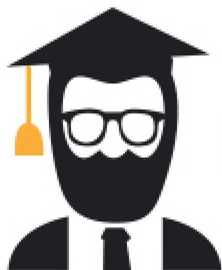

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PROGRAM EVALUATION

Nurse practitioner-led multidisciplinary teams to improve chronic illness care: The unique strengths of nurse practitioners applied to shared medical appointments/group visits

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Abstract

Purpose: To describe the roles of nurse practitioners (NPs) in a novel model of healthcare delivery for patients with chronic disease: shared medical appointments (SMAs)/group visits based on the chronic care model (CCM). To map the specific skills of NPs to the six elements of the CCM: self-management, decision support, delivery system design, clinical information systems, community resources, and organizational support.

Data sources: Case studies of three disease-specific multidisciplinary SMAs (diabetes, heart failure, and hypertension) in which NPs played a leadership role.

Conclusions: NPs have multiple roles in development, implementation, and sustainability of SMAs as quality improvement interventions. Although the specific skills of NPs map out all six elements of the CCM, in our context, they had the greatest role in self-management, decision support, and delivery system design.

Implications for practice: With the increasing numbers of patients with chronic illnesses, healthcare systems are increasingly challenged to provide necessary care and empower patients to participate in that care. NPs can play a key role in helping to meet these challenges.

Introduction

The development of advanced practice nursing has resulted in the expansion of roles and responsibilities (American Association of Colleges in Nursing, 1995; Davies & Hughes, 1995; Joel, 2004; National Association of Clinical Nurse Specialists, 1998; National Organization of Nurse Practitioner Facilities, 1995). Among these has been the increasing involvement of proactive nursing in general and advanced practice nursing in particular in the management of patients with chronic illness (Aubert et al., 1998; Centre for Evidence-Based Nursing South Australia, 2006; Loveman, Royle, & Waugh, 2003; National Organization of Nurse Practitioner Facilities; Parchman, Pugh, Wang, & Romero, 2007; Yin, 2003). This is especially timely because diabetes, heart failure, and hypertension

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are chronic illnesses of epidemic proportions with management complexity that threatens to overwhelm the acute care–oriented healthcare system and individual primary care providers (King, Aubert, & Herman, 1997). Moreover, the major deficiencies in chronic illness management, such as inadequate utilization of established practice guidelines, lack of care coordination, and insufficient patient education/self-management, have led to the development of new models of care (Wagner, 1998). Wagner's chronic care model (CCM) contains six elements—healthcare organization support, clinical information systems, self-management, community, decision support, and delivery system design (Table 1). The CCM has been constructed to promote productive interactions between prepared proactive patients and a prepared proactive healthcare team and in so doing, providing the framework and support for successful management of chronic illness (Bodenheimer, Wagner, & Grumbach, 2002a, 2002b). This model has been adopted widely (Adams et al., 2007; Chin et al., 2007; Hung et al., 2007; Nutting et al., 2007; Parchman et al., 2007; Vargas et al., 2007).

Group visits or shared medical appointments (SMAs) can be designed using the elements of the CCM (Denver, Barnard, Woolfson, & Earle, 2003; Eijkelberg, Spreeuwenberg, Wolffenbuttel, van Wilderen, & Mur-Veeman, 2003; Jaber, Braksmajer, & Trilling, 2006; Kirsh et al., 2007; Noffsinger, 2001; Noffsinger & Scott, 2000; Stromberg et al., 2003). Our own CCM-based model of SMAs includes a physician as well as an NP during the visit. This model differs from nurse-led chronic disease clinics in which physicians play a more peripheral role (Chan et al, 2006; Mainie, Moore, Riddell, & Adgey, 2005; Thompson, Roebuck, & Stewart, 2005; Page, Lockwood, & Conroy-Hiller, 2005). The shared/group medical models became popular in the 1990s in Colorado and California mostly within the Kaiser Permanente Medical systems. Delivery of health care in a group setting gained popularity as a means to decrease provider backlog, lower costs, provide timely appointments, and improve both provider and patient satisfaction. SMAs have the advantage of emotional support for the patients as well. Support for patients and fostering patient engagement are core concepts of the CCM of disease management. Moreover, the CCM emphasizes the integration of an informed proactive team and an engaged patient, while at the same time appreciating the contextual layers of a healthcare system (McCulloch, Price, Hindmarsh, & Wagner, 1998). Table 1 provides

