

Interdisciplinary collaboration: the role of the clinical nurse leader

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Aims To explore the feasibility and acceptability of a clinical nurse leader (CNL) role to improve interdisciplinary collaboration (IC) within a fragmented acute-care microsystem.

Background Fragmented patient care is associated with preventable adverse healthcare outcomes. IC decreases fragmentation and improves patient care quality. The CNL role is theorized to provide the necessary leadership and competency skill base to impact IC at the optimal organizational level, the point of care where most healthcare decisions are made.

Methods This study used a descriptive non-experimental design. CNL daily workflow was developed to target empirical determinants of IC. Descriptive data were collected from multiple stakeholders using an investigator-developed survey.

Results Findings indicate the integration of the role is feasible and acceptable to the microsystem healthcare team.

Conclusions Preliminary evidence suggests the CNL role may be an effective intervention to facilitate IC. More research is needed to support the CNL role's association with microsystem IC.

Implications for nursing management The CNL role presents an innovative opportunity for clinical and administrative leadership to partner together to redesign a healthcare delivery system and improve patient care quality.

Keywords: care delivery system redesign, clinical nurse leader, interdisciplinary collaboration

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Introduction

Health care delivery is a complex process tasked with reducing the burden of illness and increasing the overall health of the American population. Unfortunately, it has been repeatedly shown that the system currently in place is unable to provide consistent high-quality care (Institute of Medicine 2000). One challenge is the lack of formal interdisciplinary collaborative processes and

the resulting fragmentation of care that currently exists throughout the healthcare system. For example, in the acute care setting, a patient may be seen by multiple specialty medical teams, be transferred to several units, and have any number of physicians, nurses and ancillary staff responsible for different aspects of care during a single admission. Overburdened healthcare providers are unable to prioritize time for collaboration and consensus with the interdisciplinary team regarding

ultimate goals of care. This type of fragmented patient care has been associated with many preventable adverse healthcare outcomes (Fewster-Thuente & Velsor-Friedrich 2008). Interdisciplinary collaboration decreases fragmentation and has been shown to improve the quality and safety of patient care, which is why the Institute of Medicine (IOM) has listed the creation of effective work teams as one of its ten rules for redesigning and improving healthcare (2001). Unfortunately, there is limited evidence describing effective care delivery structures or reliable processes for creating and sustaining a collaborative environment that fosters interdisciplinary teamwork and collaboration.

The clinical nurse leader (CNL) is specifically mentioned in the IOMs 'Future of Nursing' report (2010) as an innovative and necessary new nursing role created to meet higher standards for quality care. The CNL structured nursing role is theorized to provide the necessary leadership and competency skill-base at the optimal organizational level to develop and maintain processes that create an environment where interdisciplinary collaboration can flourish. The present study describes the feasibility and acceptability of implementing a CNL role to improve interdisciplinary collaboration within an acute care microsystem.

Background

Interdisciplinary collaboration

Previous research has conceptualized and defined the components required for successful interdisciplinary collaboration (San Martín-Rodríguez *et al.* 2005, Petri 2010). Interdisciplinary collaboration has been defined through concept analysis as an inter-personal process characterized by healthcare professionals from multiple disciplines, with shared objectives, decision-making responsibilities and power, working together to solve patient care problems. The process is best attained through an atmosphere of trust and respect, effective, open communication and awareness, and acceptance of the roles, skills, and responsibilities of the participating discipline (Petri). San Martín-Rodríguez *et al.* (2005) have described the empirical components of interdisciplinary collaboration, which include systemic, organizational and interactional elements. *Systemic* determinants of interdisciplinary collaboration include the social and cultural norms of healthcare practitioners and patients, the competing practice philosophies of each healthcare discipline and the wide-ranging educational background of all participants in health care.

