

## **The Impact of Home Care Nurse Staffing, Work Environment & Collaboration on Patient Outcomes**

### **AHRQ Question**

*What is the relationship between the use of Advanced Practice Nurse (APN) support and client outcomes in homecare?*

#### **Why is this question important?**

Advanced practice nursing is defined by the Canadian Nurses Association (CNA) as the ability of masters-prepared nurses to meet the health needs of individuals, communities and populations through their use of clinical expertise, analysis and synthesis of knowledge, application of nursing theory, and development of nursing knowledge (CNA, 2008). Nurse practitioners (NPs), clinical nurse specialists (CNS'), nurse midwives and nurse anaesthetists are included under the title Advanced Practice Nurse. The link between the use of APNs and improved patient outcomes has been

demonstrated in various patient populations including oncology patients, elderly homecare patients, prenatal patients, patients with chronic disease, and others (DePalma, 2001). APNs offer the opportunity for home care organizations to expand the variety of services available to patients in their homes. APN care has the potential to allow home care patients to remain in their homes longer, while decreasing use of other more costly health care services.

#### **What does the research say?**

Although limited Canadian research examining the use of APNs in home care exists, there are a number of studies conducted in the United States, United Kingdom, and Australia that provide insight into the relationship between APN care and home care patient outcomes. This report will focus on the role of clinical nurse specialists and nurse practitioners in the homecare environment.

The link between APN care and improved patient outcomes has been demonstrated in the literature among various patient populations (DePalma, 2001). APNs employed in home care settings have the potential to have a significant and far-reaching impact on patients and the care delivery system, especially as the number of practicing APNs increases (Milone-Nuzzo & Pike, 2001). However, research indicates that administrators are often unaware of the APN scope of practice and the positive effects of APN care on patient outcomes (Milone-Nuzzo & Pike, 2001).

Dailey and O'Brien (2000) explained that clinical nurse specialists (CNS) add value to the

#### **What you need to know:**

- ✓ APNs improve patient clinical outcomes, quality of life and satisfaction with care.
- ✓ APNs reduce health care costs.
- ✓ The use of NPs in home care can increase continuity of care while improving efficiency of care provision.
- ✓ When used to help patients transition to home based care, APNs reduce re-hospitalizations, increase patient satisfaction and decrease health care costs.

## The Impact of Home Care Nurse Staffing, Work Environment & Collaboration on Patient Outcomes

Health care system by improving patients' clinical outcomes, quality of life, and satisfaction with care, while decreasing health care costs. Similar to CNSs, NPs possess the training and expertise to enhance quality and consistency of care, while improving symptom management, decreasing inappropriate hospital use, decreasing health care costs, and improving retention and satisfaction of other health care staff (Neal, 2004). Additional benefits of utilizing NPs in home care include enhanced continuity of care; increased efficiency, as the NP can act as the main point of contact for physician reports; and increased flexibility in care delivery as the NP can easily shift between collaborative and nursing models of care (Neal, 2004). In addition, NPs can positively impact health care spending by emphasizing wellness and prevention strategies, lifestyle changes, self-care techniques, and reducing use of medications (Neal, 2004). Indeed, the NP role is ideal for application in home care settings as the NP is able to straddle nursing and medical fields and can act as a liaison to both, while also being able to prescribe and write orders (Neal, 2004).

Additional research supports the use of APN intervention for the improvement of patient outcomes (Brooten, Youngblut, Deatrck, Naylor & York, 2003). Brooten et al., (2003) examined the relationship between patient health concerns, APN intervention, patient outcomes and healthcare costs. This study demonstrated that patient groups who received more APN care (greater number of APN contacts) showed greater improvement in clinical outcomes and improved health care cost savings (Brooten et al., 2003). APN care most frequently included patient surveillance, health teaching, guidance, and counseling (Brooten et al., 2003).