Table 1 Strategies for utilizing an SMA to implement the CCM

CCM components	Enhanced dimensions and practices for SMAs
1. Self-management support: Provide methods and opportunities for patients to be empowered and prepared to manage their health conditions and health care	• Tools and information utilized in group format for teaching self-management • Health topics covered during patient-led discussion to enhance self-management • Multidisciplinary team and continuity of team • Patient-centered group dynamics peer support (helps with problem solving for self-management) • Reinforced by team members • Motivational interviewing
2. Decision support: Enhance and promote evidence-based clinical care that recognizes patient preferences	• Embedded guidelines • Template for entering notes • Multidisciplinary team overlap
3. Delivery system design: Promote proactive delivery of clinical care and support of self-management within the system	• Debriefing huddle after each session (Continuous QI/evaluation) and continuity of team • Registry to review and plan • Multidisciplinary team with roles and tasks defined and overlapping • Individual pull-out interactions at end • Cross-training and spread of care practices back to (other) PCPs
4. Community resources and policies: Identify and mobilize community-based resources to help meet healthcare management needs of patients	• Significant others invited and encouraged to participate • Peer support group structure with possibilities for linking outside of group
5. Organizational support: Leadership at all levels provides mechanisms to enhance care and improvements	• Personnel time committed for multidisciplinary team to participate • Resources and infrastructure (e.g., designated space and staff and endorse guidelines and registry) • Continuous QI/evaluation (feedback and goal setting)
6. Clinical information systems: Organize and utilize data to promote efficient and effective care	• Documentation (consistent with evidence-based guidelines) • Utilize registry for identifying patients

Note. CCM, chronic care model; SMA, shared medical appointment; NP, nurse practitioner; VA, Veterans Administration; QI, quality improvement.

an overview of the components of the CCM and the enhanced dimensions and practices identified for successful SMAs. Nurse practitioners (NPs) have specific competencies that correspond to the parameters of the CCM in general. These include clinical and professional leadership, which includes competence as a change agent, communication skills, and skills in collaboration with the ability to work and lead interdisciplinary/multidisciplinary teams. These competencies are particularly relevant to SMAs. This article demonstrates the NP's roles in development, implementation, and sustainability of SMAs to improve chronic care delivery. The developmental phases and decisions to help guide the implementation of three disease-specific multidisciplinary SMAs (diabetes, heart failure, and hypertension) in which NPs played a leadership role will be described.

Methods

We have utilized a detailed qualitative case analysis based upon the formative evaluation of each of the disease-specific SMAs (Yin, 2003). This formative evaluation was an integral part of the continuous quality improvement methods used. Interviews were conducted with all staff participants and a convenience sample of patients from each of the SMA/groups. Each of the six interrelated structural components of the CCM—(patient) self-management support, clinical information systems (registries), delivery system design (SMAs), decision support (evidence-based guidelines), healthcare organization, and community resources were evaluated.

Results

NP roles and SMAs based on the CCM

Table 1 provides an overview of the components of the CCM (column 1). Column 2 shows the enhanced dimensions and practices identified for successful SMAs. Table 2 illustrates opportunities and roles for NPs functioning in SMA groups. Elements or ingredients related to successful implementation and sustainability cut across the various components of the CCM model; NPs are needed in the overall integration of the key elements.

Systematic implementation of SMA/groups

In the three disease-specific SMA/groups (diabetes, hypertension, and heart failure), the NP arranged for multiple providers (MD, NP, and PharmD) to be present to see patients from the group individually in nearby exam rooms. Although the PharmDs were especially instrumental in performing medication reconciliation initially with new patients and new consults, the NP provides a holistic approach to chronic illness management including medication issues and barriers to adherence. The NP also participated in the continuous quality improvement debriefings and assisted with the required planning for the type of patients seen, coverage contingencies, and follow-up. In contrast to a common approach in which a primary care provider participating in an SMA saw patients from his/her own panel, our model involved targeting high-risk patients (cardiovascular risk or risk of hospitalization). The patients were largely derived from disease registries and not necessarily known to the SMA staff. This practice of targeting specific patients has been employed to support primary care by dealing with patients where increased face-to-face time could improve quality outcomes. NPs played an important role in establishing enrollment criteria for patients (medical necessity criteria) and provided individual visits when necessary.