Organizational determinants include a setting's mission, values, and management structures, level of administrative and clinical leadership, and amount of resource allocation and formal coordination mechanisms that can be dedicated to interdisciplinary collaboration. *Interactional* determinants include a willingness to collaborate, mutual trust and respect for all members of a collaborative team, and personal communicative skills. Creating a dynamic process that addresses these systemic, organizational and interactional determinants will pave the road towards successful interdisciplinary collaboration (D'amour *et al.* 2005). Unfortunately, there is limited evidence describing effective processes for creating and sustaining an interdisciplinary collaborative environment, although there is much literature describing the barriers to integrating interdisciplinary collaboration into practice (Gardner 2005, Cebul *et al.* 2008, Rice *et al.* 2010).

Clinical leadership

The nursing profession will play a key role in the process of redesigning the practice environment to bridge the gap between fragmented care and integrated multidisciplinary care processes, as the nurse is most closely connected to both the patient and the healthcare team (IOM 2010, Tilden 2011). Leadership will be necessary to guide processes that increase interdisciplinary collaboration. More specifically, clinical nursing leadership will be necessary to drive change at the bedside, where the majority of decisions about care practices are made. Clinical leaders are defined in the literature as persons in a clinical role whose primary focus is on the patient (instead of the organization); who use persuasion rather than a hierarchical power structure to enact change; who use a planned approach to change, utilizing both evidence and collaborative consultation; who maintain the respect of their peers by maintaining a clinical workload (i.e. are not seen as 'other'); and who use a reflective practice approach to implementing change as opposed to a rigid, prescriptive approach (Edmonstone 2009, Stanley & Sherratt 2010).

The clinical nurse leader

The clinical nurse leader (CNL) role was created in response to this need for clinical leaders at the point of care in the healthcare setting, integrating care within and across care settings and disciplines (Begun *et al.* 2006). The CNL is a Masters prepared registered nurse (RN) specially educated to enhance the efficiency with which care is delivered, and to organize the coordina-

tion of care through collaboration with all healthcare team members (American Association of Colleges of Nursing [AACN] 2007). The CNL uses core competencies in leadership, clinical outcomes and care environment management to develop a teamwork approach towards patient care at the microsystem organizational level.

The AACN has articulated the theoretical framework for CNL education and practice (2007). The CNL curriculum prioritizes nursing leadership in its educational framework, which includes theoretical coursework as well as clinical experience in horizontal leadership, effective use of self, advocacy and lateral integration (Maag *et al.* 2006). *Horizontal leadership* is defined as the knowledge and ability to coordinate patient care plans through advanced assessment, critical thinking, effective communication and role modelling of care as needed. *Effective use of self* includes utilizing culturally and professionally competent communication skills to manage group processes regarding patient care. *Advocacy* involves interfacing with all disciplines and the patient to promote effective quality outcomes that meet the patient's and healthcare team needs. *Lateral integration of care* promotes a multidisciplinary approach to care practice by seeking collaboration from the entire care spectrum to enact best practice.

The CNL role has already been piloted in numerous healthcare organizations. Evaluations of the role have focused on case study reports of collaborative practice improvements facilitated by integration of the CNL into a care delivery microsystem. These studies utilized a 'balanced scorecard' as a guiding framework to align CNL workflow with organizational desired outcomes. The balanced scorecard consists of four domains that capture measurable impacts of CNL implementation: finance, quality, satisfaction and innovation (Stanley *et al.* 2008, Ott *et al.* 2009). Each pilot site selected unit-specific indicators that reflected each domain but allowed for flexibility in determining processes and outcomes based on specific microsystem needs. Results of these pilot studies include: improved Joint Commission Core Measure compliance; improved nursing turnover rates; decreased patient length of stay; and improved care coordination processes (Stanley *et al.* 2008, Hix *et al.* 2009, Ott *et al.* 2009, Sherman *et al.* 2009).

Purpose of the study

While these case studies describe CNL-mediated collaborative practice improvements, there are no discussions in the literature of a CNL role developed

specifically to impact interdisciplinary collaboration. Interdisciplinary collaboration is an important indicator of quality care processes, and thus aligns with balanced scorecard criteria as a valid focus for CNL practice. The purpose of the present study was to develop a CNL workflow that would specifically impact empirical determinants of interdisciplinary collaboration and determine if the role could be successfully integrated into a fragmented acute care microsystem. Aims of the study included (1) develop a CNL role using empirical determinants of interdisciplinary collaboration to direct workflow practice, (2) implement the CNL role on a progressive care unit, and (3) assess the acceptability of the role by members of the health care team.