Research examining intervention by APNs in home care settings has primarily focused on interventions targeting care coordination and patient transitions from hospital to home (i.e., transitional care). APNs have also been employed in home-based care of prenatal and postnatal women, as well as patients with Human Immunodeficiency Virus (HIV) and mental health illnesses. While it is likely the APN care examined in these studies occurred alongside care provided by other health care professionals, including registered nurses, no studies were located examining the role the APN plays in supporting care delivered by registered nurses.

### *Transitional Care Interventions*

Transitional care delivered by ANPs has been examined among various patient populations. York and colleagues examined the impact of transitional follow-up care provided by clinical nurse specialists in high-risk childbearing women diagnosed with diabetes or hypertension (York, et al., 1996). The intervention group demonstrated fewer re-hospitalizations, reduced prevalence of low birth weight infants, and significantly lower hospital costs (York et al., 1996). The study demonstrated the positive effects of community-based APN care on both health care costs and patient outcomes (York et al., 1996).

The effectiveness of transitional care, discharge planning and in-home follow-up by APNs has also been examined among geriatric patients (Naylor et al., 1999). Comprehensive discharge planning and in-home follow-up by geriatric APNs reduced hospital readmissions, lengthened time to first readmission, and decreased cost of care (Naylor et al., 1999). Neff, Madigan and

## The Impact of Home Care Nurse Staffing, Work Environment & Collaboration on Patient Outcomes

Narsavage (2003) also noted positive effects of APN care for patients with complex care needs. Compared to the control group, patients cared for by an APN demonstrated significantly fewer depressive feelings and improved functional status. Additionally, significantly more patients cared for by an APN remained in their homes as compared to those in the control group (Neff et al., 2003).

The positive effects of APN care during a transition from hospital to home have also been established through other research studies and include increased length of time between hospitalizations, fewer re-hospitalizations, decreased health care costs, improved quality of life, as well as increased patient and caregiver satisfaction (Jeangawang, Malathum, Panpakdee, Brooten & Nityasuddhi, 2012; McCauley, Bixby & Naylor, 2006; Naylor, Brooten, Campbell, Maislin, & Schwarz, 2004). The ability to provide continuity of care and the use of highly skilled APNs who are prepared to use a holistic approach to address complex patient and caregiver needs were cited as contributing to the effectiveness of APN intervention (Naylor, Brooten, Campbell, Maislin, & Schwarz, 2004).

### *Home-based Prenatal Care*

Home-based prenatal care delivered by masters-prepared APNs has also been evaluated (Brooten, Youngblut, Brown, Finkler, Neff & Madigan, 2001). Significant improvement in both infant and maternal outcomes were demonstrated, including lower fetal/infant mortality rates, greater than 750 hospital days saved, fewer prenatal hospitalizations, and fewer infant re-hospitalizations (Brooten et al., 2001). APN care has also been associated with greater patient satisfaction and significant cost savings (Brooten et al., 2001).

### *Home-based Care Versus Hospital-based Care*

Two studies found that home-based care delivered by NPs is as effective as hospital based care ( Ansari, Shamssain, Farrow & Keaney, 2009; Whitaker, Butler, Semlyen & Barnes, 2001). Whitaker and colleagues found that NPs could provide equivalent, or better care in the home as compared to an outpatient hospital clinic. Findings indicate that patients preferred home injections. Economic analysis demonstrated the overall cost of treatment was less in the home injection group (Whitaker et al., 2001). A second study, examining patients with acute exacerbated Chronic Obstructive Pulmonary Disease (COPD) also found positive effects of home-based NP care (Ansari et al., 2009). NP lead home-based care was found to be a safe option that reduced healthcare costs related to hospitalization for CPOD patients (Ansari, Shamssain, Farrow & Keaney, 2009).