Disease-specific implementation issues

NPs helped guide the team in identifying and tailoring to the three disease-specific SMAs. Illustrations of this tailoring are as follows:

Diabetes

The NP, who was also a certified diabetes educator, promoted and facilitated expansion of the diabetes registry. The NP identified patients who needed initiation of insulin therapy prior to each group and paired them up with other patients who were successful in administering insulin. She has facilitated the translation of evidence-based guidelines (primarily Veterans Affairs/Department of Defense Diabetes and the American Diabetes Association) into the formatted note for documentation. The NP is a resource for experience in the realm of practical strategies to medication adjustment and self-management, aspects of management that are often not made explicit in practice guidelines. Finally, patients who missed SMA visits were called by the NP for telephone follow-up that involved medication adjustment.

Heart failure

In our setting, the NP oversaw the preclinic huddles, where initial plans for optimization of medical treatment were discussed and brought to agreement. The interdisciplinary team needs to be unified in the approach to care. Preparation for the SMA includes reviewing past and interim medical history, formatting notes, and highlighting key issues pertaining to medical management. Medication reconciliation was completed with all new patients. The American College of Cardiology, the American Heart

Table 2 Concordance between the dimensions of the CCM and the expertise of NPs in the VA SMA model

CCM elements and enhanced dimensions	Opportunities and roles for NP within SMA
1. Self-management support	
• Teaching and enhancing self-management	See important information and topics are covered, good educator skills help select and tailor tools, knowledge of day-to-day management, holistic perspective help focus tools and information
• Multidisciplinary team and continuity of team	Identify relevant team members for specific sessions; ensure continuity of team as consistent core member
• Patient-centered group dynamics	Alert moderator to relevant issues for each group session
• Peer support	Establish confidentiality and group rules; manage flow and discussion among patients
• Reinforced by team members	Integrate holistic perspective and ensure that all are on the same page about guidelines and information
• Motivational interviewing	Alert moderator to relevant challenges to group
2. Decision support	
• Embedded guidelines	Use evidence based medicine to manage pts with chronic disease
• Template for entering notes	Create and refine template
• Multidisciplinary team overlap	Can fill in for and educate others given holistic perspective
3. Delivery system design	
• Continuous QI/evaluation and continuity of team	Identify gaps in information and resources relevant to holistic perspective and day-to-day disease management and prevention of escalation of disease and/or complications
• Registry to review and plan	Define inclusion criteria and preparation work for sessions
• Multidisciplinary team	Can fill in for and educate other team members given holistic perspective
• Individual pull-out interactions at end	Work with others to tailor tools and resources
• Cross-training and spread of care practices	Educate other health professionals
4. Community resources and policies	
• Significant others invited and encouraged to participate	Educate family to realize not an individual but a family gets disease Good communication skills and education
5. Organizational support	
• Personnel time committed for multidisciplinary team to participate	Act as liaison with administration; act as manager of SMA clinic
• Continuous QI/evaluation (feedback and goal setting)	Use holistic perspective to identify ways to enhance continuity of care and day-to-day management given
6. Information systems	
• Documentation (consistent with evidence-based guidelines)	Oversee processes of ensuring accurate and complete documentation for clinical management
• Utilize registry for identifying patients	Conduct ongoing quality improvement/research of clinical effectiveness

Note. CCM, chronic care model; SMA, shared medical appointment; NP, nurse practitioner; VA, Veterans Administration; QI, quality improvement.

Association, and Heart Failure Society of America guidelines were embedded in the formatted note for documentation and were the basis for the development of the educational topics. The NP is a resource for experience in the realm of practical strategies for patients, particularly those that relate to the medical management of heart failure and uptitration of medication; these aspects of management are often not explicit in practice guidelines. Finally, the NP oversees enrollment, disenrollment, and the clinic debriefing, which is an integral part of the continuous quality improvement strategy.