Methods

Design

A non-experimental, descriptive design was used to explore the feasibility and acceptability of a CNL role developed to improve interdisciplinary collaboration within an acute care microsystem. According to the recommendations for feasibility studies, the present study does not report on primary outcome measures or conduct hypothesis testing (Arain *et al.* 2010). This study details the CNL role's theoretical framework and development, describes how it was implemented and reports the acceptability of the role by key stakeholders.

Development of the CNL role

The development of the CNL role was initiated through collaboration with unit management and unit clinical leaders. Systemic determinants of interdisciplinary collaboration include factors that an organization does not directly control, for example the social and cultural norms of the healthcare practitioners and patients; the competing practice philosophies of each healthcare discipline; and the wide-ranging educational background of all healthcare team members (San Martín-Rodríguez *et al.* 2005). Before implementing the CNL role, the CNLs and the study unit's administrative management assessed systemic determinants of interdisciplinary collaboration and found several barriers to interdisciplinary care practices: a hierarchy of disciplines, as well as hierarchies *within* each discipline (attending MD/fellow/resident/medical student; manager/charge RN/staff RN/support staff etc.); various discipline-specific perspectives of care processes and goals, combined with a strong sense of autonomy within each profession; and a wide range of educational

and ethnic backgrounds of patients, physician teams, nursing and ancillary staff. In contrast, the system did have a teaching framework that encouraged open inquiry and had a strong history of healthcare innovation, which made the opportunity to transform a care delivery microsystem a realistic possibility. This assessment led to the conclusion that the system as a whole, while not deeply conducive to interdisciplinary collaboration, had enough elements to support a CNL feasibility study.

CNL workflow was determined by (1) assessing the pre-CNL state of microsystem organizational and interactional determinants of interdisciplinary collaboration and (2) utilizing CNL core competencies of nursing leadership, care environment management and clinical outcomes management to develop new processes that would promote or enhance determinants of interdisciplinary collaboration. The resulting CNL workflow processes are presented in Tables 1 and 2, and include: multiple daily patient rounds; physician team rounds (along with the staff RN); nursing, support staff and ancillary staff rounds; the creation of interdisciplinary patient care plans; break relief for RN staff; quality improvement project development/implementation; data tracking; and facilitation of monthly shared governance meetings. The CNLs' responsibility to their patient load included: accountability for accurate and complete interdisciplinary care plans; assisting staff RNs with hands-on complex care needs; ensuring all stakeholders, including the patient, had a voice in the decision-making process regarding complex care goals (which often meant translating needs from one discipline to another); daily checks of all types of indwelling catheters for patency, infection and valid criteria for use; reviewing objective patient measurements i.e. medication reconciliation, lab values, test results and core measure compliance, for inclusion into a care plan and for review with interdisciplinary staff during daily rounds; and skin and fall rounds.

Implementation of the CNL role

The CNL role was implemented on a 26-bed high-acuity progressive care unit in a 119-bed urban academic medical center with state-mandated staffing ratios in place, ranging from 3 : 1 to 5 : 1 on the study unit, depending on patient acuity. The patient population included complex surgical–oncology, cardiac, pulmonary, bone marrow transplant (BMT) and neurology patients. RN staff worked 12-hour, 3-day weeks and medical teams rotated approximately every 2 weeks. The manager was responsible for the unit's adminis-

trative workload. There was a charge RN assigned to each shift, responsible for patient flow and various administrative duties, for instance internal audits. Two support staff were assigned to each shift, responsible for basic patient care needs such as hygiene, toileting, answering call lights and assistance with patient mobility. No clinical nurse specialist was assigned to the unit. One nurse educator was responsible for RN yearly competencies and new-graduate education for this and other units, but was not a daily presence on the study unit.

