Continuous Quality Improvement Councils for Nursing

THE SHARED GOVERNANCE MODEL

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Acknowledgements

In This Issue

London Health Sciences Centre: Raising the CQI Bar

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This Special Issue of the Canadian Journal of Nursing Leadership spotlights London Health Sciences Centre (LHSC), in London, Ontario, one of Canada's largest acute care teaching hospitals, which employs over 5,000 health science professionals dedicated to excellence in patient care, teaching and research. LHSC has a commitment to patients and their families to offer compassionate and high-quality care while providing a wide range of services. The work reflected in the papers of this Special Issue represent the mission of the organization, which emphasizes the spirit of inquiry and discovery and a dedication to lifelong learning.

The impetus for this Special Issue was a continuous quality improvement (CQI) exercise that resulted in over 120 innovative CQI and safety initiatives across the organization. A shared governance framework provided the platform for front-line management, point-of-care staff and clinical educators to address issues they felt were critical to patient care.

The paper by Burkoski and Yoon provides an overview that describes the context and depth of the CQI exercise. The additional papers offer a sampling of the many important outcomes of the individual initiatives, which address multidisciplinary concerns across the spectrum of care. The CQI initiative mobilized the entire organization to look at key themes within the quality improvement paradigm. The activities were interesting and diverse, and they represent the multiplicity and complexity of a large healthcare organization. Each topic includes an assessment of a clinical intervention and the creation of best practices.

While these topics may look simple at first glance, they are far from it. They represent significant aspects of the entire healthcare continuum. The topics range from an intervention for the care of the elderly in an acute care setting to the effectiveness of simulation for orientation of new staff.

Two papers focus on the evaluation of clinical interventions that have made valuable contributions to the reduction of infection, a matter of paramount importance given the increase in outbreaks in Ontario hospitals since 2004. Both the waste removal (Morrow et al.) and the oral care (Letsos et al.) initiatives detail effective strategies for reducing overall infection rates in targeted populations.

Two papers cover the spectrum from the very young to the very old. The focus on early colostrum delivery (Pletsch et al.) is highly topical. This innovation is relatively new and will be of great interest to readers who work with premature and critically ill newborns. The problems of dementia and confusion in acute care (Feyerer et al.) are more common than we would like to think. Often those with dementia are taken out of their familiar environments and chemically restrained by unnecessary medications. The elderly can quickly spiral into secondary complications. This multidisciplinary intervention was unique; it took time out from a very active medical ward and introduced an idea not typically seen in acute care.

The paper on pain relief (Davison et al.) addresses an age-old problem that confronts point-of-care staff on a daily basis. The issue of pain is an ongoing and perplexing problem; thus, any evidence-based recommendation that improves patient comfort is welcome. In this case, the study led to the cessation of a practice that was not found to be effective. As a result, patient risk of pain and possible complications has been reduced.

The use of simulation in the context of staff orientation (Lamers et al.) presented a more interesting and interactive experience for nurses new to a clinical setting compared to a traditional orientation, and proved to be more effective as well. The post-orientation survey demonstrated a high satisfaction rate.

The final paper focuses on a staffing structure commonly called "the Nursing Resource Team" (Vaughan and Slinger), detailing the factors that are essential for maintaining a healthy work environment.

Together, these papers represent the impact of involving the health workforce in addressing salient issues. They add to the information that improves care, and they facilitate in-depth examination of different phenomena that result in both practice changes and the addition of new approaches. The process was staff-led, and the results have led to system redesign. As Burkoski and Yoon have reported, the overall initiative yielded evidence-based practice "firsts," and an over 80% decrease in incidence reports was observed across several clinical units.

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Continuous Quality Improvement: A Shared Governance Model That Maximizes Agent-Specific Knowledge

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Abstract

Motivate, Innovate, Celebrate: an innovative shared governance model through the establishment of continuous quality improvement (CQI) councils was implemented across the London Health Sciences Centre (LHSC). The model leverages agent-specific knowledge at the point of care and provides a structure aimed at building human resources capacity and sustaining enhancements to quality and safe care delivery. Interprofessional and cross-functional teams work through the CQI councils to identify, formulate, execute and evaluate CQI initiatives. In addition to a structure that facilitates collaboration, accountability and ownership, a corporate CQI Steering Committee provides the forum for scaling up and spreading this model. Point-of-care staff, clinical management and educators were trained in LEAN methodology and patient experience-based design to ensure sufficient knowledge and resources to support the implementation.