Hypertension

The hypertension SMA group was the last one implemented and benefited from the knowledge gained from the other SMA groups, so that NP roles were quite clear and relatively little tailoring was necessary. For example, formatted notes based on Veterans Affairs/Department of Defense and Joint National Committee VII guidelines were developed at the very start. Similarly, the NP helped to identify patients who had evidence of a satisfactory level of knowledge and self-management and blood pressure controls. These patients would no longer need to attend SMAs.

Discussion

NPs are particularly valuable for practices and approaches that relate to three core components of the CCM: self-management support, decision support, and delivery system design. All are components that underpin the framework for SMAs (Sperl-Hillen et al., 2004). The NP's role in self-management support is highly dependent on communication and integration skills. Providing

patients with the tools essential to successful self-management is a necessary but not sufficient step in improving quality outcomes. Teaching and encouraging self-management is more than providing tools and information. As clarified in Table 1, the tools and information relevant to the management of the diseases are provided within the context of learner-centered group discussion. The goals are to use patient-centered group dynamics, peer support, multidisciplinary team, and motivational interviewing techniques as vehicles for delivering the relevant information. The focus is information *exchange* rather than information *provision* by the "professionals." Thus, teacher-centered didactic approaches are minimized. Integrating tools for behavior change is facilitated through collaborative development of self-care plans with each patient that reflect both treatment indications and patient preference. Some, such as Noffsinger who himself is a psychologist, advocate the use of a behavioral health specialist to facilitate the group so that patients can share coping strategies and address issues of stress that accompany chronic illness and disease (Noffsinger et al. & Scott, 2000). We have found that NPs' skills are both complementary and synergistic with behavioral health specialists.

A sometimes overlooked aspect of NPs is their subspecialty expertise in specific chronic disease states. This expertise, identified in the CCM as decision support, may come from specific training and/or experiences. The subspecialist expertise an NP provides can substitute at least in part for the presence of a physician subspecialist. For example, the physician in the diabetes SMA was a general internist and not an endocrinologist or diabetologist. NPs provide valuable guidance given their familiarity with the day-to-day management issues and continuity of care. Decision support was also provided through the formatted notes, which prompted specific actions. Specialist NPs played a key role in template development that became the formatted note.

Because NPs are trained to think holistically, to foster team building (a factor in implementing planned care), and to educate and motivate patients, they are particularly needed in SMAs. Other keys to successful diabetes, hypertension, and heart failure SMA implementation and sustainability include strong peer support and patient-centered care through motivational interviewing. Group therapy and mutual support groups have a long-standing tradition of improving psychosocial outcomes for patient with substance abuse and other chronic conditions. Mental health providers and behavioral therapists have recognized the added value of groups when seeking improved psychological and behavioral outcomes for people with chronic illness. The meeting of a group of patients in an SMA contributes to productive peer support in which patients dealing with the same chronic illness can share experiences with others. Group discussion focused on adjustment to medical and/or behavioral regimens are an effective means of gaining mastery of tasks and improving disease outcomes (Heisler & Piette, 2005). The NP's holistic perspective and recognition of the importance of family support further augment behavioral change.

In addition to the benefits of peer support in facilitating patient behavior changes, the NP, as group facilitator, utilizes motivational interviewing. Motivational interviewing acknowledges: (a) most people move through a series of steps prior to changing their behavior, (b) effective change is self-directed, (c) confrontation and negative messages are ineffective, (d) knowledge is not equivalent to behavior change, and (e) reducing ambivalence is the key to change (Harris, Aldea, & Kirkley, 2006). Using motivational interviewing to help a patient cope with chronic illness is a paradigm shift from traditional patient education, which usually consisted of lecture format, to more of a discussion/negotiation format. The patient-centered care in an SMA reinforces the concept that each patient is an individual, with unique life experiences, values, religious and cultural influences, and psychological strengths and weaknesses that are taken into account in treatment and discharge planning. Informed and activated patients have an understanding of their chronic disease and their vital role in managing their condition. By the end of the group experience, it is the staff's goal for patients to develop the confidence and skills necessary for successful management of their own chronic illness.