The unit required two CNLs, each responsible for 13 patients, working Monday to Friday from 07.00 am to 15.30 pm. Three CNLs divided the workload by rotating in and out of the role regularly to allow for scheduling flexibility, while ensuring a constant two-CNL presence during the study (for a description of the administrative context of implementation, please see Bender *et al.* 2011). The CNLs replaced an unfilled assistant manager position and the day shift resource RN position, which was previously staffed on a per-shift basis depending on patient census and RN availability. The resource RN did not have a patient assignment, but was staffed to assist with admissions, discharges and break relief.

Measures of acceptability

Survey items

RN and support staff acceptance of the CNL role, and agreement with the presence of determinants of interdisciplinary collaboration before and after CNL implementation, were assessed using a six-item investigator-developed survey. Participants self-administered the survey before CNL implementation, 4 months and 1 year after CNL implementation. Items used Likert type scoring: 1 = strongly disagree to 5 = strongly agree, to assess RN and support staff perceptions of unit-specific determinants of interdisciplinary collaboration. The survey items evolved during the assessment of microsystem organizational and interactional determinants of interdisciplinary collaboration pre-CNL (see Tables 1 and 2). The assessment identified a lack of easily accessed patient information resources and patient practice standards. There was also a lack of collaborative workflow processes, including structured communication with the physician teams and inconsistent collaborative support to care for complex patients. Finally, this assessment along with informal discussions with numerous staff members indicated a perceived lack of within-discipline and interdisciplinary positive feedback, which staff felt inhibited positive communication

Table 1Clinical nurse leader (CNL) processes established to impact **organizational** determinants of interdisciplinary collaboration

<i>Organizational determinants</i>	<i>Pre-CNL micro system assessment</i>	<i>CNL competency-based processes to improve organizational environment</i>
Structure	Hierarchy of medical teams and nursing classifications, different departments for each discipline	Leadership: promote horizontal decision making when creating care plans through communication of differing goals to all disciplines; facilitate newly created shared governance unit council Care environment management: create and sustain flexible, ongoing interdisciplinary team rounding schedule to include the patient Clinical outcomes management: spread knowledge of 'lingo', hierarchical structures and care goals for each discipline; formalized structures created for patient quality assurance re: falls, skin, indwelling catheters
Philosophy and values	Unit involved in Magnet designation process, manager open to CNL trial, work climate generally congenial although each discipline highly autonomous	Leadership: promote an environment that values and actively seeks collaboration with every person working or receiving care on unit through active role modelling Care environment management: create communication structure for cross-discipline quality assurance and ensure all disciplines are aware and practice under correct policies; facilitate break relief to ensure all staff receive time needed to refresh during 12-hours shifts Clinical outcomes management: use Evidence Based Practice (EBP) to implement CNL role
Administrative leadership	No-one accountable and no expectations for interdisciplinary collaboration	Leadership: accountable to establish and sustain active collaboration with entire healthcare team; promote collaborative objectives and integrate each perspective of team (including patient) in rounding structure Care environment management: organize CNL daily workflow around needs of patient, staff and medical teams Clinical outcomes management: use advanced clinical assessment and knowledge management skills to create interdisciplinary database for each patient with care needs and goals clearly stated for use in rounding and by managers, charge RNs etc.
Resources	Staffing based on patient census and acuity; FTEs reallocated to implement CNL; all disciplines share same spaces for rounding and documenting care on the unit	Leadership: create a CNL role that subsumes and enhances the 'resource nurse' with accountability for lateral integration of care; facilitate the transformation of the night-shift resource nurse into a 'quality resource nurse' with accountability for quality outcomes Care environment management: coordinate interdisciplinary schedules for best use of time/space for rounding; facilitate nursing quality indicator compliance through daily tracking and facilitating follow-through Clinical outcomes management: knowledge management to create an online interdisciplinary information database to create more 'spaces' where information gathering and collaboration can occur
Coordination mechanisms	No formal structures in place; an organizational priority to create strategies for effective communication processes already started (situation, background, assessment, recommendation, training, promotion of bedside rounding, etc.)	Leadership: use advocacy and communication skills to format rounding discussions and translate perspectives of disciplines to patients and staff as needed; create and facilitate quality improvement projects to improve patient care Care environment management: formalize team coordination workflow processes on unit; work with information technology to organize pertinent clinical information to be more easily accessible Clinical outcomes management: establish care goal standards for discharge in CNL-created database, created EBP information sheets on unit-specific disease treatment plans in collaboration with many disciplines for better coordination of care across populations

