

# Nurse Practitioners in Acute Care

## Literature Review with Annotated Bibliography

September, 2009

An extensive search using full-text CINAHL and key words “nurse practitioner” and “acute care” (36 hits); “primary care nurse practitioner” and “acute care” (0 hits); “nurse practitioner” and “hospitalist” (6 hits); “nurse practitioner” and “intensivist” (1 hit) was conducted by Board staff. Google scholar, Medline and ancestry were also used to locate additional references. The literature reports increased patient satisfaction, improved communication, lower length of stay, and lower morbidity/mortality when an NP or CNS assists in the management of hospitalized patients

### Annotated Bibliography

1. Cole, F. & Kleinpell, R. (2006) Acute care NP column. Expanding acute care nurse practitioner practice: Focus on emergency department practice. *Journal of the American Academy of Nurse Practitioners*. 18, 187-189.

\*This article traces the development of the acute care nurse practitioner role. The role originated in an Emergency Nurse Practitioner (ENP) Program at University of Texas Health Science Center at Houston. The graduates were prepared in managing emergencies across the lifespan. The curriculum evolved into the ACNP program focusing on the adult population with a separate PCCNP program for pediatrics. With this evolution the ACNP was no longer the preferred NP provider for the ER since 30% of ER visits are pediatric. Today the majority of NPs who work in the ER are FNPs. Most of these nurses had previously worked in this setting as RNs. The article then discusses the use of an ACNP in the ER and cautions that the environment may not present many conditions that they were prepared to treat. The philosophy of the ER may also conflict with the ACNPs formal training in that many ER patients are sent home without a definitive diagnosis for follow-up by their PCP. The article suggests that an appropriate role for the nurse practitioner in the ER is as a “medical screener”.

2. Cowan, M., Shapiro, M., Hays, R., Afifi, A., Bazirani, S, Ward, C., & Ettner, S. (2006) The effect of a multidisciplinary hospitalist/physician and advanced practice nurse collaboration on hospital costs. *JONA: The Journal of Nursing Administration*. 36(2), 79-85.

\* This study is AHQR funded and published in a peer reviewed journal so has credibility. Cowan et al. compared care received by an experimental group of patients (E) receiving care from a multidisciplinary team of physicians and nurse practitioners with a control group (C) receiving the usual physician directed care. E group participants had significantly shorter stays and after adjustment for the cost of the team intervention (NP salaries mostly), a significant net cost savings was associated with the use of the team. There were no differences in readmission rates, mortality, health outcomes, and patient satisfaction. E group patients received daily multi-disciplinary team rounds, twice daily assessment, and use of clinical pathways.

The author implies but does not specify that the nurse practitioners used in the study were acute care nurse practitioners. Their role was to “offer continuity of care to supplement

physicians' effort" (p. 80). They did not function in their full role as they did not admit patients or prescribe medications. This article was also cited on the AHQR website.

AHRQ (2005). Use of a multi-disciplinary team can reduce hospital stays and costs without adverse effects on readmissions or outcomes. HS10734. Accessed on 9/2/09 at [ahqr.gov/research/jan05/0105Ra5.htm](http://ahqr.gov/research/jan05/0105Ra5.htm).

3. Cramer, C., Orlowski, J., & DeNicola, L. (2008) Pediatric intensivist extenders in the pediatric ICU. *Pediatric Clinics of North America*. 55(3), 687-708.

\*This is an extensive article on the topic of NPs in a hospital setting. The authors describe both the hospitalist and intensivist physician roles. They also clearly distinguish the differences between nurse practitioners, physician assistants and clinical nurse specialists. They advocate that NPs and PAs who are used in ICU positions need additional precepted education beyond that required for certification. They suggest that the responsibility for this education rests with the facility. The article implies that the pediatric critical care nurse practitioners (PCCNP) is the appropriate credential for provision of care in the pediatric ICU and describes the role as acting as a liaison between intensivists and other specialties. There is an excellent review of studies, mostly focusing on the NNP and supporting the advantages of adding a NP to the multi-disciplinary team. One study found most co-workers viewed the role favorably with lower acceptance among medical students. Also reported was that pediatric critical care nurse practitioners (PCCNP) are viewed as comparable to 2<sup>nd</sup> or 3<sup>rd</sup> year residents. One study found that 39% of those in a PCCNP position were educated in a primary PNP program and 5% were from an FNP program. The responsibilities and technical skills varied but were consistent with resident roles.