To date, 61 interprofessional and cross-functional councils have been established. There are 120 quality improvement and patient safety initiatives at various stages of implementation and evaluation. These improvements range from evidence-based practice integration "firsts" to staff-led process and system redesign. The standardization of processes and procedures across CQI council initiatives has spurred development of a variety of best practices and clinical efficiencies. Projects have been replicated up to 14 times across clinical units, and learnings from initial projects have supported scaling-up opportunities. In addition, two evidence-based practice firsts

– including the development of an acute oral care assessment tool and guidelines for implementation of oral care clinical neuroscience patients, as well as the utilization of colostrum for oral immune therapy for neonates and infants – have been introduced. Integral to sustained transformation is the clear articulation of expectations regarding system redesign through the eyes of the patient. Professional Scholarly Practice leadership, a robust communication strategy including a real-time, web-based registry program, GEMBA TV, weekly CQI stories and monthly continuous quality improvement reviews have supported the success of the model. The establishment of CQI councils at the unit level including supportive structures and processes helped to embed continuous quality improvement into our organizational culture.

Introduction

Widely observed and researched, radical changes in the work environment within the healthcare sector often have significant consequences for health professionals in fulfilling their professional practice mandates (Bamford-Wade and Moss 2010; Baumann et al. 2001). In response, organizations have developed a variety of professional practice models to guide individual clinical practice while empowering the health workforce and improving the quality of patient care (Bamford-Wade and Moss 2010; Baumann et al. 2001). Shared governance and continuous quality improvement (CQI) are concepts that have been re-introduced into the healthcare sector over recent decades through several iterations for the purpose of empowering point-of-care staff. Shared governance is an organizational commitment intended to empower staff through decision-making control over individual clinical practice, based on the principles of partnership, equity, accountability and ownership (Porter O'Grady 1992). The Registered Nurses' Association of Ontario notes that engagement with point-of-care staff is a requirement to achieve successful implementation of shared governance and foster mutual responsibility to improve nurses' work environments (RNAO 2008).

CQI is an approach to quality management that builds upon traditional quality assurance methodologies through emphasis on organizations and systems, with particular attention to process improvements rather than individuals. In their research, economists Wruck and Jensen (1994) defined quality improvement as a scientific, non-hierarchical application of technologies that increase an organization's efficiency and quality. Jensen and Meckling's (2009) work in economics and market analysis suggested that the critical factor for achieving quality in organizations is based on the cost of transferring information between individuals at all levels for everyday decision-making.

Although a positive relationship has been established between shared governance and CQI, the intervening concept, which is referred to as agent-specific knowledge, has not been explicitly identified (Bamford-Wade and Moss 2010; Brody et al. 2012; Anderson 2011). The existence of agent-specific knowledge is inferred as the value generated through the transfer of the locus of decision-making control to point-of-care staff (Jensen and Meckling 2009). A greater understanding of the structures and processes necessary to leverage agent-specific knowledge can enhance the opportunity for healthcare organizations to achieve continuous quality improvement goals.

Background

In 2011, London Health Sciences Centre (LHSC) renewed its vision for professional scholarly practice and embarked on a journey to establish structures and processes for shared governance as a means to achieve continuous quality improvement while maximizing agent-specific knowledge. The vision emphasized the importance of each point-of-care staff in shaping the direct delivery of care to patients, as well as the direct impact they have on their work environment through the use of general and specific knowledge to achieve continuous quality improvements.

Within the quality improvement paradigm, the organization of procedures and processes has the potential to increase efficiency and quality of care. However, these elements are highly dependent on the utilization of data and scientific method in decision-making. Quality improvement and shared governance can be linked by mobilizing specific knowledge. Jensen and Meckling (2009) defined specific knowledge as knowledge that is "costly to transfer." In the healthcare setting, specific knowledge refers to unique insights and knowledge that agents of the organization possess, which can be difficult to extract and transfer to other team or organizational members.

Generous funding was provided in September 2011 through the Quality Nursing Environments – Quality Patient Care Fund and Late Career Nurse Initiative of the Ontario Ministry of Health and Long-Term Care (MOHLTC) to implement the CQI initiative at LHSC. The STAR model was adapted and used to frame large-scale change management for LHSC's multi-site organization, with consideration for goals and tasks, structure, information and decision support, people and human resources management, and acknowledgement to create a culture that values leveraging and mobilizing agent-specific knowledge (Golden and Martin 2004; Golden 2006).

Initiative Overview

LHSC undertook to implement throughout the organization a shared govern-ance structure that embraced CQI. Planning for the initiative began in early 2011 with the launch of the inaugural Professional Scholarly Practice confer-ence, Professional Practice at Its Best. This conference engaged front-line management, point-of-care staff and clinical educators to discuss factors affecting their work environment and to visualize the ideal setting in which to practise. The plan to integrate CQI councils at the unit level was announced, and expectations of staff and their role in this new model were set. Through standardized principles and terms of reference applied to all CQI councils, the councils were mandated to incorporate interprofessional and cross-functional membership to reflect the complexity of direct and indirect services that must be seamlessly integrated to achieve high-quality results and support short- and long-term planning, implementation and evaluation of CQI projects.