and collaboration on the unit both within and across disciplines. The survey items reflect these unit-specific organizational and interactional determinants of collaboration needing attention, and included: 'I am satisfied with the daily RN workflow on the unit'; 'I have the support I need to address all aspects of my patient's care needs'; 'I use my patient's plan of care as a resource to track my patient's progress from admit to discharge'; 'there is an effective method of communication with my

patient's MD team on a daily basis'; 'I am kept informed in a way that is meaningful to me all new policies/standards of care'; and 'There is a positive feedback peer review system in place on the unit'.

Physician team acceptance of the CNL role and satisfaction with RN-physician team communication and collaboration was assessed using a one-page questionnaire self-administered 1-year post-CNL implementation. Physician teams consisted of attending physicians,

Table 2Clinical nurse leader (CNL) processes established to impact **interactional** determinants of interdisciplinary collaboration

<i>Interactional determinants</i>	<i>Pre-CNL micro system assessment</i>	<i>CNL competency-based processes to improve interactional environment</i>
Willingness to collaborate	No group cohesion, nurses practice primary nursing model, medical resident turnover is high	Leadership: advocate for a teamwork approach to patient care without disregarding the importance of each discipline Care environment management: create a flexible team coordination routine that includes all disciplines Clinical outcomes management: create cross-knowledge pathways to educate each discipline about other discipline's workflow and goals
Trust	Autonomous, self-confident and experienced practitioners working together with new grads, new staff and new residents regularly	Leadership: communicate successful collaborations on an ongoing basis to foster a sense of confidence across all disciplines regarding collaborative care processes Care environment management: promote teamwork and physically connect practitioners when chances arise to create familiarity across the healthcare team Clinical outcomes management: become an accurate reservoir of holistic information about patient (through daily assessment and interdisciplinary communication) so staff and patient feel confident to reach out to CNL when need information
Communication	Lack of interdisciplinary communication of discipline-specific contributions to practice; 'silo' approach to bedside care amongst healthcare practitioners	Leadership: meaningfully communicate each profession's policies/standards through daily face-to-face interactions with all disciplines Care environment management: facilitate unit-based nursing shared governance council formation for communication of issues in non-threatening environment Clinical outcomes management: collect and share nursing quality outcomes with staff in meaningful ways to promote empowered discussion on causes of error and directions for improvement
Mutual respect	Respect is earned and not assumed; lack of understanding of other disciplines workflow, goals	Leadership: utilize effective communication and conflict resolution skills to facilitate interdisciplinary decision making during daily rounding and ensure all voices are heard Care environment management: coordinate disciplines to work together frequently outside of rounds by knowing the entire team and bringing them together when on the unit. Clinical outcomes management: disseminate positive outcomes of each discipline (presentations, QI projects, new treatments etc.) across the team on an ongoing basis

fellows, residents and nurse practitioners. The questions were developed to gather specific information about the physician team's acceptance of CNL implementation and perceived differences in CNL-unit communication and collaboration compared with other units in the hospital (where there was no CNL role). The physician team survey was administered at the end of the study only, because the physician teams had less physical contact with the CNLs than the nursing and support staff, who worked alongside the CNLs consistently throughout the yearlong study. It was therefore considered prudent to ask for feedback only after sufficient time had elapsed for all physician teams to have an opportunity to work with the CNLs during their rotation schedule. The physician team survey items included: 'I communicate face-to-face with the CNL-unit RNs (more/equal/less) than on other units within the hospital'; 'Since the start of the CNL role, RN/physician communication has increased (yes/no/don't know)'; 'RN/physician team collaboration is (greater/less/the same) on the CNL unit than on other

units'; and 'RN/physician team collaboration since CNL implementation has resulted in better quality patient care (yes/no/don't know)'.