### *Home-based Care Coordination*

The positive effects of APN care coordination have also been identified (Blank et al., 2011; Marek et al., 2013). Among HIV patients with serious mental illness home-based APN care and 12 months of APN care coordination were significantly associated with reduced patients viral load at 12-months (Blank et al., 2011). The effects of this care coordination intervention were found to persist after 24 months. HIV patients receiving home-based APN care also reported

## **The Impact of Home Care Nurse Staffing, Work Environment & Collaboration on Patient Outcomes**

improved health-related quality of life and reduced disease burden (Blank et al., 2011).

APN care coordination has also been found to have positive effects among chronically ill older adults receiving home-based care (Marek et al., 2013). Care coordination by APNs improved cognitive functioning, depressive symptoms, functional status and quality of life (Marek et al., 2013).

### ***How can you use this research?***

Existing research suggests that APNs (Clinical Nurse Specialists or Nurse Practitioners) are valuable additions to home care teams. However, while the addition of an ANP to the care team seems to have positive effects on patient care, it is unclear if or how the addition of an APN affects care provided by other care team members such as RNs and RPNs.

Research supports the use of APNs to manage a transition of patients from hospital settings to home. Several studies (Jeangsawang et al., 2012; McCauley et al., 2006; Naylor et al., 2004; Nef et al., 2003; York et al., 1996) found APN involvement in care transitions:

- ✓ Improved continuity of care,
- ✓ Improved clinical outcomes,
- ✓ Decreased re-hospitalizations,
- ✓ Improved patient quality of life,
- ✓ Decreased health care costs, and
- ✓ Improved patient and caregiver satisfaction with care.

The use of APNs in the coordination of home-based patient care is also supported by existing research (Blank et al., 2011; Marek et al., 2013). Care coordination by APNs has the potential to:

- ✓ Reduce disease burden,
- ✓ Improve health related quality of life,
- ✓ Improve cognitive functioning
- ✓ Improve functional status, and
- ✓ Improve depressive symptoms.

Home-based care delivered by APNs has also been found effective among pregnant women, both pre and postpartum and as a substitute to hospital-based outpatient care.

Research indicates that APNs, including nurse practitioners and clinical nurse specialists, have a positive impact on patient care in the home care environment. The ability of this group of providers to assess, coordinate, monitor, and provide patient care makes them a valuable addition to the home care team. Further, APNs have the potential to increase continuity of care by working with patients through care transitions (from hospital to home), acting as the main point of contact between primary care physicians and the rest of the care team, and by following the patient throughout the episode of care.

