DISCUSSION PAPER

Conceptual framework of acute care nurse practitioner role enactment, boundary work, and perceptions of team effectiveness

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Abstract

Aim. This article describes a new conceptual framework for acute care nurse practitioner role enactment, boundary work and perceptions of team effectiveness.

Background. Acute care nurse practitioners contribute positively to patient care by enacting an expanded scope of practise. Researchers have found both positive and negative reactions to the introduction of acute care nurse practitioners in healthcare teams. The process of role enactment, shifting role boundaries, and perceptions of team effectiveness has been studied disparately. A framework linking team structures and processes to desirable outcomes is needed.

Data sources. Literature was obtained by searching CINAHL, PsycInfo, MedLine, PubMed, British Nursing Index, Cochrane Library, JSTOR Archive, Web of Science, and Google Scholar from 1985–2010. A descriptive multiple-case study was completed from March 2009–May 2009.

Discussion. A new conceptual framework describing how role enactment and boundary work affect perceptions of team effectiveness was developed by combining theoretical and empirical sources. The framework proposes proximal indicators used by team members to assess their team's performance.

Implications for nursing. The framework identifies the inter-related dimensions and concepts that different stakeholders need to consider when introducing nurse practitioners in healthcare teams. Further study is needed to identify team-level outcomes that reflect the contributions of all providers to quality patient care, and explore the patients' and families' perceptions of team effectiveness following the introduction of acute care nurse practitioners.

Conclusion. The new framework can guide decision-making and research related to the structures, processes, and outcomes of nurse practitioner roles in healthcare teams.

Keywords: boundary work, conceptual framework, nurse practitioner, perceptions, processes, role enactment, team effectiveness

Introduction

Nurse practitioners (NPs) in acute care settings provide medical and nursing care to patients and families experiencing complex health conditions (Kleinpell 2005). Researchers have found both positive (Hoffman *et al.* 2004) and negative (DiCenso *et al.* 2010) reactions to the introduction of NPs in healthcare teams. The process of shifting role boundaries between professional groups is believed to affect how new roles are integrated into teams (Gulliver *et al.* 2002). In addition, the way new roles, such as acute care nurse practitioners (ACNP), are enacted in healthcare teams may affect patient care (Sidani *et al.* 2006a) and the team's perceptions of its effectiveness (Kilpatrick *et al.* 2011). No researcher has so far examined how team members perceive their team's effectiveness following the introduction of an ACNP.

Many countries recognize NPs and clinical nurse specialists (CNSs) as advanced practice nursing (APN) roles (Sheer & Wong 2008). CNS and NP roles in acute care share many similarities. Graduate level education is recommended for both roles (Pulcini *et al.* 2010). However, each APN role has a different focus. CNSs work primarily at a system level to improve care quality and mentor nursing staff, whereas NPs focus mainly on patient care activities that are beyond the scope of a generalist nurse (Donald *et al.* 2010). APN role development is sensitive to the surrounding context (DiCenso *et al.* 2010). However, Schober and Affara (2006) found no common definition or understanding of APN roles and their scope of practise. The transfer of prescribing authority to nurses has been identified as an important issue and remains a challenge to implement in many countries (Schober & Affara 2006). The transfer of prescribing authority to NPs facilitates the development of the medical activities included in the NP scope of practise (Kilpatrick *et al.* accepted).

Kilgore and Langford (2010) assert that a conceptual model linking team structures and processes to desirable outcomes is needed. It is important to understand ACNP roles in the context of the teams where they are placed because the ACNP roles that are enacted in teams are sensitive to the needs of stakeholders, teams, and patients (McNamara *et al.* 2009). The processes of ACNP role enactment, role boundaries, and perceptions of team effectiveness have been studied disparately. The purpose of this article is to propose a new conceptual framework that integrates these processes.

Background

Conceptual frameworks help organize complex phenomena and identify key concepts and their relationships (Polit &

Beck 2008). Walker and Avant (2005) recommend synthesis as an approach to build theory where concepts that are theoretically unconnected are combined using existing literature. Several conceptual frameworks have been developed to describe different aspects of APN roles (Brown 1998, Sidani & Irvine 1999, Woods 1999, Mick & Ackerman 2000, Bryant-Lukosius & DiCenso 2004, Canadian Nurses Association (CNA) 2008, Spross & Lawson 2009). These frameworks highlight key components to characterize APN roles, but give almost no insight into how APN roles affect healthcare teams.

Other conceptual frameworks have focused specifically on inter-professional teamwork (Reeves *et al.* 2010) and inter-professional collaboration (D'Amour *et al.* 2005, Bainbridge *et al.* 2010). However, these frameworks provide limited guidance for managers or team members introducing ACNP roles in teams. Researchers (Mick & Ackerman 2002) argue that the identification and valuing of the distinct contributions of specific APN roles are required to clearly link APN activities to outcomes. A conceptual framework linking ACNPs and teams may increase our understanding of the effects of ACNP roles on team processes and, ultimately, on patient outcomes.