4. Doyle, E. (2005). When it comes to improving patient care, redundancy is not a bad thing. *Today's Hospitalist*. May, Accessed on 8/17/09 at: [todayshospitalist.com/index.php?b=articles\\_read&cnt+263](http://todayshospitalist.com/index.php?b=articles_read&cnt+263)

\*Doyle describes use of NPs at Hackensack University Medical Center mostly in a collaborative role. When NPs were used to help identify patients as candidates for oral therapy for community acquired pneumonia, length of stay dropped by an average of 1.34 days and costs fell by more than \$300,000 in the first 6 months. The hospital also uses NPs to reduce unnecessary use of telemetry services. Doyle describes the use of physician hospitalists and APRNs on rapid response teams to intervene before a patient codes; this has reduced patient mortality in the hospital. The author does not specify the type of nurse practitioner.

5. Howie, J. & Erickson, M. (2002). Acute care nurse practitioners: Creating and implementing a model of care for an inpatient general medical service. *American Journal of Critical Care*, 11(5), 448-457.

The authors review previous studies supporting the advantages of NPs in hospital settings. All studies were published before 2000. They describe a model of using FNPs and ANPs in an "ACNP" role. The article is disturbing in that it refers to these practitioners as ACNPs despite the fact that they lack both the education and certification of the ACNP. Patients managed by these NPs were screened for lower acuity and could NOT be in the ICU. Per California regulations, the NPs functioned under standardized

protocols approved by the medical team. They were also supervised by physicians. Residents perceived the NPs as competent or higher in continuity of care, interaction with patients, interaction with team members, record keeping, clinical judgment and fund of knowledge. The article provides support for use of primary care NPs in a carefully crafted and collaborative “hospitalist” role.

6. Ford, J. (2009). NP hospitalists. *ADVANCE for Nurse Practitioners*. Accessed on 8/17/2009 at:

[nurse-practitioners.advanceweb.com/Editorial/Content/PrintFriendly.aspx?CC=1939](http://nurse-practitioners.advanceweb.com/Editorial/Content/PrintFriendly.aspx?CC=1939).

\*This is an editorial where Ford discusses the future of acute care NPs as hospitalists. She also discussed the role of primary care NPs in non-hospitalist roles as part of a sub-specialty team. One interviewed source from University of Rochester Medical Center stated they did use some non-ACNPs as hospitalists but preferentially hired ACNPs. There is a report of a study at Henry Ford Health System in Detroit that found that NPs provided care equal to that of nephrologists in reducing hypertension in chronic kidney disease. Seattle Children’s Hospital uses both pediatric and family NPs as a part of specialized teams. References are not cited.

7. Klein, T. (2005) Scope of practice and the nurse practitioner: Regulation, competency, expansion, and evolution. *Medscape*. Accessed on 8/31/09 at [//cme.medscape.com/viewarticle/506277](http://cme.medscape.com/viewarticle/506277)

\*Klein is a frequent contributor to Medscape with articles about NP practice and regulation. This article emphasizes that scope depends on basic education as a nurse combined with additional specialized training. The fragmented evolution of the NP role is outlined. Klein emphasizes the importance of understanding scope and reports that 6% of all claims filed with Nurses Service Organization were for practicing outside scope while 32% pertain to failure to meet minimum standards. The author discusses differing regulatory models across states. 3 principles of scope are highlighted: Scope is uniquely defined law and appropriate practice; supervision does not define scope; and ethics guide scope. She also provides a model of application.

8. Klein, T. (2008) Credentialing the nurse practitioner in your workplace: Evaluating scope for safe practice. *Nursing Administration Quarterly*. 52 (4) 273-278.