Open-ended responses

Both surveys also contained an open-ended 'suggestions or comments' section, where RNs, support staff and physician teams were encouraged to write down positive or negative feedback regarding the CNL role, as well as recommendations for role improvement. These written responses were collected to ascertain whether the interdisciplinary team found the CNL role a viable intervention for creating and sustaining a collaborative environment. Surveys were administered for a period of 3–4 weeks to allow staff ample opportunity to respond, and to allow for as many physician teams as possible (considering turnover rates) to respond. Physician teams were encouraged to alert their colleagues who may not have been available during survey-response periods to stop by the unit and fill out a survey if desired.

CNL self-evaluation

The surveys were developed to include factors CNLs considered important for successful integration into the practice setting. Responses were collected by the CNLs, one of which was also a study investigator. CNLs also provided a self-evaluation of the role, including descriptions of collaboration with ancillary staff. Descriptions were collected by all the CNLs. To minimize recall or expectation bias, the survey results, open-ended responses and CNL self-evaluations were routinely posted on the unit communication board and discussed with the other CNLs, staff RNs and ancillary staff, to ensure consensus on what was being described. This 'truth in consensus' is considered an adequate method for determining validity of descriptions provided (Cook 2005).

Results

Survey items

The RN and support staff surveys used Likert-type scoring: 1 = strongly disagree to 5 = strongly agree. Scores for each item at each time period, pre- ($n = 16$), 4-months post- ($n = 25$) and 1-year post- ($n = 30$) CNL implementation, were averaged to obtain a composite score for each time period. Scores increased for each item over the yearlong study. For the item 'I am satisfied with the daily RN workflow on the unit', scores increased from a mean of 2.53 (pre-CNL) to 3.53 (1-year post-CNL). For the item 'I am kept informed in a way that is meaningful to me all new policies/standards of care', scores increased from a mean of 2.33 (pre-CNL) to 3.57 (1-year post-CNL). For the item 'I have the support to address all aspects of my patient's care needs', scores increased from a mean of 2.87 to 4.0. 'There is a positive feedback peer review system in place' item scores increased from 2.40 to 3.10. 'There is an effective method of communication with my patient's physician team on a daily basis' item scores increased from 3.00 to 3.37. And finally, for the item 'I use my patient's plan of care as a resource to track progress from admit to discharge', scores increased from 2.53 to 3.40.

The results of the RN-physician team communication and collaboration survey ($n = 20$) were positive. Sixty-seven percent of physician team respondents stated they communicated more with RNs on the CNL unit than with RNs on other hospital units. Seventy-three percent stated RN-physician team communication had increased since CNL implementation. Eighty-two percent felt the CNL role increased interdisciplinary collaboration on

the unit compared with other units within the hospital, where there was no CNL. Finally, 71% responded that this perceived increase in RN-physician team collaboration resulted in better quality patient care.

Open-ended questions

The tone of RN and support staff feedback changed from pre-CNL to 1-year post-CNL implementation. Comments initially focused on task-related suggestions regarding patient care and fixing 'holes', such as break relief, admission/discharge processes and lack of physician communication about care needs. One comment highlighted the need for less criticism on the unit and another suggested creating a plan of care that had pertinent information in it for RNs to use for clinical decision-making.

The 4-month mark showed a change in priorities. Most of the comments addressed CNL workflow practices, and were evenly split between positive and critical feedback. Critical feedback was rather general and expressed frustration with the 'holes' in care needs that still were not 'fixed'. Representative comments included: 'there are still staffing and break relief issues on the floor' and '[the CNL] needs to be on weekends as well'. Positive feedback was more specific and described improved interactional and organizational determinants of interdisciplinary collaboration between staff and the physician team, and included: 'I see a huge improvement in patient care because CNLs provide a consistently available, friendly, caring presence' and 'CNLs have been an asset coordinating care and interacting with the MDs'.

