

Annotated Bibliography
from
Research Project:
The Integration of
Specialty Nurse Practitioners into the Ontario Healthcare System

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ANNOTATED BIBLIOGRAPHY ON SPECIALTY NURSE PRACTITIONERS

Cost

Brooten, D., et al. (2002). Lessons learned from testing the quality cost model of advanced practice nursing (APN) transitional care. *Journal of Nursing Scholarship*, 34(4), 369-375.

Authors analyzed the results of seven randomized clinical trials to test the Quality Cost Model of APN Transitional Care on patient outcomes and health care cost. This review identifies APN interventions as having positive impact on patient outcomes and reducing cost.

Cowan, M.J., Shapiro, M., Hays, R.D., Afifi, A., Vazirani, S., Rodgers Ward, C., et al. (2006). The effects of a multidisciplinary hospitalist/physician and advanced practice nurse collaboration in hospital costs. *The Journal of Nursing Administration*, 36(2), 79-85.

Authors of study interested in evaluating how interprofessional care affects patient discharge activities. Using a comparative, two-group, quasiexperimental design, results indicated that the unit with an advanced practice nurse working in collaboration with hospitalists had significantly lower length of stay resulting in reduction of hospital costs. Limitations of study include small sample, atypical role implementation (hospitalist) and model that requires further validation in other settings.

Venning, P., Durie, A., Roland, M., Roberts, C., & Leese, B. (2000). Randomised controlled trial comparing cost effectiveness of general practitioners and nurse practitioners in primary care. *British Medical Journal*, 320, 1048-1053.

Authors used a random control trial comparing cost, patient satisfaction, consultation process, and health status of patients assigned to NPs or general practitioners (GPs). Findings from patient questionnaires indicate patients assigned to NPs were overall more satisfied with care and had longer consultations. Cost of NPs and GPs were found to be similar.

Vincent, D. (2002). Using cost-analysis techniques to measure the value of nurse practitioner care. *International Nursing Review*, 49, 243-249.

Using cost-analysis techniques to link outcome data with cost data, author demonstrates how nurse practitioners practice can be shown to be similar or better than other health-care providers in terms of cost. However author recommends further studies using cost-analysis techniques needed, especially outside of the United States.

Interprofessional Collaboration

Bailey, P., Jones, L., & Way, D. (2006). Family physician/nurse practitioner: stories of collaboration. *Journal of Advanced Nursing*, 53(4), 381-91.

Authors used narrative analysis (a form of interpretive analysis) to analyze interview data from family physician (FP) and NP interviews regarding their experience of interprofessional practice in shared primary health practices in rural Canada. Analysis

shows FPs unsure of NP competencies and concern over their scope of practice. NPs expressed their competencies and practice questioned by FPs. Recommendations include need to implement orientation to facilitate effective interprofessional collaboration practice.

Boville, D., Saran, M., Salem, J., Clough, L., Jones, R., Radwany, S., et al. (2007). An innovative role for nurse practitioners in managing chronic disease. *Nursing Economics*, 25(6), 359-364.

In this article authors discuss the advantages and impact on patient care of their redesigned Chronic Care Model (CCM). Recognizing the special skills NPs bring to the management of chronic disease, authors augmented CCM with the NP role and rename it the Collaborative Intensification Model. Preliminary findings in a diabetes setting indicate improved health promotion to patients, and though there was a period of adjustment, patients' preferred new model. Authors indicate that this model can be adopted by other chronic disease services.

Brooten, D., Youngblut, J., Blais, K., Donahue, D., Cruz, I., & Lightbourne, M. (2005). APN Physician collaboration in caring for women with high-risk pregnancies. *Journal of Nursing Scholarship*, 37(2), 178-184.

This article presents the results of a secondary analysis of data collected from a randomized clinical trial. Authors identify in data frequent collaboration from APNs to physicians (i.e. updates on status of patients and to share concerns or findings). This approach to managing complex pregnancies resulted in improved patient outcomes.

Copnell, B., Johnston, L., Harrison, D., Wilson, A., Robson, A., Mulcahy, C., et al. (2003). Doctors' and nurses' perceptions of interdisciplinary collaboration in the NICU, and the impact of a neonatal nurse practitioner model of practice. *Journal of Clinical Nursing*, 13, 105-113.

Authors used pre- and post-intervention surveys to capture physicians' and nurses' perception of collaboration in clinical practice and whether the presence of a neonatal NP has an impact on patient outcomes and collaboration. Study was unable to determine if neonatal NPs model of practice had an impact on team collaboration. Findings include: physicians and nurses disagree "significantly" in their perception of overall collaboration, with physicians perceiving a higher level of collaboration than did nurses.

Gracias, V.H., Sicoutris, C.P., Stawicki, S. P., Meredith, D.M., Horan, A.D., Gupta, R., et al. (2008). Critical care nurse practitioners improve compliance with clinical practice guidelines in "semiclosed" surgical intensive care unit. *Journal of Nursing Care Quality*, 23(4), 338-344.

Investigators of this prospective study examined the impact acute care NP roles has on multidisciplinary team compliance with evidence-based clinical practice guidelines. This study demonstrates significantly higher compliance to guidelines in teams with acute care NPs, and supports the acute care NP role in intensivist-led interprofessional approach to critical care delivery.

Herrmann, L. L., & Zabramski, J. M. (2005). Tandem practice model: A model for physician nurse practitioner collaboration in a specialty practice, neurosurgery. *Journal of the American Academy of Nurse Practitioners*, 17(6), 213-218.