\* This article serves as a guideline for credentialing. The author underscores the difficulty in retro fitting nurse practitioners into a credentialing model originally set up for physicians. She advocates that a primary care NP practicing in a hospital must demonstrate formal clinical and didactic training in acute care in addition to or supplementing their primary care NP program.

9. Kleinpell, R. (2005) Acute care nurse practitioner practice: results of a 5-year longitudinal study. *American Journal of Critical Care*. 14(3), 211-221.

\*Kleinpell has authored several studies of ACNP practice. This article provides information on ACNP role and practice. ACNPs are being increasingly hired and report less difficulty finding jobs than 5 years ago. The author cites ACNP studies that support use of ACNP in reducing length of stay, cost of care, compliance with clinical practice guidelines, management of ventilated patients, enhanced communication and

collaboration and continuity of care. Discussing patients' care with family members, ordering laboratory and radiologic tests and interpreting the results, initiating consultations, and initiating discharge planning are the top 5 frequently performed activities of the ACNP. Coordination of care is a major role.

10. Kleinpell, R, Hravnak, M. & Hinch, B. (2008) Developing an advanced practice nursing credentialing model for acute care facilities. *Nursing Administration Quarterly*. 32(4), 279-287.

\*The authors advocate that credentialing processes ensure full scope of practice and capabilities of APRNs. The article is similar to Klein's work in reviewing the process of credentialing. The authors state that primary care NPs may need post-masters ACNP program to function in a hospital setting. Advocates that primary care NPs have privileges consistent with their education. Specifically states that prior nursing experience in a specialty area such as critical care does not entitle the APRN to seek credentials and privileges for acute care practice if their education and training is not acute care focused. Joint Commission has recently enacted stricter standards regarding credentialing.

11. Kleinpell, R, Perez, D. & McLaughlin, R. (2005). Educational options for acute care nurse practitioner practice. *Journal of the American Academy of Nurse Practitioners*. 17(11), 460-471.

\*The authors compiled resources specifically aimed at primary care nurse practitioners to continue their education to become ACNPs. There are over 70 educational programs nation-wide that offer ACNP programs of study. Most programs integrate distance-learning options. It is anticipated that options for ACNP students will expand.

12. McMullen, M., Alexander, M., Bourgeois, A., & Goodman, L. (2001) Evaluating a nurse practitioner service. *Dimensions of Critical Care Nursing*. 20 (5), 30-35.

\* The authors, in this early study of acute care NP outcomes, evaluate the outcomes of care when using an experimental group consisting of ACNPs and attending physicians as compared to traditional resident care in a teaching hospital. The ACNPs practiced in collaboration with a designated house physician. Standard valid and reliable questionnaires were utilized. Findings reveal the patients were more satisfied with the ACNPs on 3 dimensions concerning how providers spoke about the case in front of patients and among themselves. Patients were more satisfied with the physician group regarding how well they explained test results. Physicians and staff were all very satisfied with the ACNP group.

13. No author (2008). Hospitalists and collective bargaining. Accessed on 8/18/09 at [carsonco.net/page9/page9.html](http://carsonco.net/page9/page9.html).

\*This is an on-line "semi-journal" article that focuses on collective bargaining but also describes nurse practitioners and clinical nurse specialists in a hospitalist role. In touting the value of APNs as hospitalists it states that University of Virginia Health System used a nurse practitioner model in the neuroscience area in 1999 and cut 2,000 inpatient days resulting in a \$2.4 million saving the first year. The posting describes support for collaborative practice using MD hospitalists and nurse practitioners. References for this

article are poorly cited. Other cost savings for using APRNs were mentioned in the article but not fully described. No distinction is made between primary and acute care NPs.

14. Rideout, K. (2007). Evaluation of a PNP care coordinator model for hospitalized children, adolescents, and young adults with cystic fibrosis. *Pediatric Nursing*. 33(1), 29-34, 48.