At 1-year follow-up, the majority of comments began with the statement 'I feel' or 'I believe'. Previously, comments were not typically prefaced in this way. This may be related to a new atmosphere of mutual respect and trust on the unit – interactional determinants of interdisciplinary collaboration that the CNL workflow was specifically developed to improve. Comments included: 'patient care is superior because of continuity and consistent MD communication'; 'I feel that the CNL role has shown the MDs that we care and are interested in the patient'; and 'I feel the MDs are more open to including me in the plan of care because they know the nurses are willing to participate in the MD rounds'.

Physician teams were supportive of the CNL role and the efforts of the CNLs to connect them with the RNs and other interdisciplinary staff. One attending physician had this comment: 'This system [CNL-implementation] should be adopted on all units, it is a major improvement in MD-RN communication and

facilitates shared decision making – it also is good role modelling for [medical] trainees so they incorporate regular discussions with RN into their workflow'. Critical feedback mostly highlighted the need to continue with the CNL study objectives: 'we still have a lot of work to do and I look forward to working to improve communication'. The physician team comments reflect their perception that the CNL role helped to improve organizational determinants of interdisciplinary collaboration by creating a new framework (structured CNL role) for interdisciplinary communication, and by developing coordination mechanisms that not only created better links between disciplines, but also provided an example of collaboration for use in the future, where there might not be a structure in place to emphasize the need for collaboration.

CNL self-evaluation

The CNLs collaborated with ancillary staff on numerous quality improvement projects throughout the feasibility study. Information technologists, physical therapists, infection control RNs, wound-ostomy RNs, oncology case managers, and occupational therapists were happy to be included in a collaborative manner and provided a wealth of information the CNLs used to create information sheets and guide practice as needed. Ancillary staff were frequently surprised that the CNLs came to them for consultation: for several it was the first instance they had ever been sought out by clinical staff to assist in quality improvement projects. Organization-wide changes that occurred because of this microsystem-based collaboration included: revision of the electronic patient charting system to more easily reflect current patient status; creation of standardized care plans for patient populations with heart failure and specific cancer treatments; and better coordination between physical therapy, occupational therapy and the nursing staff regarding patient rehabilitation needs.

The CNL's main struggle throughout the study was creating a willingness between RNs, support staff and medical staff to collaborate with the CNLs. Empirical factors necessary for collaboration include group cohesion, trust, confidence in other disciplines regarding their ability to coordinate care, and formal structures for communication between disciplines that facilitate effective collaboration (see Tables 1 and 2). The CNLs felt confident in creating formal structures for collaborative processes, and in their ability to coordinate care. It was equally important though to interact continuously with all team members in an open, collegial manner to foster confidence and trust in the CNL role.

The CNLs continuously role modelled collaborative behaviour to create confidence in their ability to bring patients and staff together to coordinate care, and to build trust they used a variety of strategies to ensure all voices were heard regarding care needs. This hands-on approach was resource intensive, but ultimately led to the role's successful integration into the care delivery microsystem. Interestingly, once the CNLs secured the trust and respect of the administrative, nursing, ancillary and medical staff, there was a synergistic effect in terms of new staff entering the unit: they seemed to take other's trust and respect as a cue to feel secure enough to collaborate and communicate with the CNLs and other team members without reservation. Group cohesion was created, with a sense of interdisciplinary competence in each other, which new employees could immediately become a part of, and take part in, by the end of the yearlong study.

Conclusions

This study provided information about the context of CNL implementation from the perspective of those it directly involved: the interdisciplinary microsystem healthcare team. The use of non-experimental research design, convenience sampling and un-validated process measures limit the generalizability of this study. In spite of these limitations, this study was still able to provide a detailed description of how the CNL role was developed, how it was implemented and how those directly involved felt about and accepted the role. Stakeholder self-reports reflect a number of meaningful changes in interdisciplinary collaboration (see Figure 1). The collaborative environment appeared to be enhanced with implementation of the CNL role, but without statistical analysis and comparison group results, direct conclusions about the role's effectiveness cannot be drawn. As recommended by Arain *et al.* (2010), inferential statistics were not performed in this study, and further research investigating the relationship between the CNL role and improvements in interdisciplinary collaboration is warranted. But it is also important to disseminate these types of purely descriptive findings as they provide valuable information about the context of implementing the new and relatively untested CNL role, which can be helpful to organizations and practitioners wanting to develop and trial the CNL role within their own practice settings.