This review of literature identifies the benefits of collaborative practice model ("tandem practice model") using neurosurgeon and primary care NP in both clinic and inpatient setting. Authors advocate use of "tandem practice model", a more holistic approach to improving quality of care. Authors recommend further empirical research to support authors' anecdotal experiences.

Litaker, D., Mion, L., Planavsky, L., Kippes, C., Mehta, N., & Frolkis, J. (2003). Physician-nurse practitioner teams in chronic disease management: The impact of costs, clinical effectiveness, and patients' perception of care. *Journal of Interprofessional Care, 17*(3), 223-237.

The purpose of this study was to compare the outcomes of a newly introduced chronic disease management program involving NP and physician team with the existing model in an ambulatory care and inpatient setting. Results indicate patients treated by the NP-physician team reported significant satisfaction with care and health-related quality of life. Results also showed modest incremental cost.

Makowsky, M. J., Schindel, T. J., Rosenthal, M., Campbell, K., Tsuyuki, R. T., & Madill, H. M. (2009). Collaboration between pharmacists, physicians and nurse practitioners: A qualitative investigation of working relationships in the inpatient medical setting. *Journal of Interprofessional Care, 23*(2), 169-84.

This article presents the results of a mixed methods, phenomenological analysis of interview data. The purpose of this study was to investigate the collaborative practices between physicians, pharmacists and nurses, and to understand the integration of pharmacists in hospital settings. Overall, findings were positive with teams having a clear understanding of pharmacist role and pharmacist indicating satisfaction with inclusion in team activities. However, investigators recommend ongoing systematic support to team functions.

Reeves, S., & Lewin, S. (2004). Interprofessional collaboration in the hospital: Strategies and meanings. *Journal of Health Services Research & Policy, 9*(4), 218-225.

This ethnographic study aimed to describe how health professionals collaborate and the meanings professionals attach to collaborative work. Results show collaboration, in practice, is fragmented with little evidence of formalized coherent approaches to support teamwork. In particular, physicians were seen to work separately from one another and formed "loose working groups" around individual patients' care. Nurses, therapists and social workers viewed collaboration in interprofessional terms whereas physicians perceived it as work between medical colleagues.

Running, A., Hoffman, L., & Mercer, V. (2008). Physician perceptions of nurse practitioners: A replication study. *Journal of the American Academy of Nurse Practitioners, 20*(8), 429-433.

This study replicated a 1987 study asking physician collaborators to rate factors that influence forming partnerships with NPs. Respondents of the survey identified improved patient accessibility and improved quality of care as benefits of collaborating with NPs. These results suggest, to the authors, that the role of NPs is perceived to be a great contribution to the health care team. Biases of this study include NPs distributing surveys to physician collaborators and low response rate.

Martin, D., O'Brien, J. L., Heyworth, J. A., & Meyer, N. R. (2008). Point counterpoint: The function of contradictions on an interdisciplinary health care team. *Qualitative Health Research*, 18(3), 369-79.

This is a qualitative study examining interview data to assess perceptions of collaboration between physicians and NPs. This study reveals several contradictions between the two professions' perceptions of roles. However due to small sample, findings cannot be generalized.

Meyer, S.C., & Miers, L.J. (2005). Cardiovascular surgeon and acute care nurse practitioner: collaboration on postoperative outcomes. *AACN Clinical Issues*, 16(2):149-58.

This article presents the findings of a quantitative study of two patient groups of adult, cardiovascular patients who were either treated by cardiovascular surgeon alone, or surgeon in collaboration with NP. Findings include: the patients who were treated by surgeon and NP stayed in hospital an average of 1.91 days less and cost decreased more than \$5,000 per patient.

Schmidt, M. (2001). Collaboration improves the quality of care: Methodological challenges and evidence from US health care research. *Journal of Interprofessional Care*, 15(1), 47-66.

This study provides a comprehensive overview of the research concerning interprofessional collaboration and impacts on care. The scope of this review is primarily from United States' research. The author also evaluated different interprofessional models and methodologies and identifies gaps in research regarding collaboration and quality of care.

Merkeley Keith, K., & Fraser Askin, D. (2008). Effective collaboration: The key to better health care. *Journal of Nursing Leadership*, 21(2), 51-61.

This paper discusses the benefits of effective collaboration between health professionals with support from the literature. Authors also identify barriers to effective collaboration between team members and NPs, and need for more empirical evidence that supports claim of interprofessional collaboration produces positive patient outcomes.

Way, D., Jones, L., Baskerville, B., & Busing, N. (2001). Primary health care services provided by nurse practitioners and family physicians in shared practice. *Canadian Medical Association Journal*, 165(9), 1210-1214.

The authors present findings from cross-sectional study of two sites to determine the quality of collaborative practice of NPs and family physicians in a shared practice. Overall, authors conclude NP role underutilized in practices.

Outcomes of Practice

Blasdell, A. L., Klunick, V., & Purseglove, T. (2002). The use of nursing and medical models in advanced practice: Does education affect the nurse practitioner's practice model? *Journal of Nursing Education*, 41(5), 231.

This study interest was in identifying practice models used by NPs in their clinical practice. Authors used surveys to collect data, and determined the practice model used most frequently was a wellness/health promotion model [focus is on the prevention of

illness and the promotion and education of healthy lifestyle] followed by a medical model, and to a minimal degree, a nursing theory model.