Data sources

The results of the literature review are provided in Kilpatrick *et al.* (2011). Briefly, literature was obtained by searching CINAHL, PsycInfo, MedLine, PubMed, British Nursing Index, Cochrane Library, JSTOR Archive, Web of Science, Google Scholar, evidence-based resources, and policy reports from 1985–2010. The search strategy was developed with the support of a research librarian and yielded 6,390 titles and abstracts, and included French or English language texts. The key elements of the literature review are presented below.

Among the conceptual frameworks identified in the previous section, the Sidani and Irvine (1999) framework was developed specifically for ACNP roles. Sidani and Irvine (1999) propose that structure and process influence quality and cost outcomes. Sidani and Irvine (1999, p. 60) argue that the ACNP framework represents 'the complex system of inter-related factors that are present in the ACNP practice situation and that affect role effectiveness'. The framework incorporates a linear approach and Donabedian's model of quality care that includes structures, processes, and outcomes (Figure 1).

More specifically, structures are defined at the patient, ACNP, and organizational levels (Sidani & Irvine 1999). The processes relate to ACNP scope of practise and include the ACNP role components and role enactment. ACNP roles
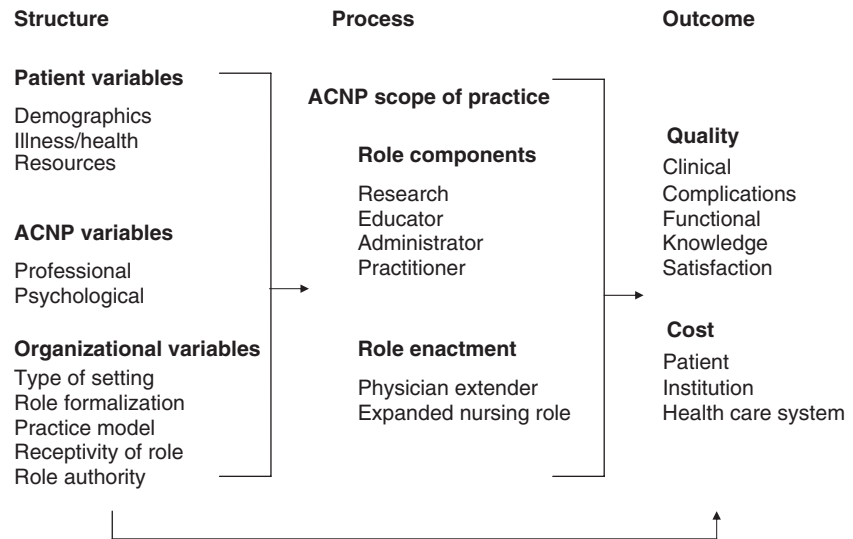
Structure **Process** **Outcome**

Figure 1 Sidani S. & Irvine D. (1999). A conceptual framework for evaluating the nurse practitioner role in acute care settings. *Journal of Advanced Nursing*, 30(1), 58–66. Reproduced with permission of John Wiley and Sons.

Structure	Process	Outcome
Patient variables Demographics Illness/health Resources	**ACNP scope of practice** **Role components** Research Educator Administrator Practitioner	**Quality** Clinical Complications Functional Knowledge Satisfaction
ACNP variables Professional Psychological		
Organizational variables Type of setting Role formalization Practice model Receptivity of role Role authority	**Role enactment** Physician extender Expanded nursing role	**Cost** Patient Institution Health care system

include clinical, educational, administrative and research role components (Sidani & Irvine 1999, DiCenso *et al.* 2010). Role enactment examines the type of ACNP roles that are developed in healthcare organizations. In essence, the way each ACNP role component is actualized in daily practice helps determine the level of role enactment (Sidani & Irvine 1999, White *et al.* 2008). The ACNP role effectiveness outcomes include the goals and expectations of the ACNP role related to quality care and costs (Sidani & Irvine 1999).

The Sidani and Irvine framework provides the structure to evaluate ACNP role effectiveness by linking the ACNP role enactment to patient outcomes, and captures much of the complexity of today's healthcare environment. However, the framework does not provide guidance to understand the processes in healthcare teams that affect perceptions of team effectiveness and patient outcomes once an ACNP role is introduced.

Little is known about the processes in healthcare teams following the introduction of an ACNP (Tye & Ross 2000, Amundson 2005, Sidani *et al.* 2006b). Processes include the series of actions that are undertaken to attain an end point (Donabedian 1966, 2005) and help to explain how events unfold over time and in context (Pettigrew 1997). Processes are dynamic, purposeful, and adaptive (Pettigrew 1992). Van de Ven (1992, p. 178) argues that there are 'several equally effective ways to achieve a given goal'. Thus, when exploring the processes in healthcare teams, the end result or outcome needs to be kept in mind to make sense of the multiple ways in which events unfold (Van de Ven 1992). Previous studies have found that ACNPs contribute positively to patient care by enacting an expanded scope of practise and using processes, such as care coordination and communication (O'Brien 2007, Sidani & Doran 2010). The literature review

helped to identify limitations in our current conceptualization of team processes and ACNP roles. The following sections propose adaptations to the Sidani and Irvine framework.