To enable the work of the CQI councils, over 175 point-of-care staff, clinical management and educators were provided training in quality improvement methodologies such as LEAN, root-cause analysis, 5S organization and Plan-Do-Check-Act. Furthermore, patient experience-based design was incorpo-rated into the educational components of the program to maximize the rede-sign of systems and processes using "patient-specific knowledge" along with agent-specific knowledge. The training provided the knowledge and skill that empowered staff to diagnose poor quality, define problems, identify root causes, conduct detailed analyses, and lead, implement and evaluate quality improve-ment initiatives.

CQI councils reported progress and accomplishments to a corporate CQI Steering Committee, which was the central structure that facilitated collabo-ration, accountability and ownership and provided the forum for the scaling up and spread of initiatives. Staff were engaged through a robust communi-cation strategy including a real-time, web-based registry program, GEMBA TV (recorded visits to CQI councils), weekly CQI stories available to all staff through the LHSC intranet and monthly continuous quality improvement reviews – all of which have supported the success of the model through ongoing acknowledgement and dissemination of information.

In November 2012, approximately 12 months following the implementation of the CQI councils, Professional Practice at Its Best was held, providing partici-pants the opportunity to present CQI initiatives in scientific abstract, poster and presentation format. Through collaboration with Professional Scholarly Practice

and the Health Sciences Library, point-of-care staff submitted and presented 25 CQI projects. Participants revealed key enablers to achieving success through CQI councils and sustaining the cultural transformation including: administrative support and willingness to leverage agent-specific knowledge; resource and capacity building to implement quality improvement initiatives; dissemination of information and opportunity to spread leading practices through the CQI Steering Committee; and consistent acknowledgement of accomplishments.

Outcomes

To date, 61 interprofessional and cross-functional councils have been established at LHSC, registering 120 quality improvement and patient safety initiatives in various stages of implementation and evaluation. These improvements range from evidence-based practice integration firsts to staff-led process and system redesign. As projects were registered with the real-time CQI Registry (Figure 1), LHSC has sustained an average of five new initiatives implemented per month over the last 18 months.

As registrations increased, a distinct pattern began to appear in which CQI councils began to undertake rapid-cycle improvements based on the observed work of other councils. This led to mapping the development of spread and scale-up of CQI initiatives across the organization (Figure 2). Importantly, some initiatives have been replicated up to 14 times, increasing standardization, best practices and clinical efficiencies in multiple clinical units.

In addition, arising from direct observations and specific knowledge at the point of care, two evidence-based practice firsts have been implemented at LHSC, including the development of an acute oral care assessment tool and guideline for implementation of oral care for clinical neurological patients (Letsos et al. 2013) and utilization of colostrum for oral immune therapy for neonates and infants (Pletsch et al. 2013). Several CQI councils reported findings from the evaluation of quality and safety improvement initiatives that demonstrated success. For example, the implementation of verbal bedside reporting resulted in an 80% decrease in critical incident reports across several clinical units. Similarly, units implementing whiteboard communication systems experienced a 45% increase in accuracy for daily predictive discharge. Feedback was regularly solicited from staff regarding the implementation of the shared governance model. Table 1 identifies the key themes that emerged from staff feedback regarding the CQI council model.

Figure 1.

Registered CQI projects through the web-based portal

Figure 1. Bar chart — Number of Registered Projects (y-axis, 0 to 140) by month (x-axis): Aug-11, Sept-11, Oct-11, Nov-11, Dec-11, Jan-12, Feb-12, Mar-12, Apr-12, May-12, June-12, July-12, Aug-12, Sept-12, Oct-12, Nov-12, Dec-12, Jan-13.

Figure 2.

Spread and scale-up graph of CQI initiatives

Figure 2. Matrix of CQI initiatives (rows) by Units (columns).

Rows (CQI Initiative):
- Patient Engagement
- Discharge Progress
- Whiteboard Communication
- Hand Hygiene*
- Bedside Verbal Report*
- Resource Development
- Document Improvement
- Standardized Procedure
- Space Efficiency/Design
- Standardized Process

Columns (Units):
C5 (Plastics, ENT), B9, 4IP, Acute Medicine, UHICU, 8IP, OR, UH Dialysis, 6 SAMU, MTU/Resp, Victoria Medical Centre, D5 (Sug), Pre-Admit, 7IP CNS, 8IP OP, 9IP, Medical Ambulatory, CCTC, Oncology, B4 (Gyne/OBCU), Adult Emerg, B6-200, VH Medicine, Surgical OP, Mental Health, MOTU, NICU, Women OP, Paeds Emerg, 6IP, PMDU, Occ Health

Table 1. Staff feedback regarding the transition towards staff-driven change

Traditional Style Management	LHSC Shared Governance Model
Decisions are position-based	Decisions are knowledge-based
Limited staff expectation and input	High staff expectation and input
Silo mentality ➡ blame mentality	Systems appreciation ➡ integrated partnerships
Hierarchical communication	Open communication
Implicit value of point-of-care staff	Explicit value of point-of-care staff
Extrinsically driven quality	Intrinsically driven quality
Change driven top-down	Change driven bottom-up
Limited knowledge transfer ➡ isolated pockets of innovations and excellence	Significant increase in knowledge transfer ➡ spread of innovations, excellence and standardization
Failures were failures, and to be avoided	Acknowledging "failures" allowed staff to feel disappointment, but also the opportunity to approach problem-solving from a different perspective

Discussion

Undertaking an organization-wide change to channel decisions driven by agent-specific knowledge required a significant upfront investment and served to solidify the foundation of what defined professional practice at LHSC – every professional is responsible for delivering the highest-quality care to patients and improving the quality of care delivered (Figure 3).