## The Impact of Home Care Nurse Staffing, Work Environment & Collaboration on Patient Outcomes

### Sources Cited

- Ansari, K., Shamssain, M., Farrow, M., & Keany NP (2009). Hospital-at-home care for exacerbations of chronic obstructive pulmonary disease: an observational cohort study of patients managed in hospital or by nurse practitioners in the community. *Chronic Respiratory Disease*; 6:69-74;
- Blank, M.B., Hanrahan, N.P., Fishbein, M., Wu, E., Tennille, J. A., Ten Have, T. R., Kutney-Lee, A.M., Gross, R., Hines, J. M., Coyne, J.C., Aiken, L.H. (2011). A randomized trial of nursing intervention for HIV disease management among persons with serious mental illness. *Psychiatric Services*; 62:1318-1324.
- Blank, M. B., Hennessy, M., Eisenberg, M.M. (2014). Increasing quality of life and reducing HIV burden: The PATH+ intervention. *AIDS Behaviour*; 18:716-725.
- Brooten, D., Youngblut, J.M., Brown, L., Finkler, S. A., Neff, D. F. & Madigan, E. (2001). A randomized trail of nurse specialist home care for women with high-risk pregnancies: Outcomes and costs. *American Journal of Managed Care*; 7(8):793-803.
- Brooten, D., Youngblut, J.M., Deatrlick, 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.
- Canadian Nurses Association (2008). Advanced nursing practice: A national framework.
- Dailey, M. & O'Brien, K. (2000). Clinical nurse specialists: Key to improving outcomes in homecare. *Home Health Care Management & Practice*; 12(3):32-42.
- DePalma, J. A. (2001). Advanced practice nurses and improved outcomes. *Home Health Care Management & Practice*; 13(6):480-481.
- Jeangawang, N., Malathum, P., Panpakdee, O., Brooten, D., & Nityasuddhi, D., (2012). Comparison of outcomes of discharge planning and post-discharge follow-up care, provided by advanced practice, expert-by-experience, and novice nurses, to hospitalized elders with chronic healthcare conditions. *Pacific Rim International Journal of Nursing Research*.16(4):343- 359
- McCauley, K., Bixby, B.M. & Naylor, M.D. (2006). Advanced practice nurse strategies to improve outcomes and reduce cost in elders with heart failure. *Disease Management*; 9(5):302-310
- Marek, K.D., Stezer, F., Ryan, P.A., Bub, L.D., Adams, S.J., Schlidt, A., Lancaster, R., O'Brien, A-M. (2013). Nurse care coordination and technology effects on health status of frail older adults via enhanced self-management of medication. *Nursing Research*; 62(4): 269-278.
- Milone-Nuzzo, P. & Pike, A. (2001). Advanced practice nurses in home care: Is there a role? *Home Health Care Management & Practice*; 13(5):349-355.
- Naylor, M.D., Brooten, D., Campbell, R., Jacobsen, B.S., Mezey, M.D., Pauly, M.V. & Schwartz, J.S. (1999). Comprehensive discharge planning and home follow-up of hospitalized

## The Impact of Home Care Nurse Staffing, Work Environment & Collaboration on Patient Outcomes

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- elders: A randomized clinical trial. *Journal of the American Medical Association*; 281:613-620.
- Neal, J.N. (2004). The nurse practitioner in home care. *Home Health Care Management & Practice*; 16(5):383-388.
- Naylor, M.D., Brooten, D. A., Campbell, R. L., Maislin, G., McCauley, K. M. & Schwartz, J. S. (2004). Transitional care of older adults hospitalized with heart failure: A randomized, controlled trial. *Journal of the American Geriatric Society*; 52:675-684.
- Neff, D.F., Madigan, E. & Narsavage, G. (2003). APN-Directed transitional home care model: Achieving positive outcomes for patients with COPD. *Home Healthcare Nurse*. 21(8):543-550.
- Whitaker, J., Butler, A., Semlyen, J. K., Barnes, M. P. (2001). Botulin toxin for people with dystonia treated by an outreach nurse practitioner: a comparative study between a home and a clinic treatment service. *Archives of Physical Medicine and Rehabilitation*; 82, pg 480-484.
- York, R., Brown, L.P., Samuels, P., Finkler, S. A., Jacobsen, B., Persely, C.A., Swank, A. & Robbins, D. (1997). A randomized trial of early discharge and nurse specialist transitional follow-up care of high-risk childbearing women. *Nursing Research*; 46(5):254-261.

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### **Appendix A: Methods**

To identify relevant literature, CINAHL and MEDLINE databases were searched. Search terms included *home care, home healthcare, community care* or *community-based care* as well as *advanced practice nurse, clinical nurse specialist, nurse clinician, nurse practitioner, outcomes, treatment outcomes* or *nursing outcomes*. The search was limited to English language articles published from 1990 onwards. Articles were included if 1) the patient population was receiving care in the home, 2) the care was delivered by advanced practice nurses, 3) any health care outcome was examined, and 4) health care outcomes were examined in relation to advanced practice nursing interventions.

A total of 127 articles were retrieved through the initial search in MEDLINE and CINAHL. Titles were reviewed for relevancy and 96 articles were excluded, leaving 31 articles for further review. After reviewing abstracts 21 articles were excluded and 10 articles remained for full review. Reference lists of all relevant articles were hand search and 12 additional articles were identified for full review. After full review of the 22 articles, five were excluded. Seventeen articles were synthesized for this report.