Firstly, the Sidani and Irvine (1999) framework was developed as a linear model and may not represent the interdependent nature of patient care (Abbott 2005). An ecological approach (Sundstrom *et al.* 1990) may add another perspective to our understanding of how role enactment and the shift in role boundaries affect the healthcare team's perceptions of team effectiveness. An ecology is defined as 'a set of social interactions between multiple elements that are neither fully constrained nor fully independent' (Abbott 2005 p. 248). With such an approach, it is necessary to take into account the influence of the context on the healthcare team and the influence of the team on its context.

Secondly, the process of shifting role boundaries (Gulliver *et al.* 2002) is believed to influence how ACNPs enact their role in teams. Yan and Louis (1999) argue that boundaries can be viewed as perimeters, frontiers of interactions, or shields that protect the group from the external environment. The demarcation between groups can be vertical between the levels of the organization, or horizontal across groups (Yan & Louis 1999). Boundary work activities can occur in and outside the professional group. Professional groups are believed to possess a stable core and transformations of professional practice occur at the edges of professional boundaries (Abbott 1995).

Thirdly, team member perceptions of team effectiveness are important to understand because they affect the actions undertaken by team members to improve patient care (Shortell *et al.* 2004). According to Lemieux-Charles and McGuire (2006), team effectiveness is a multidimensional construct which has been poorly conceptualized. Objective

measures of effectiveness, such as mortality or length of stay, have certain limitations as they 'do not take into account the goals healthcare teams have set for themselves' (Lemieux-Charles & McGuire 2006, p. 293). Perceptions of team effectiveness include the beliefs and attitudes that the team can perform across a range of dimensions (Haward *et al.* 2003) and work together on an continuing basis (Sundstrom *et al.* 1990).

Team processes include communication, participation in decisions, coordination, the development of interrelated roles (Lemieux-Charles & McGuire 2006), an opportunity to solve problems (Baldwin *et al.* 1978/2007) and a focus on patients and families (Donaghy & Devlin 2002). These team processes account for almost a quarter of the variation in team effectiveness scores (Poulton & West 1999). Effective problem-solving has been identified as a process that led to improved organizational performance (Guo 2008) and improved patient (Taylor *et al.* 2003), provider, and system (King *et al.* 2007) outcomes. Teams also learn to integrate their work to be effective (Borrill *et al.* 2000).

Changes in team structures, the type of work team, team size, and rewards (Stokols *et al.* 2008) are important considerations in teamwork and team effectiveness. Researchers (Blythe *et al.* 2001) have found that restructuring in organizations disrupted relationships, decreased group performance, and influenced the nurses' abilities to deliver effective care by negatively affecting the nurses' role individually and as team members. Furthermore, Proenca (2007) identified statistically significant effects between team contextual factors, team dynamics, and job satisfaction.

Finally, Shortell *et al.* (1991) found that effective teams believed they met family needs more adequately. However, the inclusion of patients and families as team members is an important dimension of team effectiveness that has been overlooked in teamwork research (Opie 1997, Donaghy & Devlin 2002). Thus, a team-level focus on patients and families as the recipients of care appears necessary. Following the review of the literature of reciprocal relationships between concepts, three structural and seven process concepts were added to the original framework (Figure 2). This adapted framework was used to support the multiple-case study. Yin (2009) argues that the use of theory in case study is essential because it provides a structure to conduct all the phases of the case study and increases the trustworthiness of the findings. The following section summarizes the study objectives and methods.

Study objectives

The overall purpose of the study was to understand the healthcare team's perceptions of team effectiveness following the introduction of an ACNP. More specifically, the study aimed to (1) describe ACNP role components, (2) describe ACNP role enactment and (3) explore how ACNP role enactment and boundary work between healthcare team members affect the team's perceptions of its effectiveness.