Brooten, D., Youngblut, J.M., Deatrick, J., Naylor, M., & York, R. (2003). Patient problems, advanced practice nurse (APN) interventions, time and contacts among five patient groups. *Journal of Nursing Scholarship*, 35(1), 73-79.

Authors conducted random controlled trials in five patient settings to determine if there are links among patient problems, APN interventions, APN time and number of contacts, patient outcomes and health care costs. Results indicate patients with a greater mean APN contact had greater improvements in patient outcomes, and also health cost savings.

Carter, A. J. E, & Chochinov, A. H. (2007). A systematic review of the impact of nurse practitioners on cost, quality of care, satisfaction and wait times in the emergency department. *Canadian Journal of Emergency Medicine*, 9(4), 286-95.

This article presents an analysis of literature concerning NPs and emergency departments (EDs). The primary outcome measures that the authors examined included: wait times, patient satisfaction, quality of care received, and cost effectiveness. This review of literature supports role of NPs in EDs.

Chan, B. T. B., & Ovens, H. J. (2002). Frequent users of emergency departments: Do they also use family physicians' services? *Canadian Family Physician*, 48, 1654-1660.

This population-based, observational, cross-sectional study aimed to determine the relationship between patient contact with primary health care practitioners and ED visits. Findings include three quarters of patients who visit EDs frequently also visit primary health care practitioners 6 + times a year.

Drummond, A. J., & Bingley, M. (2003). Nurse practitioner in the emergency department discussion paper. *Canadian Journal of Emergency Medicine*, 5(4), 276-80.

Appearing under the banner “controversies” this article discusses possible benefits and hidden dangers to introducing NPs into Canadian EDs. Authors recognize NPs' skills can enhance the comprehensiveness of EDs services; however believe research is required to support claims of NPs' effectiveness as it relates to cost-effectiveness.

Jennings, N., O'Reilly, G., Lee, G., Cameron, P., Free, B., & Bailey, M. (2008). Evaluating outcomes of the emergency nurse practitioner role in a major urban emergency department, Melbourne, Australia. *Journal of Clinical Nursing*, 17(8), 1044-50.

This article presents the results of a mixed methods study comparing EDs with NP to EDs without NP. 572 adult patients treated by NP were evaluated against 284 patients treated under traditional model. Findings showed those treated by NP waited significantly less time for treatment and their length of stay was reduced.

Jarrett, L.A., & Emmett, M. Utilizing trauma nurse practitioners to decrease length of stay. *Journal of Trauma Nursing*, 16(2), 68-72.

This article presents the findings of seven-year observational method study of NP model of care and its impact of length of stay. Results show the implementation of NP role in trauma teams had a positive impact on patients' length of stay, which is attributed to NPs'

quality discharge planning. Findings cannot be generalized because of small size of sample and geographic area studied.

Kaasalainen, S., DiCenso, A., Donald, F. C., & Staples, E. (2007). Optimizing the role of the nurse practitioner to improve pain management in long-term care. *The Canadian Journal of Nursing Research, 39*(2), 14-31.

Authors described current role of NPs in pain management in long-term care homes. Authors identified NPs being underutilized in collaborating with aspects of pain management and barriers to practice. Respondents identified need for strong collaboration with pharmacists. This study supports literature that NPs not spending enough time in leadership and research activities.

Kleinpell, R. M., Ely, E. W., Grabenkort, R. (2008). Nurse practitioners and physician assistants in the intensive care unit: An evidence-based review. *Critical Care Medicine, 36*(10), 2888-2897.

Authors undertook a systematic review of the international literature to describe NPs and PAs contribution in acute and critical care settings. Support was found for these roles involvement in patient care management, reinforcement of practice guidelines, education of patients, families and ICU staff, and research and quality initiatives. Authors identified studies often limited because of small sample sizes; use of selected settings; limited populations of interest; and short duration of outcome assessments.

Micevski, V., Korkola, L., Sarkissian, S., Mulcahy, V., Shobbrook, C., Belford, L., et al. (2004). University Health Network framework for advanced nursing practice: Development of a comprehensive conceptual framework describing the multidimensional contributions of advanced practice nurses. *Nursing Leadership, 17*(3), 52-64.

Undertaking a systematic review of literature, the authors developed a conceptual framework that describes advanced nursing practice. The intent of this framework is to facilitate role clarity and illustrate potential career and practice development for nurses and APNs.

Ohman-Strickland, P., Orzana, A., Hudson, S., Solberg, L., DiCicco-Bloom, B., O'Malley, D., et al. (2008). Quality of diabetes care in family medicine practices: Influence of nurse practitioners and physician's assistants. *Annals of Family Medicine, 5*(1), 14-22.

This is a secondary analysis, cross-sectional study using surveys, questionnaires, and chart audits methodologies. Authors assessed quality of diabetes care among primary care practices employing NPs, PAs, or neither. Findings include practices with NPs performed better than those with physician only and practices with PAs.

Russell, G. M., Dabrouge, S., Hogg, W., Geneau, R., Muldoon, R., & Tuna, M. (2009). Managing chronic disease in Ontario primary care: The impact of organizational factors. *Annals of Family Medicine, 7*(4), 309-319.

This study used mixed methods, cross-sectional survey including random sample and qualitative case study methodologies. Authors present an assessment of 4 models of primary health care delivery in managing chronic disease. Models analyzed include fee for service, capitation, blended payment, and community health centers. Across all four

models, authors found high-quality of care was more likely in practices where NPs employed.