\*This article discuss the utilization of a pediatric nurse practitioner “care coordinator” to facilitate coordination of care delivered to patients admitted with a diagnosis of CF. This is a blended CNS/PNP role. The author implies that the person is dually certified as a primary care PNP and CNS and has been functioning on the unit in an educator role. Her role was to coordinate and facilitate care for re-admitted CF patients. In this role the physician continued to manage the patient and she communicated findings to the team. Improvements were noted in length of stay, timeliness of referrals and consultations, and patient/provider satisfaction.

15. Rosenthal, L.D. & Guerrasio (2009) Acute care nurse practitioners as hospitalists. *AACN Advanced Critical Care*. 20 (2), 133-136.

\*The authors define hospitalists as physicians who specialize in inpatient medicine and treating acute, episodic and critical disease states. There are specialized hospitalist training tracks within internal medicine residency programs. Literature on physician hospitalist supports same characteristics as those of ACNP. The authors then describe an ACNP hospitalist program at University of Colorado Hospital. The ACNP functions with a collaborative agreement but not under the supervision of a physician. There is 24 hour physician coverage for collaboration.

16. Swenson, D. (2006) Advanced registered nurse practitioners: Standards of care and the law. *Journal of legal nurse consulting*. 17 (4) 3-6.

\* Swenson reviews the history and categories of advanced practice nursing. She advocates that all NPs have a close working relationship with a physician. She discusses 2 types of scope of practice: professional and individual. The professional scope comes from APRN practice specialties and governing agencies; the individual scope consists of basic NP education and additional competencies gained through education and practice. Individual scopes vary but cannot become the domain of another specialty. She advises NPs to maintain proof of education/training and documentation of competency regarding new procedures. She discusses legal issues including the accountability of the NP to be aware of their limits in practice and cautions that the authority to practice does not flow from a physician’s or other health care provider’s license. The most common themes in lawsuits against NPs are: failure to diagnose, negligent treatment, failure to consult or refer to a physician, and delay in proper treatment.

17. Texas Board of Nursing (2005). Guidelines for determining APN scope of practice. Accessed on 8/17/09.

\*Texas issued these guidelines regarding scope similar to other articles reviewed. They address adding new procedures to scope and the importance of obtaining additional

advance practice certification to function in a different specialty area. Questions also address the difference between physician scope and NP scope. Their guidelines are similar to AZ.

18. The National Organization of Nurse Practitioner Faculties (2002). Nurse Practitioner Primary Care Competencies in Specialty Areas; Adult, Family, Gerontological, Pediatric, and Women's Health. Available at [www.nonpf.org](http://www.nonpf.org). Accessed July 2, 2009.

\*Lists the competencies of primary care NPs in the differing specialty areas. Specifically does not recognize acute care practice as an entry level competency.

19. The National Organization of Nurse Practitioner Faculties (2004). Acute Care Nurse Competencies. Available at [www.nonpf.org](http://www.nonpf.org). Accessed July 7, 2009.

\* Lists the competencies of acute care NPs. Specifically does not recognize primary care practice as an entry level competency.

20. Vaziarani, S., Hay, R., Shapiro, M, & Cowan, M. (2005) Effect of a multidisciplinary intervention on communication and collaboration among physicians and nurses. *American Journal of Critical Care*. 14 (1), 71-77.

\*This appears to be an arm of the previously cited Cowan study on cost effectiveness of NPs as part of a multidisciplinary team. Physicians in the group with the NPs reported greater collaboration with nurses, nurse practitioners and other physicians than the control group. Nurses in the group with NPs reported better communication with the NPs than with the physicians. The authors conclude that the multidisciplinary intervention resulted in better communication and collaboration among participants.

21. Wachter, R. (2004) Hospitalists in the United States—Mission accomplished or Work in Progress. *The New England Journal of Medicine*. 350, 1935-1936.

\*Wachter discusses physicians as hospitalists and lack of quality studies to support the role in general. The economic benefits of physician hospitalists may not support their role as insurance companies are under-reimbursing for services. Hospitalist role needs to attract excellent and committed physicians. The author also cautions that first year savings and results may not be sustainable over time.