Design

A descriptive multiple-case study (Yin 2009) was undertaken to explore how ACNP role enactment and the boundary work of team members affected the team's perceptions of team effectiveness. A research protocol was developed to ensure that all steps in the study were reproducible (Yin
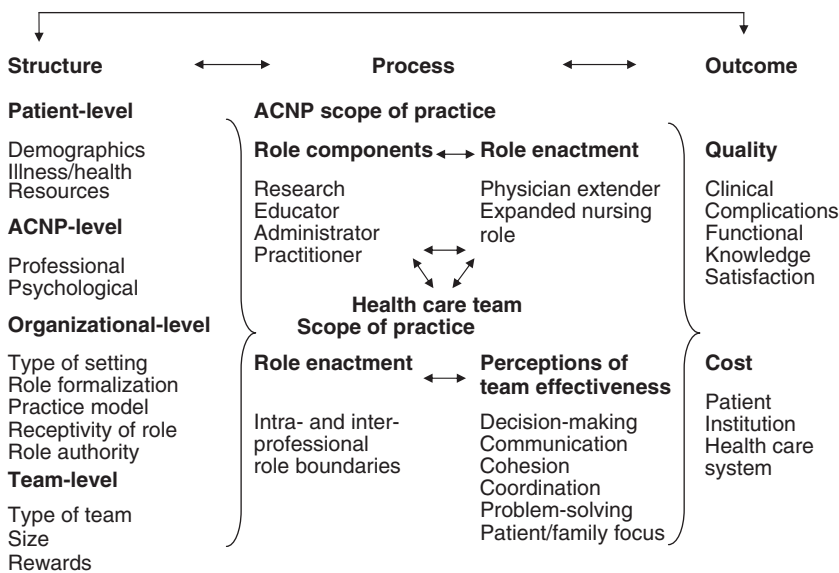
Figure 2 Adapted conceptual framework to evaluate the acute care nurse practitioner role and perceptions of team effectiveness.

2009). An in-depth description of the cases and the methods are provided in Kilpatrick *et al.* (in press, accepted). A case study is the design of choice to answer 'how' type questions (Gangeness & Yurkovich 2006). Yin (2009) argues that a multiple-case study design is a more robust design because the use of multiple cases is analogous to using multiple experiments.

Case description

Table 1 provides an overview of the characteristics of each case. The cases were selected because they possessed similarities (university affiliation, time since implementation, clinical specialty, and number of professional roles in the team) and differences (e.g., geographical region, surgical activity) in characteristics of interest.

Purposeful sampling (Teddlie & Yu 2007) and maximum variation (Cresswell 2007) were used to select the cases and participants. Data were collected from March 2009–May 2009. Data sources (Table 2) included a time and motion study measuring ACNP activities, individual and groups interviews, and structured non-participant observations (Bales 1950) of communication behaviours, documents, and field notes. Field notes were kept throughout the study to record impressions and theoretical ideas (Eisenhardt 1989).

The results for these portion of the study can be found in Kilpatrick (accepted), Kilpatrick *et al.* (2012, accepted).

Ethical considerations

All the necessary approvals were obtained from the participating organizations. The Research Ethics Board at one organization considered that the project did not require Research Ethics Committee approval or signed consent forms. All participants were informed of the study purpose. Study participation was voluntary.

Data analysis

A parallel mixed method analysis strategy was used where the quantitative and qualitative data sources were analysed separately (Teddlie & Tashakkori 2009) and integrated throughout the analysis (O'Cathain 2009). The findings in each case were compared across the cases to identify similarities and differences. The cross-case analysis helped to identify patterns across the cases (Yin 2009). Descriptive statistics (Field 2005) were generated for the quantitative data. Content analysis was used to categorize the qualitative data (Bowling 2009). The methods described by Miles and Huberman (1994) and Langley (1999) were used to analyse

Table 1 Characteristics of each case.

Case characteristics	Case 1	Case 2
Service size	29-bed unit with six intermediary care beds	40-bed unit with nine intermediary care beds, seven beds located in a different unit for extended-stay patients and clinical activities in the outpatient units
Surgical activity	600–650 theatre cases/year	1900 theatre cases/year
Shift system	Rotation	Fixed shift system
Staff experience	61% < 5 years Combined for Day-eve-night shifts	Day: 20% < 5 years Day-Eve 38% < 5 years
Patient length of stay	7–10 days	4–6 days
Introduction of ACNP role	September 2006	January 2006
Number of ACNP positions	2	4
Baccalaureate-level education	91% (N = 29)	85% (N = 23)
Full-time employment	87·5% (N = 28)	92% (N = 24)
Years in professional role	8 (range: 1 month* to 29 years)	11·2 (range: 1 month* to 28 years)
Years in team	5·04 (range: 1 month* to 20 years)	6·48 (range: 1 month* to 20 years)
Number of roles in healthcare team	17	15
Intra-professional team**	44% (N = 14)	52% (N = 14)
Inter-professional team ***	34% (N = 11)	30% (N = 8)
Management team****	22% (N = 7)	18% (N = 5)

*Only members of the management group had less than 3 months experience.

**Included staff nurses, nurse educators, community liaison nurses, assistant head nurses, clinical nurse specialists, and unit receptionists.

***Included physicians, medical student, dieticians, respiratory therapist, social workers, physiotherapists, pharmacists.

****Included front-line nursing managers, medical leaders of departments, mid- and upper-level nursing managers.

Table 2 Data sources in each case.

