CHAPTER 1

Meeting 21st-Century Challenges in Critical Care Delivery and Beyond: Nurse Practitioner and Physician Assistant Providers in the ICU

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Recent critical care manpower analyses in the United States have predicted that the severe shortage of physician intensivists is expected to continue into the next decade and beyond. The exponential rise in the median age of the population and the rapidly increasing demand for state-of-the-art critical care services—including 24-7 coverage—all but ensure that the shortage of physician intensivists will continue for the foreseeable future. This 21st-century physician manpower crisis in critical care invites historical comparison with the shortage of primary care physicians during the latter half of the 20th century, a circumstance that prompted an important turning point in the training and acceptance of advanced practice providers, including both nurse practitioners (NPs) and physician assistants (PAs), and ultimately led to their expanded roles within medical practice models. In like manner, many critical care groups are exploring ways to conserve their physician intensivist manpower and improve patient care by integrating NPs and PAs into their ICU staffing models. Accordingly, this manual was conceived and developed to provide the information and resources necessary for critical care clinicians and institutions that seek to integrate NPs and PAs into their ICU workforce. For those already utilizing NPs and PAs in the ICU, this publication provides information that can help to reinforce their existing programs and provide additional strategies for maximizing the skills and experience of these providers in the critical care setting.

Greater patient access and throughput, as well as enhanced physician productivity and continuity of care, are some of the most frequently cited reasons for the expanding and evolving use of hospital-based, advanced-level NPs and PAs. In addition, in university-based hospital settings where the new Accreditation Council for Graduate Medical Education duty-hour regulations for physicians-in-training have been implemented, the integration of NPs and PAs into multidisciplinary provider models has been identified as a solution to the resulting decrease in hospital coverage. Indeed, among university-based hospital organizations, the new Accreditation Council for Graduate Medical Education regulations were cited as the primary reason for employing NPs and PAs in the hospital setting.

Whereas NP training in the 1960s was largely directed toward adult and pediatric primary care services, there are now more than 150,000 master’s-degree-level NPs who have been trained in a variety of specialties.
certification for NPs with specific training in the management of patients in acute care and ICU settings began in 1995, and today more than 6,000 NPs certified as acute care NPs are practicing in the United States. There are also a number of other NPs with educational preparation and certification in family, adult, or gerontologic care who practice in hospital-based settings. However, on the basis of their comprehensive education and training, acute care NPs are recognized by the American Association of Critical-Care Nurses, the National Organization of Nurse Practitioner Faculties, and related scope-of-practice documentation as having the appropriate education and training to manage acute and critically ill patients in the ICU.

The shortage of primary care practitioners during the 1960s was also a catalyst for the increase in PA programs. Similar to NP training during this time, the focus of PA training was on the primary care setting. However, over the last five decades, the number of PAs has grown substantially, and now more than 75,000 PAs work in a number of specialty practice situations, including approximately 4,000 PAs in acute care and ICU settings.

Workforce analyses of nonphysician provider involvement in patient care in the hospital have identified several major areas that comprise the scope of practice for NPs and PAs. These include primary roles in both admissions and discharges, as well as routine care at the bedside, including daily assessment, ordering medications, initiating treatments, and reviewing and interpreting, diagnostic and laboratory tests. Assessing and implementing nutritional support, providing family updates and counseling, and communicating with consultants are other significant areas of concentration and contribution.

In the ICU setting, the roles and responsibilities of NPs and PAs are similarly evolving and now include comprehensive management of critically ill and injured patients in a group collaborative practice with physician intensivists. Their role in the ICU typically includes initial patient evaluation or assessment, including history, physical examination, and diagnostic test ordering. Other duties in the expanded role include initiation of appropriate treatments and medications using established protocols and practices, with appropriate oversight in accordance with state regulations and hospital policy. In addition, NPs and PAs interact with the multidisciplinary ICU team on rounds; consult with other providers as necessary to optimize care; communicate with patients and families; and coordinate multidisciplinary care among admitting services, consultants, and the other members of the ICU team.