Sidani, S. (2008). Effects of patient-centered care on patient outcomes: an evaluation. *Research and Theory for Nursing Practice*, 22(1), 24-37.

This study used non-experimental design with repeated measures to evaluate the extent to which acute care NPs provide Patient Centered Care (PCC) and to determine the impact PCC approaches on patient outcomes. Results indicate acute care NPs incorporate PCC components in their practice to a moderate degree.

Steiner, I.P., Nichols, D., Blitz, S., Tapper, L., Stagg, A., Sharman, L., et al. (2009). Impact of a nurse practitioner on patient care in a Canadian emergency department. *Canadian Journal of Emergency Medical Care*, 11(3), 207-214.

This prospective observational study aimed to evaluate the impact of newly introduced NP role on ED's operational outcomes. Authors determined a 12% increase in patient throughput, but no impact on wait times, length of stay, or patients leaving without treatment. However, the interprofessional model observed had the NP involved in all CTAS category patients and not seeing low-acuity patients in stand-alone, independent "fast track" area.

Temkin-Greener, H., Gross, D., Kunitz, S.J., & Mukamel, D. (2004). Measuring interdisciplinary team performance in a long-term care setting. *Medical Care*, 42, 472-481.

The purpose of this study was to test the reliability and validity of a survey, the Program of All-Inclusive Care for the Elderly (PACE), which assesses interdisciplinary team practice in long-term care settings. PACE teams are composed of primary care physicians, nurse practitioners, clinic and home care nurses, social workers, occupational therapists, dietitians, aides, recreation therapists, and others. Findings indicate need to investigate team performances over longer periods, and need to capture team performance in relation to patient outcomes.

Thompson, T. L., & Dykeman, M. (2007). Nurse practitioners in Canadian heart failure clinics: Evidence to support their presence on healthcare teams. *Nursing Leadership*, 20(2), 80-93.

Authors present results of a meta-analysis of existing literature on NPs' contribution to managing patients with chronic heart failure. Authors conclude that literature supports inclusion of NPs in heart failure clinic settings.

Yeager, S., Shaw, K. D., Casavant, J., and Burns, S. M. (2006). An acute care nurse practitioner model of care for neurosurgical patients. *Critical Care Nurse*, 26(6), 57-74.

Authors discuss the role of acute care NPs in neurosurgical unit with reference to the literature. Authors describe collaboration with physicians, nurses and identifying barriers to role.

Patient Satisfaction

Gilbert, D.A., & Hayes, E. (2009). Communication and outcomes of visits between older patients and nurse practitioners. *Nursing Research*, 58(4), 283-293.

Authors examined video-recorded interactions between older patients and NPs to assess communication and how it impacted patient satisfaction, patient compliance, and long

term health outcomes. Results indicate NPs-older patients communicate was effective, that patients perceive NPs as trustworthy and are very satisfied with care received. However, findings did report some patients perceiving NPs as patronizing, which the investigators recommend needs addressing in NP education.

Horrocks, S., Anderson, E., & Salisbury, C. (2002). Systematic review of whether nurse practitioners working in primary care can provide equivalent care to doctors. *British Medical Journal*, 324(7341), 819-23.

Paper presents the results of systematic review of 11 trials and 23 observational studies surrounding NPs and patient care and satisfaction. Findings include: patients more satisfied with NP care, have longer consultations with patients, and made more investigations in comparison to doctors. Authors conclude increasing availability of NPs in primary care is likely to lead to high levels of patient satisfaction and high quality care.

Thrasher, C., & Purc-Stephenson, R. (2008). Patient satisfaction with nurse practitioner care in emergency departments in Canada. *Journal of American Academy of Nurse Practitioners*, 20, 231-37.

Using a psychometrically validated survey, investigators measured patient satisfaction with NP care received in Canadian EDs. Responses indicate patients perceive NPs as attentive and comprehensive in their care. Participants reported satisfaction with care received.

Williams, D., Sidani, S. (2001). An analysis of the nurse practitioner role in palliative care. *Canadian Journal of Nursing Leadership*, 14(4), 13-19.

This study aimed to contribute to the literature on specialized NP roles in patient care settings. Authors used mixed-methods to describe the role of a NP in an oncology/palliative care clinic. Study findings include: NP engaging less frequently in writing medical orders, performing diagnostic and/or therapeutic procedures. However, NP's contribution to health promotion, patient support, and overall practice is in line with NP competencies.

Role Comparison

Aigner, M.J., Drew, S. & Phipps, J. (2004). A comparative study of nursing home resident outcomes between care provided by nurse practitioner/physicians versus physicians only. *Journal of the American Medical Directors Association*, 5(1),16-23.

This study assessed patient outcomes for nursing home residents receiving care from NPs- physician team or physicians only. The results indicate the level of care provided for patients by the two groups of providers was essentially the same and of similar quality, however, patients cared for by NP- physician team were seen more often.

Hoffman, L.A., Tasota, F.J., Scharfenberg, C., Zullo, T.G., & Donahoe, M.P. (2003). Management of patients in the intensive care unit: comparison via work sampling analysis of an acute care nurse practitioner and physicians in training. *The American Journal of Critical Care*, 12(5), 436-43.

This article presents the findings of a quantitative casual longitudinal design study. The authors set out to determine if time spent in work activities differ between acute care NPs and physicians in training (pulmonary/critical care fellows) managing patients' care in a step-down medical intensive care unit. The NP and physicians-in-training spent a similar proportion of time performing required tasks. However, the NP spent more time interacting with patients and patients' families and collaborating with health team members.