Data source	Unit	Case 1	Case 2	Type of data
Number of participants		32	27	
Interviews	Number of focus groups	5	7	Qualitative
	Follow-up interviews	4	5	Qualitative
	Number of individual interviews	10	6	Qualitative
Time and motion studies	Hours spent in each case	43 hours 32 minutes	65 hours 21 minutes	Quantitative
Non-participant observation	Hours spent in each case	8 hours 28 minutes	8 hours 55 minutes	Quantitative
Document review	Number of documents retained for review	35	135	Qualitative
Field notes		Daily	Daily	Qualitative

how events unfolded over time in each case and gain an understanding of processes. Codes were added or removed as the analysis progressed (Tong *et al.* 2007). Inductive and deductive approaches (Elo & Kyngäs 2008) helped identify and refine the concepts that were included in the new framework.

Several strategies were used to ensure the trustworthiness of the case study findings. They included the independent coding of a pilot interview by two research team members and discussion of any coding disagreement until agreement was reached for all the coded portions of the interviews (Tong *et al.* 2007), the use of common data collection forms (McDonnell *et al.* 2000), and consistent formatting (Hanley-Maxwell *et al.* 2007) to facilitate comparisons across the cases. The time and motion data were collected using a validated time and motion tool (Kilpatrick 2011). The observation periods were divided to decrease observer fatigue (Casey 2006).

Presentation of the model

This section presents the new conceptual framework that was developed following the cross-case analysis. The new framework describes the multi-level influences that were identified between the structure, process, and outcome dimensions. The purpose of the conceptual framework (Figure 3) is to identify the key concepts that affect ACNP role enactment, boundary work, and perceptions of team effectiveness. The framework identifies the structural dimensions that constrain or expand around the three central process dimensions of ACNP role enactment, boundary work, and perceptions of team effectiveness and affect outcomes.

Conceptual framework of acute care NP role enactment, boundary work, and perceptions of team effectiveness

The case study identified key structural and process dimensions that affect how ACNP roles are introduced in teams,

and the indicators used by team members to judge their team's effectiveness. The adapted framework (Figure 2) proposed following the literature review was useful to analyse the data, but painted an incomplete picture of ACNP role enactment, boundary work, and perceptions of team effectiveness. The enactment of ACNP roles in healthcare teams can be seen as a complex set of interactions and activities embedded into one another like the Matryoshka Nesting Dolls (Herod *et al.* 2007). Herod *et al.* argue that the dolls fit snugly into one another and symbolize the nested hierarchy where the outer layer (healthcare system) constrains the inner layer (organization) which then acts on the next inner layer (team) until the centre is reached.

Structural and process dimensions and their related concepts work synergistically to affect ACNP role enactment, boundary work, and perceptions of team effectiveness. Such inter-relationships are not adequately represented with a linear model. A more dynamic representation that indicates the team's position in the organization and includes the broader context of health care better illustrate the study findings.