Figure 3. Pre- and post-implementation of agent-driven change
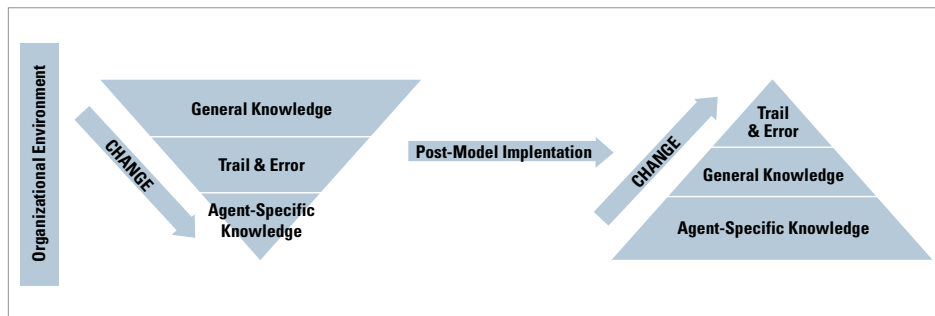
The initial investment to provide the educational and analytical support for all staff is critical, as is the explicit linkages among professional practice, ownership and accountability for delivering and improving the quality and safety of care delivery (Ballard 2010; Golden and Martin 2004; Golden 2006). The primary responsibility for nursing leadership is to create the supportive culture that allows point-of-care staff to experience and lead innovations, which Golden (2006) stated, "simultaneously puts patients first, and makes staff feel accountable for both fiscal and clinical outcomes."

The Institute for Healthcare Improvement concept of the Triple Aim is based on improvements in patient experience, population health and per capita costs (IHI 2012). The Fourth Aim, which to date has received little attention, is the capacity of staff to engage in continuous quality improvement. Building staff capacity and the structures and processes required to foster and sustain a culture of safety, high quality and professional practice maximizes the potential for the first three aims to be achieved.

Implementation of a shared governance model through CQI councils at LHSC elucidated the pivotal role that nurses play in improving organizational quality and safety outcomes, as well as direct patient outcomes. Building staff capacity to lead quality improvement initiatives stimulated the spirit of clinical scientific inquiry and encouraged creativity and innovation. Establishment of CQI councils at the unit level and the integration of supportive structures and processes helped to embed continuous quality improvement in the organization's culture. The value of agent-specific knowledge has been demonstrated in several research and evaluative studies across LHSC that revealed positive patient and organizational outcomes in response to CQI initiatives. These evaluative studies and research findings will be articulated in the papers that follow in this Special Issue of the journal.

Conclusion

As the climate of change and requirement for adaptability continue to increase in healthcare today, organizations will need to recognize the intrinsic value that each professional brings to the organization. Implementation of a shared governance model to facilitate continuous quality improvement by leveraging agent-specific knowledge demonstrated positive outcomes. A greater understanding of the structures and processes necessary to leverage such knowledge can enhance the opportunity for healthcare organizations to achieve continuous quality improvement goals.

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Reducing Waste in the Critical Care Setting

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Abstract

Background: The ICU at London Health Sciences Centre – University Hospital (LHSC-UH) is a 40-bed critical care unit that contains two separate supply rooms that carry all the essential materials necessary for patient care. However, considering the patient acuity in critical care, it is vital that this equipment is made more accessible for practitioners at the bedside. Therefore, nurse servers or bedside supply cabinets are present in each of the patient rooms. While these servers provide timely access to the supplies essential for nursing care, they are also a huge source of waste. When patients who are identified as having antibiotic-resistant organisms (AROs) are discharged, numerous unused items are discarded for infection control purposes.

Aims and objectives: Project objectives were to curtail waste by minimizing stocked supplies at the bedside, exploring alternative stocking options and increasing awareness of this issue with practitioners.

Methods: An interprofessional team was formed consisting of registered nurses, support service workers, environmental service workers, infection control practitioners and critical care leadership. A cost analysis of discarded supplies was undertaken, and results were communicated to all staff. Infection control practitioners developed guidelines specific to use of the nurse servers and linen supply areas. The stocking process and contents of the servers were reviewed; surplus was removed and relocated to a close central area outside patient rooms. Following agreement on new server contents, lists and photos were created and posted in each supply room. New stocking guidelines were phased in gradually and were adapted according to user feedback.