Lenz, E.R., Mundinger, M.O., Kane, R.L., Hopkins, S.C., & Lin, S.X. (2004). Primary care outcomes in patients treated by nurse practitioners or physicians: two-year follow-up. *Medical Care Research and Review*, 61(3), 332-51.

This article presents the results of a randomized control trial of patients treated by NP or physician in a primary care practices. Findings include: physician patients averaged more primary care visits than NP patients and suggest the quality of primary care delivered by NP is equivalent to that by physicians.

Mitchell-DiCenso, A., Guyatt, G., Marrin, M., Goeree, R., Willan, A., Southwell, D., et al. (1996). A controlled trial of nurse practitioners in neonatal intensive care. *Pediatrics*, 98, 1143-1148.

The objective of this randomized control trial was to compare care delivery between a team with clinical nurse specialist/neonatal practitioner (CNS/NP) against a pediatric resident team. Results indicate both teams equivalent in delivery of neonatal intensive care and in measured outcomes (mortality; complications; length of stay; quality of care; parent satisfaction with care; long-term outcomes; and cost).

Mundinger, M.O., Kane, R.L., Lenz E.R., Totten, A.M., Tsai, W.Y., Cleary, P.D., et al. (2000). Primary care outcomes in patients treated by nurse practitioners or physicians: a randomized trial. *The Journal of the American Medical Association*, 283(1), 59-68.

This randomized control study compared patient outcomes of patients assigned to NP or physicians for primary care follow-up and ongoing care after an emergency department or urgent care visit. Study supports the mounting evidence that NPs provide equivalent or better care than physicians.

Rudy, E.B., Davidson, L.J., Daly, B., Clochesy, J.M., Sereifa, S., Ballisseri, M., et al. (1998). Care activities and outcomes of patients care for by acute care nurse practitioners, physician assistants, and resident physicians: A comparison. *American Journal of Critical Care*, 7(4), 267-281.

The objective of study this study was to compare the clinical activities and outcomes of acute care NPs and physician assistants against resident physicians. Results indicate three professions perform similar tasks and activities, and have similar patient outcomes. However, investigators did find resident physicians treated more complex and older patients.

Sakr, M., Angus, J., Perrin, J., Nixon, C., et al. (1999). Care of minor injuries by emergency nurse practitioners or junior doctors: A randomised controlled trial. *The Lancet*, 354(9187), 1321-1326.

The purpose of this random control trial was to identify of differences in care between a NP and junior doctor in a UK ED. Results indicate NPs and junior physician similar in

abilities to manage and assesses minor injuries. NP judged as more courteous than junior physician and took more time assessing patients. Results also show fewer patients seen by NP and patients had to seek unplanned follow-up advice about their injury in comparison to those who had seen junior physician.

Seale, C., Anderson, E., & Kinnersley, P. (2005). Comparison of GP and nurse practitioner consultations: an observational study. *The British Journal of General Practice*, 55(521), 938-943.

Study's purpose was to determine how NPs spend their extra time and how their consultations differ from GPs. Findings include: NPs spent twice as long with patients, and were more likely to discuss social and emotional aspects of patients' health and use humour with patients. These factors, the authors believe, are likely to contribute to higher patient satisfaction.

Seale, C., Anderson, E., & Kinnersley, P. (2006). Treatment advice in primary care: a comparative study of nurse practitioners and general practitioners. *Journal Of Advanced Nursing*, 54(5), 534-41.

This mixed methods study compared GPs with NPs by patients' perception of primary health care delivery. Results indicated NPs recommended greater number of treatment options, and showed more concern about cost of certain treatments to patients than GPs. Study also found NPs offered more non-pharmacological treatments and spent more time listening to and consulting with patients.

Sidani, S., Doran, D., Porter, H., LeFort, O'Brien-Pallas, L., Zahn, C., et al. (2006). Process of care: Comparison between nurse practitioners and physician residents in acute care. *Nursing Leadership*, 19(1), 69-85.

This article presents the findings of a cross-sectional, comparison of processes of care between acute care NPs and physician residents (3rd year) in medical and surgical programs. Findings include: NPs engage more in "informal" coordination of care, while physician residents spent more time in "formal" coordination activities. Authors identify informal coordination of care as more effective than formal methods of coordinating, and also contributed to shorter length of stay.

Wood, L. (2006). Evaluating the clinical effectiveness of neonatal nurse practitioners: An exploratory study. *The Journal of Clinical Nursing*, 15(1), 35-44.

This article presents the findings of a random sample, retrospective examination and quality assessment of nursing and medical records. This study investigated whether the type of provider (NP vs. physician) had an impact on outcomes for premature babies. Results found there were no difference in standard and quality of care provided by either practitioner, though deficiencies in decisions were found in both professions. The only significant difference found was medical staff more thorough in reporting than NPs.

Wasyliw, L., Gould, O. N., & Johnstone, D., (2009). Exploring women's attitudes and intentions to seek care from nurse practitioners across different age groups. *Canadian Journal on Aging*, 28(2), 177-183.

Authors examined female patients' "acceptance" of NP role in contrast to physicians. The results of this descriptive quantitative study indicate that patient attitudes more

positive toward NPs and women were more likely to seek NPs for preventative advice rather than with acute health concerns. For future research, authors recommend the use of a more representative sample and to explore and contrast male versus female perceptions of NPs.