The new framework is presented in Figure 3. The dimensions of the conceptual framework include the three central process dimensions of ACNP role enactment, boundary work and perceptions of team effectiveness, structural dimensions from the patient- to the healthcare system-level, and outcomes of care. In each dimension, the key concepts that different stakeholder groups need to consider when introducing an ACNP role in healthcare teams are identified. These concepts facilitate boundary work, maximize perceptions of team effectiveness, and affect outcomes of care. The three process dimensions are at the heart of the conceptual framework (Figure 3). Each process dimension is closely related to and affected by the two other process dimensions. Their relationships are symbolized by the bi-directional arrows surrounding the three central process dimensions and the dotted lines between them.
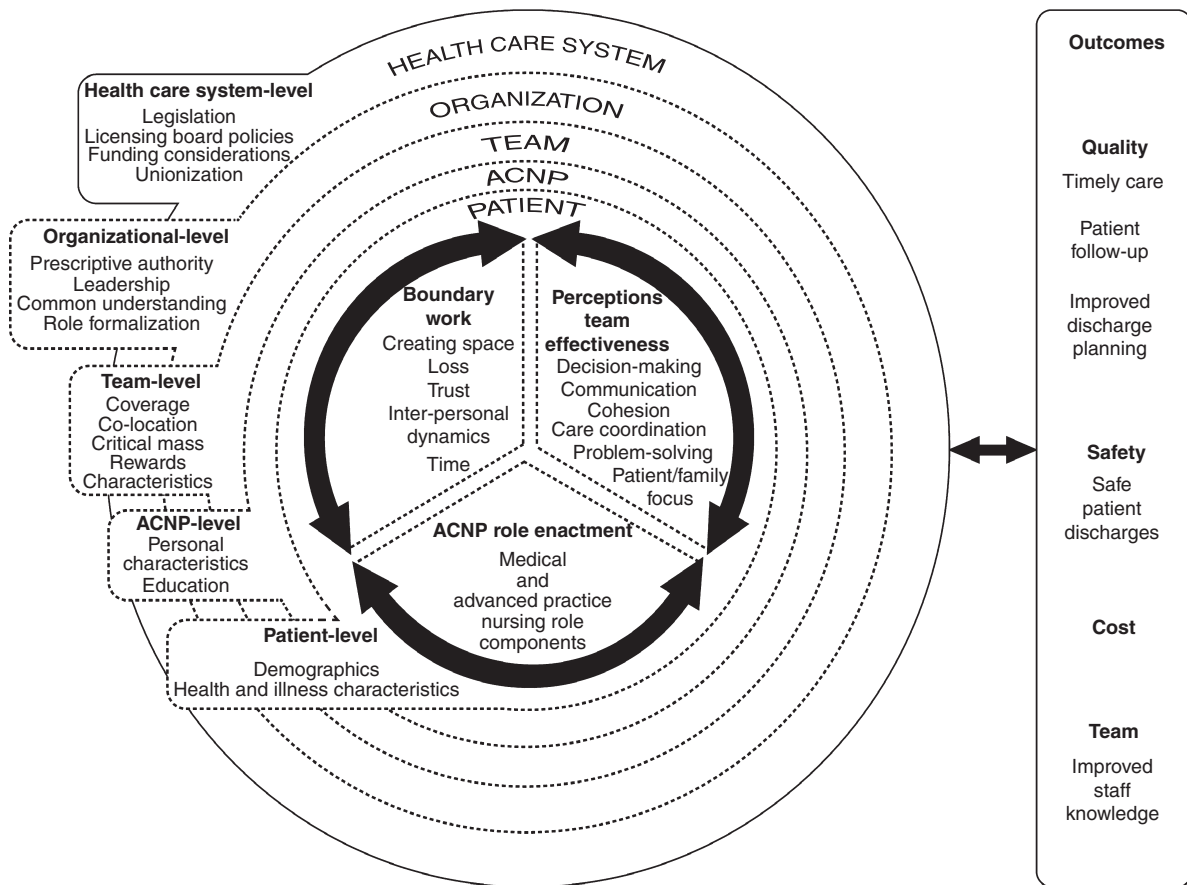
Figure 3 Conceptual framework of acute care nurse practitioner role enactment, boundary work, and perceptions of team effectiveness.
*ACNP: acute care nurse practitioner.

Furthermore, these central process dimensions are affected by the layers of structural dimensions. These structural dimensions are represented by the outer circles that circumscribe the three central process dimensions and move from the patient- to the healthcare system-level. The circles that are positioned closer to the team exert a more direct effect on the three central process dimensions. For example, the concepts that are in the healthcare system dimension are further away from the team, but continue to exert an influence on the process dimensions. The process dimensions affect the structural dimensions at all levels. These bidirectional relationships are represented by the dotted lines between the process and the structural dimensions. Each of these dimensions affects the outcomes of care. A reciprocal relationship exists between the outcomes of care and the other dimensions of the conceptual framework. This relationship is represented by a bi-directional arrow between the dimensions. The following sections summarize the key findings for the three central process dimensions.

Acute care NP role enactment

An in-depth description of ACNP role enactment is provided in Kilpatrick *et al.* (accepted). The ACNP roles that emerged in the teams were sensitive to the local context. The ACNP role enactment that included a medical and an expanded nursing role component depended on how the four ACNP role components were integrated in the AC-NPs' practice. Participants in both cases described some challenges to enact the clinical and the non-clinical components of the ACNP role. In both cases, several structural dimensions were believed to affect how the ACNP role evolved in the setting, and whether the ACNP role was enacted as a physician extender or an expanded nursing role. Changes in role enactment appeared to be related to the amount of structures that were in place in each case. In particular, the role of the medical and nursing leadership and the identification of a champion for the ACNP role were key factors that influenced ACNP role enactment. The medical or nursing role champion that had been identified in each case helped to push that portion of the role's

development in the organization and promoted a common understanding of the ACNP role among team members and the medical advisory board.

Boundary work

An in-depth description of boundary work can be found in Kilpatrick *et al.* (in press). Boundary work was a process of shifting professional boundary lines between groups when a new role was introduced in the healthcare team. This process evolved over time and included five concepts: (1) creating space; (2) loss of a valued function; (3) trust; (4) inter-personal dynamics; and (5) time. The development of trust among team members was a key concept in boundary work. The ACNPs' ability to integrate their role was related to their ability to follow through on issues and create a sense of trust among team members. The intensity of boundary work increased with the actual or potential loss of valued functions. Boundary work among team members was facilitated by the use of co-location, working on common projects, and a clear message from the medical and nursing leaders. Time was an ally in boundary work, but could complicate situations when team members became entrenched in their positions.