Results: Over a two-week period, a pilot cost analysis identified that supplies valued at $2,327.25 had been discarded from five bedsides. Future long-term cost savings will enable management to redirect such resources and therefore improve other essential care services in the ICU.

Conclusion: Increasing awareness of wasteful stocking practices facilitated the engagement of this CQI project. New stocking practices have greatly reduced waste and increased service efficiencies while maintaining the integrity of optimal patient care.

Introduction

In an ongoing effort to provide best patient care, nurses are challenged with both maintaining an environment that is safe for all patients, while at the same time being responsible stewards of the public healthcare system. The obstacles that nurses face in sustaining this delicate balance include mitigating expenses, minimizing waste and adhering to infection control guidelines. In particular, the use of nurse servers in patient rooms provides easy access to supplies that are commonly required to facilitate patient monitoring and provision of high-quality care. Nurse servers in the ICU are bedside wheeled cabinets that are regularly stocked with important medical and personal care supplies such as gauze, needles, syringes, blood tubes, mouth swabs, IV caps, occlusive dressings and linens. They provide timely and convenient access to vital resources.

Antibiotic-resistant organisms (AROs) are bacteria that are resistant to traditional antibiotic therapy. In fact, one study reports that as much as 10% to 20% of bacteria cultured in hospitals are resistant to commonly used antibiotics

(CARA 2006). The increased incidence of AROs in patient care settings creates additional expenses, requires complicated treatment and lengthens hospital stays (NIH 2013). Ever present in the healthcare setting, especially in susceptible patient populations, these organisms require stringent infection control protocols. One such measure involves discarding all disposable supplies from an ARO patient room upon the patient's transfer or discharge. In the ICU, patients are at increased risk of acquiring and transmitting these infections owing to critical illness and immunosuppression. In this regard, nurse servers present a dichotomous predicament: they provide convenient access to supplies but also the potential contamination and wastage of stocked products. Owing to the unpredictable nature of patient care in the ICU, and the fact that patient outcomes are directly correlated with timely intervention, it is essential that staff have easy access to principal medical supplies. Unfortunately, clean supply rooms are not always conveniently located, and patient care is delayed as a result. Alternatively, if unused items in bedside nurse servers become ARO contaminated, this poses an additional health and safety risk to patients.

In 2012, the combined Medical–Surgical ICU (MSICU) and Cardiac Surgery Recovery Unit (CSRU) at LHSC-UH initiated a continuous quality improvement (CQI) project aimed at reducing waste generated by patients with AROs who are discharged or transferred from ICU. The ICU waste reduction initiative aligns well with LHSC's corporate call to action regarding patient safety and infection control. Specifically, LHSC's "Call to Action: Infection Safety" identifies the following desirable outcomes: (a) reduced rates of infection and transmission, (b) organizational culture change regarding ARO prevention and management, (c) developing sustainable strategies and (d) fostering a network of highly committed stakeholders through multidisciplinary engagement (LHSC 2012).

The CSRU and MSICU have a combined 39-bed capacity and a shared staff of 230 nurses; they treat approximately 5,120 patients annually. Core interdisciplinary CQI group members included nursing coordinators, registered nurses (RNs), support service workers (SSWs), environmental service workers (ESWs) and an infection control consultant. Charged with the task of investigating the current extent of cost and wastage associated with oversupply of the nurse servers, this group generated stocking and waste process recommendations. These recommendations included strategies aimed at reducing waste and cost expenditures, improving infection control measures and highlighting environmental issues, while still maintaining optimal patient care and safety. Moreover, the CQI team was encouraged to forge positive solutions that not only enacted

change within their own unit but that also provided a catalyst for practice change across the hospital.

Background

A literature review was undertaken looking at the major concept of waste reduction and its relationship to expected outcomes, including environmental protection, cost savings and improved infection control. Reducing the amount of discarded unused medical supplies in the ICU is believed to reduce organizational costs, help protect the environment and reduce infectious transmission of AROs. Both hospitals and healthcare institutions produce a significant amount of waste. In fact, in 2007 American healthcare facilities were estimated to produce 13,200 pounds of waste every single day (Lauer 2009). This waste is a large part of their environmental footprint (Daschner and Dettenkofer 1997; Lauer 2009). In an effort to reduce expenditures and become more environmentally friendly, institutions have sought out cost-saving solutions for reducing waste in their facilities. A review of current literature highlighted a variety of initiatives that have been developed to reduce waste, including systems reviews, practice changes and environmental campaigns. For example, the diversion of non-hazardous waste from medical waste is one initiative that has received much attention. A 2011 report from the Archives of Surgery indicated that up to 90% of waste entering the hazardous stream did not belong there (Kwakye et al. 2011). Furthermore, the researchers estimated that a significant savings could be achieved if waste was entered into the appropriate stream, considering that 86% of waste disposal costs derive from hazardous medical waste materials (Kwakye et al. 2011).