NPs and PAs with appropriate credentials and privileges may also perform invasive procedures in the ICU (eg, placement of central and arterial lines) within their defined scope of practice. NPs and PAs have also been used effectively as assistants in minor surgery and other procedures, under the supervision of a physician. NPs and PAs can also serve as first responders for institutional rapid response teams; act as preceptors for students; and provide education for patients, family members, and ICU staff. (Table 1-1).
Table 1-1. Roles of NPs and PAs in Acute and Critical Care

<table>
<thead>
<tr>
<th>Patient care management</th>
<th>Education</th>
<th>Practice guideline implementation</th>
<th>Research</th>
<th>Quality assurance</th>
<th>Communication</th>
<th>Discharge planning</th>
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</thead>
<tbody>
<tr>
<td>• Patient care rounds</td>
<td>• Staff, patients, and families</td>
<td>• Leads, monitors, and reinforces practice guidelines for ICU patients (eg, central line insertion procedures, infection prevention measures, stress ulcer prophylaxis)</td>
<td>• Data collection</td>
<td>• Leads quality assurance initiatives such as ventilator-associated pneumonia bundle and sepsis bundle; participates on rapid response team</td>
<td>• Promotes and enhances communication with ICU staff, family members, and multidisciplinary team</td>
<td>• Transfer and referral consultations</td>
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<tr>
<td>• History and physical examinations</td>
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<td>• Enrollment of subjects</td>
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<td></td>
<td>• Promotes and enhances communication with ICU staff, family members, and multidisciplinary team</td>
<td>• Patient and family education regarding anticipated plan of care</td>
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<tr>
<td>• Diagnosing and treating illnesses</td>
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<td>• Research study management</td>
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<td>• Leads quality assurance initiatives such as ventilator-associated pneumonia bundle and sepsis bundle; participates on rapid response team</td>
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<td>• Ordering and interpreting tests</td>
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<td>• Initiating therapies, often under protocols</td>
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<tr>
<td>• Prescribes and performs diagnostic, pharmacologic, and therapeutic interventions consistent with education, practice, and state regulations</td>
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<td>• Performs procedures (as credentialed and privileged) such as arterial line insertion, suturing, and chest tube insertion</td>
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<tr>
<td>• Assesses and implements nutrition</td>
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<td>• Collaborates and consults with the interdisciplinary team, the patient, and the family</td>
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<td>• Assists in the operating room</td>
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Abbreviations: NP, nurse practitioner; PA, physician assistant
A number of studies have substantiated the benefit of NPs and PAs in several areas in the ICU, particularly those related to improvements in continuity of care; adherence to best practice guidelines; and communication, collaboration, and education.17-31 Such studies have provided ICU clinicians and administrators with tangible evidence of the value of NPs and PAs in providing quality patient care in the ICU and highlighted the unique aspects of their roles in leading, monitoring, and reinforcing best practice guidelines (eg, central line insertion procedures, infection prevention measures, and stress ulcer prophylaxis), as well as initiating quality improvement endeavors such as ventilator-associated pneumonia prevention and sepsis bundles.

To summarize, the role of NPs and PAs with specific training and experience in critical care has evolved, and their use in critical care settings has emerged as an important strategy for augmenting the critical care provider pool and addressing both the increased demand for critical care-qualified providers and the relative shortage of physician intensivists.5,32-34 It is clear that appropriately trained and supervised NP and PA practitioners can safely and effectively provide care in the ICU setting, performing many tasks and duties traditionally assigned to physicians, and they can do so in a cost-effective manner. The rise of this new group of providers thus provides a much-needed complementary workforce. Perhaps more important, the contributions and expertise of these advanced practice providers challenge us to re-evaluate the traditional divisions of authority and responsibility, and further, to imagine different critical care delivery models.

Throughout the book, references to NPs and PAs include advanced practice providers, affiliate providers, and nonphysician providers as nomenclature that has not yet been standardized. While the terms nonphysician provider and midlevel provider are still found in the literature, they are being used less frequently. Terms such as licensed independent provider and advanced practice provider are used most frequently to refer to NPs and PAs collectively.

The chapters in this publication address the important areas of focus for ICU clinicians and administrators who seek to incorporate NPs and PAs into patient care staffing models for their acute and critically ill patients. Education and training considerations are addressed in Chapter 2, followed by practical examples illustrating the integration of NPs and PAs into staffing models in both adult (Chapter 3) and pediatric (Chapter 8) ICU settings. Billing, reimbursement, and productivity issues are considered in Chapter 4. Orientation programs, scope of practice, and credentialing and privileging considerations are discussed in Chapters 5 and 6. An overview of the evidence of the effect of NPs and PAs on care and outcomes in the ICU is presented in Chapter 7, and Chapters 9 through 11 deal with the related development of centers for advanced practice, the expanding roles of NPs and PAs in the ICU and in other care settings, and the administrative approaches for optimizing the use of NPs and PAs in the ICU. The appendices provide examples of staffing and scheduling models, orientation/training materials, credentialing and privileging forms, sources for reimbursement and billing information, and advanced practitioner educational resources.
We are happy to serve as editors for this important work, as we believe that NP and PA practitioners represent an important component of the solutions for meeting the ICU workforce challenges of the 21st century. By promoting their proper and optimal utilization in the ICU, we hope to ensure the best outcomes for our critically ill and injured patients.

REFERENCES