Perceptions of team effectiveness

Participants in each case believed the ACNP role improved the team's ability to meet patient care needs. Positive perceptions of team effectiveness were expressed in both cases, whether the ACNP role was enacted as a physician extender or an expanded nursing role. This was primarily due to the need for the ACNPs to fill a gap in patient follow-up that had been identified in both cases. Participants in both cases perceived that the ACNPs positively influenced the team's effectiveness because patient follow-ups were more complete and done in a timelier manner, and patient discharges were better prepared. In addition, participants noted that medical issues were addressed sooner because the team had easier access to a knowledgeable provider and medical prescriptions.

Team members believed the team was more effective to deliver patient care because the ACNPs positively affected team processes. The ACNPs' expanded decision-making related to medical and psycho-social issues contributed to the team's perceptions of its effectiveness in both cases. The medical decision-making authority within the ACNPs' legal scope of practise had been transferred to the ACNPs in one case. This was believed to improve the team's effectiveness. The ACNPs in both cases improved communication among team members, provided a global view of patient care, and supported the practise of nurses and physicians in the team.

ACNPs were a source of patient information and consistency in patient care. In addition, the introduction of weekly interdisciplinary rounds by the ACNPs was highly valued by staff to improve communication.

In both cases, participants believed the addition of the ACNP allowed them to collaborate with other providers, work together to solve patient care issues, and share their workload. They believed the introduction of the ACNPs made them 'more of a team' and brought people of the intra- and inter-professional group together to work together instead of working in silos. Care coordination was identified as a pivotal contribution of the ACNPs to perceptions of team effectiveness. Participants in both cases believed they had a greater voice in problem-solving of team issues and patient care issues following the introduction of the ACNPs. This was believed to enhance the team's effectiveness. The focus on patients and families was different in each case. The faster pace of work and time constraints associated with patient rounds coupled with the higher number of interactions noted in one case may explain the limited involvement of ACNPs with families in that case.

Structural dimensions

The structural dimensions surrounding the three central process dimensions of the new framework depict the different layers that constrained or expanded the day-to-day working of the ACNPs and the team. An understanding of the environment surrounding the teams helped make sense of the unexpected finding that team members believed they were more effective regardless of whether the ACNP role was enacted as a physician extender or an expanded nursing role, and highlights the adaptability of ACNP roles to specific needs and the local context.

The delegation of prescriptive authority to ACNPs, leadership, and a common understanding of the ACNP role had important implications when introducing ACNPs in healthcare teams. Unclear licencing board policies at the system level affected decisions at the organizational level to delegate prescriptive authority to ACNPs. The lack of prescriptive authority of ACNPs had repercussions on the way the team communicated between its members and the organization of work. The patterns of communication of the ACNPs and the team were affected by the ACNPs' need to validate their decisions with physicians. The time and motion portion of the study identified that the lack of prescriptive authority and decision-making autonomy contributed to more than twice as much time spent in patient rounds by ACNPs, physicians, and nurses in one case to validate decisions. This affected the day-to-day role enactment of ACNPs (Kilpatrick *et al.* accepted).

Outcomes

Participants identified some outcome indicators that helped the teams evaluate their effectiveness. These indicators represented the short-term indications the teams considered when judging their performance. Improved staff knowledge, improved patient follow-up, timely care, safer patient discharges, and better discharge planning were identified as key team outcomes.

Discussion

This new conceptual framework identifies structures, processes, and outcomes to guide and support the development of ACNPs in healthcare teams. Kilgore and Langford (2010) argued that little was known of the structures and processes occurring in healthcare teams. This framework fills a gap identified in the current literature.

In this study, team members believed their team was effective to provide patient care after an ACNP role was introduced. Their perception was not affected whether the ACNP role was introduced as a physician extender or an expanded nursing role because the ACNPs filled a gap in patient care that had been identified in each case. This was an unexpected finding that highlighted the context-sensitive nature of ACNP role enactment. It is important for team members and, more specifically, members of the leadership group to clarify ACNP role expectations and outcomes, and identify the gaps in patient care that the ACNPs are expected to fill before the ACNPs are introduced in teams (Bryant-Lukosius & DiCenso 2004). The development of ACNP roles that include both a medical and an expanded nursing component constitute an added-value of these roles in the provision of high quality patient care (DiCenso *et al.* 2010, Kilpatrick *et al.* 2010).

A particular issue with outcome measurement remains the identification and measurement of outcomes sensitive to nursing care (Doran *et al.* 2006, Hannah *et al.* 2009, Doran & Pringle 2011), in addition to specialty-specific, medical, and different provider outcomes (Given & Sherwood 2005). Team-level performance indicators would be important to include in the context of team performance goals of improved quality of care. Current research has focused primarily on nursing's role in the coordination of interdisciplinary teams (Clarke 2011). The team outcomes identified by participants in our study can be considered proximal effects of the introduction of ACNPs in teams. Farand *et al.* (1999, p. 95) defined 'proximal effects' as the effects resulting directly from an implementation and 'distal effects' as the desired effects that were not as closely linked to or more distant from an implementation. However, decision-makers may consider quality, safety cost, and team outcomes to provide clearer indications of team effectiveness outcomes. Subsequent research should include further refinement and testing of the framework in different specialties and in other jurisdictions to determine the scope or the range of the new framework (Jaccard & Jacoby 2010).