There is a growing body of literature on waste analysis and waste reduction in the context of operating rooms (ORs). Several sources report possible changes that should be considered to reduce waste in these areas, such as in the orthopaedic surgery division (Lee and Mears 2012). While only one study highlighted waste reduction in critical care, the initiative Greening Critical Care did not specifically address the removal of unused supplies from ARO environments. The authors identified hospital waste as a major contributor to landfills (Chapman and Chapman 2011).

Nurses and, indeed, all healthcare professionals should be environmentally aware, recognizing that needless hospital waste, including the incineration of biohazardous materials, has a devastating effect on our environment. Environmental pollution is a significant byproduct of medical waste incineration (Daschner and Dettenkofer 1997). Various hospitals have developed

environmental awareness campaigns that encourage staff to use medical and personal care supplies judiciously, and they have provided clear instructions regarding the disposal of these materials (Swartz 1012). Other hospitals have adopted the "go green" motto of collective environmental responsibility by encouraging staff to follow the three Rs (reduce, reuse and recycle). However, the literature does not provide any information regarding specific wastage of potentially ARO-contaminated material (e.g., unused medical and personal bedside supplies).

In addition to the environmental benefits, there are significant cost savings related to the process of waste reduction. Discussion in the literature regarding the costs associated with AROs has traditionally focused on laboratory, screening, treatment, hospitalization and staffing outcomes (Kim et al. 2001). However, in Canadian hospitals, the economic impact of MRSA alone is estimated to be $33–42 million (Health Canada 2002). To date, waste management plans have proven highly effective, with some organizations reporting as much as a 58% reduction in medical waste and nearly 50% in cost savings (Almuneef and Memish 2003).

Patients with AROs are placed in isolation to prevent the spread of disease. Everything in the ARO patient environment needs to be properly cleaned or disposed of once the patient is deceased or discharged from the room in order to prevent cross-contamination of other patients and staff. While the literature demonstrates a debate between using disposable versus reusable supplies with ARO-positive patients, what remains constant is the practice of ensuring that any item that has been in contact with the patient "should not come into either direct or indirect contact with other patients" (Bagshawe et al. 1978: 810). It is clear that waste costs have risen in recent years as a direct result of implementing tighter infection control measures that are intended to protect patients from ARO infections. Conversely, there is no evidence that waste reduction adversely affects infection rates, especially where practice changes are carefully executed to protect patients, as was the case in our ICU waste reduction initiative.

Design and Implementation

Practice change is highly dependent on staff engagement (Ferenc 2010). This project was dedicated to promoting involvement at every level. It started with the ICU leadership team, which recruited the original interprofessional Waste Reduction Working Group that began this project. The working group included registered nurses, infection control practitioners, SSWs, ESWs, a quality and patient safety expert, an inventory control clerk and leaders from both criti-

cal care and support services. From the onset leadership supported the group's ideas, provided necessary resources and encouraged their efforts towards environmental stewardship, improved infection control and cost reduction.
After an initial meeting, the group met biweekly to brainstorm, plan and evaluate the objectives. Meetings were held in the traditional setting of a conference room, but also consisted of walking through ICU patient care areas. Informal walkabouts facilitated visualization of problem areas and provided an open venue for innovative solutions. Interest from front-line staff grew as they were asked to contribute their thoughts and ideas as well as take part in piloting several waste reduction strategies.

The group reviewed infection control guidelines for the safe handling of supplies after discharge of patients with AROs. These guidelines were offered in order to minimize ARO transmission and to reduce unnecessary wastage. With new infection control guidelines in place, a collective decision was made to perform a cost analysis based on the collection of discarded supplies from five bedsides over a two-week period. A total of $2,327 worth of discarded unused items were collected and inventoried during this time. Furthermore, based on size and equal patient acuity, it was determined that both MSICU and CSRU could generate similar savings. In light of the potential cost savings, it became clear that devising a long-term strategy for waste reduction was required to achieve and sustain meaningful change.

Information was provided to staff via email, including photographs, posters, a hospital newsletter and a trolley with the wasted supplies, which were displayed for staff to view for themselves the current state of wastage. It is believed that these efforts facilitated staff reflection and helped them embrace the need for practice change. According to Almuneef and Memish (2003), allowing staff to identify their own needs and then actively engaging them in finding the solutions enhances learning and the adoption of a new practice.

While waste and cost reduction were at the forefront of the project, so was practitioner efficiency. To enhance staff buy-in, a storage area close to the patient room was needed to house the removed supplies. Therefore, supply "boats" were created to contain displaced supplies in common areas. These boats contained commonly used personal care supplies such as mouth swabs.

Once the stocking process itself was agreed upon, a discussion regarding implementation was started. The team contemplated whether the changes should be rolled out gradually and piloted in a smaller area, or whether a department-wide

approach was a better option. A gradual transition, starting with two bedsides, was decided upon. The implementation process was slow; however, it proved more effective because it allowed for staff reflection and feedback, which further engaged them in the project. Staff were all offered educational inservices and were sent emails outlining the changes; they viewed posters and participated in hands-on training, all methods designed to improve project success (Almuneef and Memish 2003). Solicitation of feedback was active throughout the trial and was used to evaluate the changes prior to unit-wide rollout.

