nurse practitioner

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