NP Role

Brown, M.A., & Draye, M.A. (2003). Experiences of pioneer nurse practitioners in establishing advanced practice roles. *Journal of Nursing Scholarship*, 35(4), 391-397.

Interested in the historical development of the NP role in the United States, investigators recruited 50 participants that “pioneered” the NP role from 1965-1979 to participate in interviews. Through their analysis, authors conclude autonomy in practice was the most important feature for the successful implementation of role and job satisfaction.

Bryant-Lukosius, D., DiCenso, A., Browne, G., & Pinelli, J. (2004). A framework for the introduction and evaluation of advanced practice nursing roles. *Journal of Advanced Nursing*, 48(5), 530-540.

Authors discuss six challenges to introducing advanced practice nursing (APN) roles: confusion in APN terminology, role clarity, perceptions of role, failure to recognize environmental factors, and limited evidence-based research in role development, implementation and evaluation. This paper contributes to the literature supporting the call for collaborative and systematic design for the implementation and evaluation of APN roles.

Bryant-Lukosius, D., Green, E., Fitch, M., Macartney, G., Robb-Blenderman, L., McFarlane, S., et al. (2007). A survey of oncology advanced practice nurses in Ontario: Profile and predictors of job satisfaction. *Nursing Leadership*, 20(2), 51-69.

Authors surveyed advanced practice nurses (APNs) working in oncology and palliative care settings across Ontario to examine how job satisfaction is impacted by role structures and processes. Study determines a need of formal, systematic processes for the implementation of APN roles across sample. Study results are limited in its generalizability due to the variability of participant’s education, roles and practice settings.

Chikotas, N. E. (2009). Problem-based learning and clinical practice: The nurse practitioners’ perspective. *Nurse Education in Practice*. (epub ahead of press).

This qualitative, phenomenology study explored the personal professional experiences of NPs educated in problem-based learning (PBL). Analysis of interview data reveal that participants credit their PBL education with positive professional attributes including encouraging effective collaboration, confidence, resourcefulness, self-directed learning and life-long learning. Due to the small sample size, generalization of study results is limited.

DiCenso, A., Peach, G., & Steering Committee. (2003). *Report on the Integration of Primary Health Care Nurse Practitioners into the Province of Ontario*. <
http://www.health.gov.on.ca/english/public/pub/ministry_reports/nurseprac03/exec_summ.pdf>

This comprehensive report, submitted to Ontario’s Minister of Health and Long-Term Care, assesses strategies to effectively integrate primary health care NPs into Ontario’s

health care system. Investigators look at the barriers to role enactment, practice models employed by NPs, physician perceptions of NP role, and patient satisfaction. Investigators conclude this report with 29 recommendations that support the full integration of NPs.

Gould, O.N., & Wasylikiw, L. (2007). Nurse practitioners in Canada. Beginnings, benefits, and barriers. *Journal of the American Academy of Nurse Practitioners*, 19(4), 165-171.

The purpose of this qualitative study was to assess the implementation of NPs into New Brunswick's health care system. Introduced in 2002, investigators follow up with seven NPs one year later to share their experiences. Interview data reveals ambiguity regarding the success of integration of the role: participants reported acceptance of role from patients, but mixed reception from physicians. Despite some barriers, participants remain optimistic about role's future.

Hurlock-Chorostecki, C., van Soeren, M., & Goodwin, S. (2008). The acute care nurse practitioner in Ontario: A workforce study. *Nursing Leadership*, 21(4), 96-112.

This descriptive workforce study provides a comprehensive overview of acute care NPs practice within Ontario hospitals in 2005. Authors provide comprehensive profiles of NP practice in Ontario hospitals, identifying different settings, and the successes and barriers to role implementation. Data indicates the majority of acute care NPs work in academic health centres and spend 75% of time providing direct patient care. Investigators identify legislation and regulation as barriers to role and also need for support of role beyond clinical practice.

Irvine, D., Sidani, H., Porter, H., O'Brien-Pallas, L., Simpson, L., McGillis Hall, L., et al. (2000). Organizational factors influencing nurse practitioners' role implementation in acute care settings. *Nursing Leadership*, 13(3), 28-35.

Using a mixed methods descriptive correlational design, this study's investigators set out to identify organizational factors influencing the implementation of acute care NPs. Data collected indicate a lack of formalized methods or guidelines for role implementation which resulted in role clarity issues. Investigators identify three factors influencing successful role implementation. They include: relationship of NPs with physicians, acceptance and support of role, and medical directives. However, the study's small convenience sample limits the generalizability of findings.

Jensen, L., & Scherr, K. (2004). Impact of the nurse practitioner role in cardiothoracic surgery. *Dynamics*, 15(3), 14-31.

This study is a comprehensive evaluation of the impact of the acute care NP role in a cardiothoracic intensive care unit. Researchers measured the NP role processes of care and outcomes as they related to patient satisfaction and interprofessional team functions. Findings indicate positive perception of role by patients, families, nurses, physicians and allied health professionals. Authors also describe the barriers and successes of the NP role's implementation into unit.

Kleinpell-Nowell, R. (1999). Longitudinal survey of acute care nurse practitioner practice: Year 1. *AACN Clinical Issues*, 10(4), 515-520.

This report presents findings from a one-year follow-up national survey with the first group of certified acute care NPs in the United States. Though a short article, results indicate NPs gaining independence, autonomy and confidence in their role. Some respondents expressed concerns over NP education not adequately preparing them for practice. This report is year-one in a five-year longitudinal study.