Objectives

The ICU waste reduction project sought to curtail waste through the following initiatives: (a) minimizing supplies stocked on nurse servers, (b) exploring alternative stocking options and developing solutions, (c) considering environmental implications and (d) increasing direct care providers' awareness of cost, waste and infection control issues.

Positive Outcomes

Now that new stocking guidelines for servers have been fully implemented, nurses have assumed responsibility for ensuring that they have planned ahead and are anticipating supply needs prior to entering patient rooms. New stocking practices have led directly to significant cost savings, allowing funds to be redirected to other patient care services. Additionally, fewer unopened supplies end up in local landfill, a positive contribution to environmental protection.

As a result of the collaboration required to enact this initiative, we have experienced improved teamwork between nurses and SSWs. Specifically, nurses will now alert the SSWs to stock the carts according to patient condition. For example, if the patient is slated for discharge in the next 24–48 hours, the nurse advises the SSW that general restocking may not be required and provides a short list of essential items needed. This process further reduces overstocking and eventual wastage. Consequently, the enhanced communication between team members has fostered an appreciation and understanding of each other's role in patient care.

Overall ARO infection rates in the unit have declined. Although we need to examine the correlation between waste reduction and ARO infection rates in the ICU, it is anticipated that the waste reduction initiative has contributed to its decline. The decrease in ARO transmission may be related to (a) a reduction of contaminated supplies, (b) fewer trips into ARO-contaminated rooms to restock and (c) decreasing the amount of contaminated waste leaving the room.

Challenges and Recommendations

Although there were several successes, some challenges arose. Primary challenges included initial staff resistance, finding immediate solutions for relocated supplies and staff education. Encouraging staff to accept this practice change entailed a great deal of discussion and dialogue. It is recognized that critical care patients change rapidly, and while some situations can be anticipated, others cannot. Nurses felt the reduced availability of supplies on nurse servers created a dangerous patient care environment. They voiced the concern that keeping supplies outside ARO-contaminated rooms required additional donning and doffing of personal protective equipment. Also, they felt that time spent collecting supplies ultimately delayed treatment and therefore jeopardized patient safety. Ongoing staff education was necessary to clarify the rationale for reduced supplies and to discuss strategies that would mitigate any negative effects on patient care. Such dialogue was helpful in overcoming these challenges.

Finding immediate storage for the supplies removed from nurse servers was the second challenge. Because of unit design and patient acuity, central supply areas are challenging for staff to access readily. This situation prompted a solution that allowed displaced supplies to remain readily accessible and close to the patient. As a result, small additional storage boats were created and positioned outside patient rooms.

The final challenge was to ensure ongoing education and communication with staff in order to support and sustain the practice changes. A multifaceted educational plan was implemented; written communications included visual aids such as photos, supply template lists and hands-on practice. In addition, breaking through existing work culture was a difficult hurdle to overcome. Ongoing support was required to shift staff's attitudes and practices. CQI team members championed this initiative every day in their own practice, encouraging and supporting colleagues to embrace the changes through highlighting the benefits to both staff and patients. They also provided one-on-one communication, email reminders and other forms of correspondence that met individual staff's learning needs.

Recommendations for practitioners undertaking similar future initiatives:

1. Include front-line staff throughout the process.
2. Be expert communicators through a variety of media (email, posters, face-to-face conversations).
3. Consider complete implementation on rollout rather than staggered implementation.

Conclusion

Staff members are effectively adjusting to the practice changes resulting from this initiative. The objective of reducing waste from ARO-positive rooms has been achieved, and with that, cost savings have been realized. We know there have been savings, although no credible data exists to support a specific number. Moreover, the reduction in waste helps to promote an environmental awareness that is more consistent with Canadian values and helps alleviate some of the increasing demand on our waste management systems. Additionally, infection control practices have remained consistent, and there is significantly less ARO-contaminated waste leaving patient care areas.

In the past, staff voiced that there were only limited opportunities for them to have meaningful impact on their work environment. This CQI project provided a real opportunity for staff members to become engaged, drive the project forward and achieve a positive impact at both the micro and macro levels. Individual empowerment enabled staff to take charge of their own practice while feeling they were contributing to greater efforts towards infection control and waste management. Outcomes affected all interprofessional practitioners including leadership, nursing staff and allied healthcare providers; adding a sense of pride and accomplishment that was palpable on the front line.

In the words of Archbishop Desmond Tutu: "Do your little bit of good where you are; it's those little bits of good put together that overwhelm the world" (Sustainable Baby Steps 2013).