Next steps include determining if the role can be implemented as developed on other units within the hospital, or whether it will need to be adapted to target microsystem contexts and their specific outcome needs.

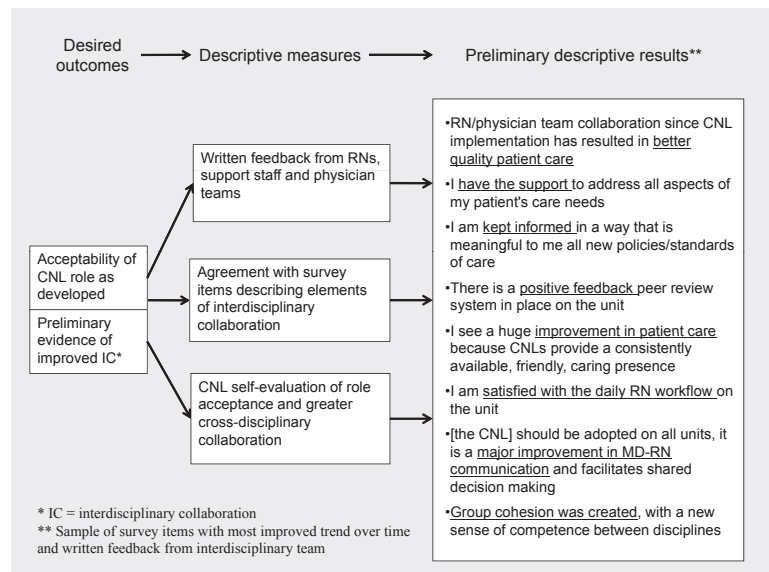


Figure 1
Preliminary CNL implementation outcomes.

In addition, there are currently no reliable and valid instruments to measure interactional and organizational determinants of interdisciplinary collaboration from the perspective of the entire healthcare team (Thannhauser *et al.* 2010). The development and validation of appropriate standardized instruments to measure interdisciplinary collaboration will be necessary to empirically quantify CNL role's impact on microsystem care quality processes and outcomes across care settings.

Implications for nursing management

Developing an evidence-based practice of collaborative care within a fragmented microsystem represents a considerable challenge to healthcare organizations. Effective collaboration involves interplay between teams of interdisciplinary professionals, the organizational environment they practice in and the underlying cultural expectations that presuppose the possibilities (or not) for collaboration. A microsystem may have a team of professionals that meet all the conditions for collaboration to occur, but if there is not an organizational structure or leadership in place to sustain collaboration, interactions may not take place as desired. Or the case may be reversed, where an organization has strong managerial leadership committed to interdisciplinary collaboration, but front-line clinicians may not be familiar or comfortable with the process of collaboration and need continuous clinical role modelling and education at the point of care for it to occur. Any directive to improve collaborative practice within a clinical microsystem must address both organizational and interactional determinants of interdisciplinary collaboration, provided that necessary systemic determinants are already in place.

Currently there are no definitive evidence-based interventions to create and sustain collaborative environments. What is known is that both clinical and organizational leadership is necessary to make any intervention succeed. The CNL role in the present study was designed through collaborative effort between nursing management and clinical leadership, and was based on empirically identified factors necessary for interdisciplinary collaboration to occur. The results provide preliminary evidence that integrating a CNL role into a clinical microsystem may be an effective intervention to facilitate interdisciplinary communication and collaboration. While there is still more work to be done substantiating the role's effectiveness, the CNL nevertheless presents an innovative opportunity for the nursing profession to assume a leadership position in redesigning the healthcare delivery system to improve the safety and quality of patient care.

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The authors have no conflicts of interest to report and no competing financial interests exist.

Ethical approval

All study methods and procedures were reviewed and approved by appropriate institutional review boards before implementation.

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