Conceptual challenges

The new conceptual framework builds on the work of Sidani and Irvine and furthers our understanding of how ACNPs affect team perceptions of effectiveness. The new framework resulted from a combination of different data collection methods and theoretical and empirical data stemming from qualitative and quantitative approaches. Concepts were identified inductively in the case study and added to the variables identified in the original framework. Luck *et al.* (2006, p. 108) argued that a case study approach can serve as a 'paradigmatic bridge' to answer research questions. To ensure methodological clarity, the researchers adopted a pragmatic worldview (Cresswell 2007) to examine events from many perspectives and integrate qualitative and quantitative data sources (Onwuegbuzie & Leech 2005).

In addition, consistent labelling was needed for the components of the new framework. Sidani and Irvine (1999) identified the finer elements of their framework as variables where the present study identified these elements as concepts. Eisenhardt (1989) and Parkhe (1993) used the term dimension to identify the broader categories in the data and the term concept to identify finer conceptual elements. The same terminology was applied to the conceptual elements that emerged during data analysis and the variables initially identified in the Sidani and Irvine framework. For example, role formalization included in the organizational variable of the original framework was identified as a concept in the organizational-level dimension in the new framework. This step in the development of the new conceptual framework represented an important paradigmatic and conceptual challenge to reconcile.

Implications for nursing

The effective management of health human resources is critical to attaining health system objectives worldwide (Dal Poz *et al.* 2009). The new conceptual framework can assist managers and team members by identifying structures or processes to focus on when introducing ACNPs in teams. In addition, the framework can be used to identify and link key contributions of ACNPs to the provision of safe and high quality patient care. Researchers (Bamford &

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What is already known about this topic

- Acute care nurse practitioners provide medical and nursing care to patients and families experiencing complex acute or chronic health conditions.
- Healthcare team members have reacted positively and negatively to the introduction of acute care nurse practitioners. Shifting role boundaries is believed to affect how new roles are integrated into teams.
- Little is known about the structures and processes occurring in healthcare teams.

What this paper adds

- The conceptual framework identifies a reciprocal relationship between structures, processes, and outcomes.
- A conceptual framework linking role enactment, boundary work, and perceptions of team effectiveness may increase our understanding of acute care nurse practitioner roles in teams and fills a gap in the current literature.
- The framework identifies team processes included in boundary work and perceptions of team effectiveness following the introduction of an acute care nurse practitioner.

Implications for practice and/or policy

- The structural dimensions from the patient- to the system-level interact with each other, and constrain or expand around the three central process dimensions in the healthcare teams and affect the day-to-day working of healthcare teams.
- The structural and process dimensions work synergistically to affect outcomes.
- The conceptual framework can assist managers and team members identify the structures and processes to focus on when introducing an acute care nurse practitioner role in the team and facilitate the identification of proximal indicators to assess team performance.

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Griffin 2008) found that team members value teamwork, but differences between professional groups may complicate working as a team. However, no study has focused primarily on the inter-professional relationships between ACNPs and team members (DiCenso *et al.* 2010). The inclusion of specific processes related to boundary work and perceptions of team effectiveness furthers our under-

standing of how teams work together to provide high quality patient care.

Some limitations need to be kept in mind with regards to the conceptual framework. Data were collected in one jurisdiction and in one clinical specialty. ACNP role enactment may be different in other jurisdictions or specialties. The perceptions of patients and families were not included in this study. Their views are important to understand (Opie 1997) and can be used to facilitate the integration of ACNPs in healthcare teams.

Conclusion

The conceptual framework identifies structural and process dimensions that affect ACNP role enactment in teams and describes team processes that affect perceptions of team effectiveness and outcomes. Focused attention on these dimensions potentiates the ACNPs ability to work to full scope of practise and deliver high quality care to patients and families. ACNPs improve team processes, provide timely patient care, comprehensive patient discharges, and improve the knowledge base of less experienced team members. These proximal indicators constitute the added-value of ACNP roles in healthcare teams. Additional research is needed to identify team-level outcomes that reflect the contributions of different providers to quality care, and explore the patient's and family members' perceptions of team effectiveness following the introduction of an ACNP.

Conflict of interest

No conflict of interest has been declared by the authors.

Author contributions

All authors meet at least one of the following criteria (recommended by the ICMJE: http://www.icmje.org/ethical_1author.html) and have agreed on the final version:

- substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
- drafting the article or revising it critically for important intellectual content.

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