NPs can help the team create an environment that nurtures peer support to motivate behavioral change during team planning and briefing sessions and as a moderator for some of the sessions. The general keys to success can be used by NPs to help promote patients' readiness to change. NPs can also play a pivotal role in helping other providers/team members to identify and tailor the information and tools to be relevant for the immediate group's needs. Having a highly dynamic group with peer support but lacking in motivational interviewing strategies by the moderators will not guarantee improvements in clinical outcomes in a timely fashion.

In summary, management of chronic illness is a longitudinal process in which NPs can play a major role. Using the CCM, NPs can define and expand their roles and opportunities to engage patients and other health professionals in the process of achieving healthful behavioral changes. NPs with their unique skills are positioned to foster patient-centered care. Advanced education and training for NPs today provide both a solid evidence-based imperative and a patient-centered holistic approach to care. This experiential base positions the NP to function optimally as both a primary provider and in a leadership role within SMAs. Additionally, SMAs offer NPs a unique

opportunity to model and transform outcomes in chronic health care by rendering efficient, cost effective, evidence-based health care which incorporates the essential components of the CCM. The NP's role provides continuity and organization for other team members to collaborate for optimal outcomes. A focus on prevention, elimination of barriers to care, and self-management are integral strengths that NPs contribute to help sustain optimal target outcomes in care.

References

Adams, S. G., Smith, P. K., Alan, P. F., Anzueto, A, Pugh, J. A., & Cornell, J. E. (2007). Systematic review of the chronic care model in chronic obstructive pulmonary disease prevention and management. *Archives of Internal Medicine*, **167**, 551–561.

American Association of Colleges in Nursing Regional Task Force (1995). *The essentials of master's education for advanced practice nursing*. Washington, DC: American Association of Colleges in Nursing.

Aubert, R. E., Herman, W. H., Waters, J., Moore, W., Sutton, D., Peterson, B. L., et al. (1998). Nurse care management to improve glycemic control in diabetic patients in a health maintenance organization. A randomized controlled trial. *Annals of Internal Medicine*, **129**, 605–712.

Bodenheimer, T., Wagner, E., & Grumbach, K. (2002a). Improving primary care for patients with chronic illness: The chronic care model. *Journal of the American Medical Association*, **288**, 1775–1779.

Bodenheimer, T., Wagner, E., & Grumbach, K. (2002b). Improving primary care for patients with chronic illness the chronic care model, Part 2. *Journal of the American Medical Association*, **288**, 1909–1914.

Centre for Evidence-Based Nursing South Australia. (2006). Nurse-led cardiac clinics for adults with coronary heart disease. *Australian Nursing Journal*, **14**, 25–28.

Chan, M., Yee, A., Leung, E., et al. (2006). The effectiveness of a diabetes nurse clinic in treating older patients with type 2 diabetes for their glycemic control. *Journal of Clinical Nursing*, **15**, 770–781.

Chin, M., Drum, M., Guillen, M., et al. (2007). Improving and sustaining diabetes care in community health centers with the health disparities collaboratives. *Medical Care*, **45**, 1135–1143.

Davies, B., & Hughes, A. M. (1995). Clarification of advanced nursing practice: Characteristics and competencies. *Clinical Nurse Specialist*, **9**, 156–160.

Denver, E., Barnard, M., Woolfson, R., & Earle, K. (2003). Management of uncontrolled hypertension in a nurse-led clinic compared with conventional care for patients with type 2 diabetes. *Diabetes Care*, **26**, 2256–2260.

Eijkelberg, I., Spreeuwenberg, C., Wolffenbuttel, B., van Wilderen, L., & Mur-Veeman, I. (2003). Nurse-led shared care diabetics projects: Lessons from the nurses' viewpoint. *Health Policy*, **66**, 11–27.

Heisler D, M., & Piette, J. D., (2005). "I help you and you help me." Facilitated telephone peer support among patients with diabetes. *Diabetes Educator*, **31**, 869–879.

Hung, D. Y., Rundall, T. G., Tallia, A.F, Cohen, D. J., Halpin, H. A., & Crabtree, B. F. (2007). Rethinking prevention in primary care: Applying the chronic care model to address health risk behaviors. *Milbank Quarterly*, **85**, 69–91.