Kleinpell-Nowell, R. (2001). Longitudinal survey of acute care nurse practitioner practice: Year 2. *AACN Clinical Issues*, 12(3), 447-52.

This article presents the results of year-two in a five-year longitudinal national survey of acute care NP role development. Findings show the role continuing to evolve with participants' reporting increased opportunities in practice and expansion of role outside of teaching hospitals. Concerns include: NPs leaving roles – though the majority are working in new NP positions; and NPs working as staff RNs to gain clinical experience, which highlights the differences in acute care NP programs in the United States.

Kleinpell-Nowell, R. (2005). Acute care nurse practitioner practice: Results of a 5-year longitudinal study. *American Journal of Critical Care*, 14(3), 211-219.

This article presents data results collected from over 400 acute care NPs shows the development of the role over a five-year period. Findings include: original conception of new role has expanded into a variety of practice settings and respondents are involved in a large range of activities. NPs primarily involved in direct patient care; but also report involvement in education, research, and policy development. Top five activities NPs engage in are: discussing patients' care with the patients' family members, ordering tests and interpreting results, initiating consultations, and discharge planning. Respondents identified four aspects of role contributing to job satisfaction: collaboration with physicians, autonomy, involvement with patients' and patient care, and collaboration. Some respondents identified lack of recognition or knowledge of role as contributing to dissatisfaction. Authors cite attrition as a limitation of study and underrepresentation from the West, Pacific, and South Central regions of the United States.

Kleinpell, R. M. (1997). Acute-care nurse practitioners: Roles and practice profiles. *AACN Clinical Issues*, 8(1), 156-162.

A month following the first acute care NP certification examination in the United States, surveys to assess acute care NP roles and practice were mailed out to participants who sat the exam. Overall, respondents indicated satisfaction and excitement towards new role. Findings show NPs working in a variety of acute care settings, including specialty and unit-based areas, urgent-care and clinics. A large percentage of participants reported developing NP roles and protocols with their current employer. Reported barriers to role implementation includes: limitations to enact full scope of practice, gaining physicians' acceptance, and lack of mentors.

Kleinpell, R. M. (1998). Reports of role descriptions of acute care nurse practitioners. *AACN Clinical Issues*, 9(2), 290-295.

This article is another report drawing data from a larger, 5-year longitudinal study. The author describes the roles of newly certified acute care NPs. Results found majority of NPs working in tertiary health centres, with some working in secondary and other

facilities; growth in NPs practicing in a specialty; and increased support for role. However many participants reported dissatisfaction with salary.

Kleinpell, R. M. (2006). Skills taught in acute care NP programs: A national survey. *The Nurse Practitioner, 31*(2), 7-13.

Author interested in identifying specific skills taught to students in acute care NP programs and to evaluate their importance. Article includes tables calculating the number of times certain skills were identified. Data analysis indicates variations in skills taught in acute care NP programs, the incorporation of strategies in health promotion and disease prevention, a lack of specialty skills being taught in classes, and an emphasis on developing critical thinking.

Lamarche, K., & Tullai-McGuinness, S. (2009). Canadian nurse practitioner job satisfaction. *Nursing Leadership, 22*(2), 41-57.

Authors used descriptive correlational design to assess job satisfaction of Canadian Primary Health NPs and also examination of consequences of job satisfaction. Based on responses, authors recommend the creation of a national NP database to assist with NP recruitment, retention and deployment; further research into the barriers preventing the NP; and the impact jurisdictional regulations (such as drug schedules) on successful implementation into primary health care settings.

Melander, S., Kleinpell, R., & McLaughlin, R. (2007). Ensuring clinical competency for NPs in acute care. *The Nurse Practitioner, 32*(4) 19-20.

This discussion paper appears to be in response to a national study in the United States that indicated NPs working in acute care settings without formal acute care education. Authors advocate for clinical competency in NPs practicing in acute care settings and highlight the differences between primary care and acute care NPs in their education and preparedness for specialized clinical practice.

Mick, D. J., & Ackerman, M. H. (2000). Advanced practice nursing role delineation in acute and critical care: Application of the Strong Model of Advanced Practice. *Heart & Lung, 29*(3), 210-221.

The purpose of this descriptive, exploratory pilot study was to test the Strong Model of Advanced Practice in its ability to differentiate between clinical nurse specialists (CNS) and acute care NP roles. Article is also useful for understanding the histories of CNS and NP role development and overview of differences between their practice. Findings confirm differences between CNS and NP roles; where NPs value direct patient care and CNS respondents identify importance in activities related to education, research and leadership. However, study also revealed model requires adjustments. Results not generalizable due to small sample size (12 NPs and 6 CNSs).

Rosenthal, L., & Guerrasio, J. (2009). Acute care nurse practitioner as hospitalist: Role Description. *AACN Advanced Critical Care, 20*(2), 133-136.

Authors describe the practice setting and role expectation of the acute care NP in the role of "hospitalist". Authors conclude that the implementation of acute care NPs to hospitalist groups can assist in patient throughput, maximize resource utilization, and improve patient care.

Sidani, S., & Doran, D. (2009). Relationships between processes and outcomes of nurse practitioners in acute care: An exploration. *Journal of Nursing Care Quality*. (Epub ahead of print). Retrieved August 01, 2009, from <http://journals.lww.com/jncqjournal/tocpublishahead>.

This article presents the findings of a nonexperimental repeated-measure study investigating acute care NPs' processes (coordination of care, patient counselling and education) and its relationship to outcomes (symptom resolution, satisfaction with care). Findings indicate positive association between NP processes and patient outcomes.

Sidani, S., Irvine, D., Porter, H., LeFort, S., O'Brien-Pallas, L., Simpson, B., McGillis-Hall, L., Nagel, L., et al. (2000). Practice patterns of acute care nurse practitioners. *Canadian Journal of Nursing Leadership*, 13(3), 6-12.

This article presents the findings of a descriptive study employing qualitative and quantitative tools to collect data regarding NPs practice in acute care settings in Ontario. Results indicate variations in practice patterns, but overall NPs practiced in medical and advanced nursing domains in collaboration with physicians and/or residents. Participants emphasized they do not consider themselves as practicing as physician replacements.

van Soeren, M., Hurlock-Chorostecki, C., Goodwin, S., & Baker, E. (2009). The primary healthcare nurse practitioner in Ontario: A workforce study. *Canadian Journal of Nursing Leadership*, 22(2), 58-72.

This descriptive workforce study provides a comprehensive overview of primary healthcare NPs in the Extended Class within Ontario in 2004-2005. Authors provide comprehensive profiles of NP practice in Ontario: identifying geographic location of work settings, work and educational preparedness, and practice patterns. Report concludes with addressing the barriers that continue to restrict the full implementation of the primary healthcare NP role.

van Soeren, M., & Micevski. (2001). Success indicators and barriers to acute nurse practitioner role implementation in four Ontario hospitals. *AACN Clinical Issues*, 12(3), 424-437.

This article identifies factors that either contributed to or limited the successful acute care NP role implementation in four Ontario hospitals. Respondents of the study's surveys indicated the main indicator leading to successful implementation was the level of preparation. Barriers included role clarity, absence of role mentorship, limited experience in role, and a perceived lack of support from administration and physicians. Authors recommend further research into understanding the contributions acute care NPs to patient, family, and team outcomes.

Watts, S., Gee, J., O'Day, M., Schaub, K., Lawrence, R., Aron, D., et al. (2009). Nurse practitioner-led multidisciplinary teams to improve chronic illness care: The unique strengths of nurse practitioners applied to shared medical appointments/group visits. *Journal of the American Academy of Nurse Practitioners*, 21, 167-172.

The aim of this qualitative case analysis was to describe the NP role in the shared medical appointments (SMAs) model of health care delivery, a model based on the critical care model (CCM). Authors advance NPs as appropriate professionals for the management of chronic illnesses and demonstrate the use of the CCM and SMAs to define and expand NP roles and opportunities.

Other

Bourgeois-Law, G. (2008). Do nurse practitioners pose a threat to family physicians? No. *Canadian Family Physician*, 54, 1669, 1671.

Debate A family physician presents one side of the debate, arguing that NPs are not a threat to the family physician profession. Author defends position by citing research that NPs provide quality care and how the role extends health care services to patients. Author suspects the resistance to NPs stems from NP autonomy of practice and not necessarily the role itself.

Hansen-Turton, T., Ritter, A., & Torgan, R. (2008). Insurers' contracting policies on nurse practitioners as primary care providers: two years later. *Policy, Politics & Nursing Practice*, 9(4), 241-8.

Policy This article presents the findings of a two year follow-up with U.S. insurance companies' reimbursement policies with regard to primary health NPs. Data collected from surveys show improvements made by "managed care companies" in recognizing NP credentials and in updating reimbursement policies. However, authors point to weaknesses in certain States' having anti-provider-discrimination laws.

Laguë, Guylaine. (2009). Do nurse practitioners pose a threat to family physicians? Yes. *Canadian Family Physician*, 54, 1668, 1670.

Debate A family physician presents one side of the debate, arguing that NPs are a threat to the family physician profession. Author defends position by stating patient relationships are weakened by involvement of other health professions; overlap of roles; NPs cost less and therefore appear as a cost-saving strategy. Author advocates for improvement of health care through optimizing existing roles.

Lahey, W., & Currie, R. (2005). Regulatory and medico-legal barriers to interprofessional practice. *Journal of Interprofessional Care*, 19 (Suppl.), 197-223.

Regulatory Environment Commissioned by Health Canada, this discussion paper focuses on identifying barriers created by laws and professional regulations to interprofessional and collaborative practice in health care. The authors' analysis of law and regulations concludes in their recommendation for the reduction of restrictions to individual scopes of practice and the need for the regulatory environment to switch focus.

McGee, L. A., & Kaplan, L. (2007). Factors influencing the decision to use nurse practitioners in the emergency department. *Journal of Emergency Nursing*, 33(5). 441-446.

Administrative decisions Authors analyzed interviews with 4 ED directors to determine factors influencing the decision to employ NPs in the ED. The sample consisted of four facilities staffed by a contracted physician group: two employed NPs, two did not. The two EDs with NPs reported high levels of satisfaction with NP performance. The EDs without NPs have advocated for NPs to be hired. Authors' recommendations include NPs being hired to EDs to see non-emergent visits.

Sears, J. M., & Hogg-Johnson, S. (2009). Enhancing the policy impact of evaluation research: A case study of nurse practitioner role expansion in a state workers' compensation system. *Nursing Outlook*, 57(2), 99-106.

Policy This article presents findings of a case review of 3-year pilot project allowing authorized NPs to be primary health providers to injured workers within the Workers' Compensation system. Authors interested in evaluating and describing the policy environment surrounding this project and decision-makers' approval to extend project beyond three years.