Jaber, R., Braksmajer, A., & Trilling, J. (2006). Group visits: A qualitative review of current research. *Journal of American Board of Family Medicine*, **19**, 276–290.

Joel, L. J. (2004). *Advanced practice nursing: Essentials for role development* (1st ed.). Philadelphia: F.A. Davis Company.

King, H., Aubert, R., & Herman, H. (1997). Global burden of diabetes, 1995-2025: Prevalence, numerical estimates and projects. *Diabetes Care*, **21**, 1414–1431.

Kirsh, S. R., Watts, S., Pascuzzi, K., O'Day, M. E., Davidson, D., Strauss, G., et al. (2007). Shared medical appointments based on the chronic care model: A quality improvement project to address the challenges of patients with diabetes with high cardiovascular risk. *Quality Safety in Health Care*, **16**, 349–353.

Loveman, E., Royle, P., & Waugh, N. (2003). Specialist nurses in diabetes mellitus (Cochrane Review) [Abstract]. *The Cochrane Library*, **2**.

Mainie, P., Moore, G., Riddell, J., & Adgey, A. (2005). To examine the effectiveness of a hospital-based nurse-led secondary prevention clinic. *European Journal of Cardiovascular Nursing*, **4**, 308–313.

McCulloch, D., Price, M., Hindmarsh, M., & Wagner, E. (1998). A population-based approach to diabetes management in a primary care setting. *Effective Clinical Practice*, **1**, 12–22.

National Association of Clinical Nurse Specialists (1998). *Statement on clinical nurse specialist practice and education*. Harrisburg, PA: Author.

National Organization of Nurse Practitioner Facilities. (1995). *Advanced nursing practice curriculum guideline and program standards for nurse practitioner education*. Washington, DC: Author.

Noffsinger, E. (2001). Enhance satisfaction with drop-in group visits. *Hippocrates*, **15**, 30–36.

Noffsinger, E., & Scott, J. (2000). Understanding today's group visit models. *Group Practice Journal*, **48**, 46–58.

Nutting, P. A., Dickinson, W. P., Dickinson, L, Nelson, C. C., King, D. K., Crabtree, B. F., et al. (2007). Use of chronic care model elements is associated with higher-quality care for diabetes. *Annals of Family Medicine*, **5**, 14–20.

Page, T., Lockwood, C., & Conroy-Hiller, T. (2005). Effectiveness of nurse-led cardiac clinics in adult patients with a diagnosis of coronary heart disease. *International Journal of Evidence-Based Healthcare*, **3**, 2–26.

Parchman, M., Pugh, J., Wang, C., & Romero, R. (2007). Glucose control, self-care behaviors, and the presence of the chronic care model in primary care clinics. *Diabetes Care*, **30**, 2849–2854.

Sperl-Hillen, J., Solberg, L., Hroscrikoski, M. C., Crain, A., Engebretson, K. I., & O'Connor, P. (2004). Do all components of the chronic care model contribute equally to quality improvement? *Joint Commission Journal on Quality and Safety*, **30**, 303–309.

Stromberg, A., Martensson, J., Fridlund, B., Levin, L.-A., Karlsson, J., & Dahlstrom, U. (2003). Nurse-led heart failure clinics improve survival and self-care behaviour in patients with heart failure. *European Heart Journal*, **24**, 1014–1023.

Thompson, D., Roebuck, A., & Stewart, S. (2005). Effects of a nurse-led, clinic and home-based intervention on recurrent hospital use in chronic heart failure. *European Journal of Heart Failure*, **7**, 377–384.

Vargas, R. B., Mangione, C. M., Asch, S., Keesey, J, Rosen, M., Schonlau, M., et al. (2007). Can a chronic care model collaborative reduce heart disease risk in patients with diabetes? *Journal of General Internal Medicine*, **22**, 215–222.

Wagner, E. (1998). Chronic disease management: What will it take to improve care for chronic illness? *Effective Clinical Practice*, **1**, 2–4.

Yin, R. (2003). *Case study research* (3rd ed.). Thousand Oaks, CA: Sage Publications.

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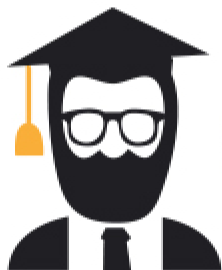

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