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More Than Just a Simple Swish and Spit: Implementation of Oral Care Best Practice in Clinical Neurosciences

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Abstract

Suboptimal oral care is well documented in the literature and is linked to increased noso-comial pneumonia rates and prolonged hospitalization, negatively affecting patients' quality of life (Terezakis et al. 2011). A standardized approach to oral care can change these adverse outcomes. This project used best practice guidelines and evidence in the literature to guide the development of oral care best practice within an acute care inpatient unit. Based on the work of the interprofessional Clinical Neurological Sciences (CNS) Continuous Quality Improvement (CQI) Council at London Health Sciences Centre – University Hospital (LHSC-UH), an oral care policy and bedside assessment tool were implemented in line with Stroke Best Practice Recommendations (Heart and Stroke Foundation of Canada 2010). A validated, reliable and feasible oral health assessment tool (OHAT) was selected for implementation, and is now completed on every patient within 24 hours of admission to the CNS inpatient unit. Favourable outcomes to date include improved accessibility of oral health supplies, including regular and suction toothbrushes, toothpaste and bite blocks. Post-implementation audits indicate increased frequency and quality of oral care. This review provides a synopsis of how oral care best practice was implemented in an acute care neurology/neurosurgery setting.

Introduction

Oral care is defined as the care and cleaning of the mouth (teeth, tongue, palate, cheeks and lips), using appropriate products and equipment to promote oral hygiene and maintain patients' health and quality of life (Canadian Dental Association 2013). Traditionally, oral care has focused on patient comfort, for example, dipping a swab into mouthwash to freshen the patient's oral cavity. Oral care procedures were not necessarily evidence-based but rather were passed along from one nurse or provider to the next because that is "the way it has always been done." Formal education programs devote little, if any, time to oral health theory and practice, and this is reflected in the care provided in acute care settings. Policy development, implementation of a valid, reliable and feasible oral health assessment tool and standardized education to all interprofessional groups are all necessary for ensuring evidence-based best practice in oral care.

Background

Oral care is a basic component of daily patient care within the hospital setting. However, anecdotal reports from staff on our neurology and neurosurgery units indicated that oral care provision varied from patient to patient. Stroke patients make up a large proportion of CNS inpatients, and depending on location and severity of cerebral ischaemia, a consequence of stroke can be facial, lingual or pharyngeal weakness, or some combination of these, often making oral care provision even more of a challenge. Concern over laryngeal aspiration is greater in this population, particularly in those individuals with difficulties in oral and pharyngeal secretion management post-stroke (Gordon et al. 1987).

The literature reveals that most bacterial nosocomial pneumonias occur by aspiration of bacteria colonizing the oropharynx (Terezakis et al. 2011). That is, the biggest risk for aspiration pneumonia comes from the bacteria growing in patients' mouths. Therefore, proper cleansing of the oral cavity substantially reduces the risk for aspiration pneumonia. The Canadian Best Practice Recommendations for Stroke Care 2010 recommends the following regarding oral care:

> 4.2.6 Oral care
> i. Upon or soon after admission, all stroke patients should have an oral/dental assessment, including screening for signs of dental disease, level of oral care, and appliances [Evidence Level C]. …

iii. An appropriate oral care protocol should be used for every patient with stroke, including those who use dentures [Evidence Level C]. The oral care protocol should be consistent with the Canadian Dental Association recommendations [Evidence Level B], and should address areas such as frequency of oral care (twice per day or more); types of oral care products (toothpaste, floss, and mouth-wash); and management for patients with dysphagia. (Heart and Stroke Foundation of Canada 2010: 90)

Despite an extensive search, an oral care hospital-based guideline or policy could not be found at LHSC. As such, it was decided that the group would create a standardized oral care approach focusing on patients who had suffered a stroke. In the end, however, the entire neurology and neurosurgery patient population was included in the implementation of this oral care best practice initiative.

Design and Implementation

In collaboration with the CNS CQI Council, an interprofessional task team was formed, with representation from Nursing, Occupational Therapy (OT), Physio-Therapy (PT), Speech-Language Pathology (S-LP) and the Southwestern Ontario (SWO) Stroke Network.

There were five key components of the oral care project.

1. Acquisition of baseline data

Pre-implementation, medical chart and bedside audits were completed. Examples of information collected included presence of dysphagia, functional and communication impairments, and oral care products/tools at the bedside. Auditors examined the oral cavities of patients following routine oral care. Medical chart and nursing Kardex documentation was reviewed for content such as the frequency of oral care and other relevant details. In order to evaluate oral care knowledge and practice, an online survey comprising 22 questions was distributed to all CNS interprofessional staff (response rate: n=46).

2. Identification and selection of a validated oral care assessment tool

After a vigorous literature search, we selected the Oral Health Assessment Tool (OHAT) developed by Chalmers and colleagues (2005). From inception, the OHAT was intended for long-term care use; however, based on its suitability for cognitively impaired patients (RNAO 2008: 67), it was selected for the CNS population. Other selection criteria included minimal time to score with a valid and reliable outcome. It was modified for acute care use with permission from

the original developers (Chalmers et al. 2005). A guideline was developed by our group explaining how to score the OHAT, which assisted in determining the preferred oral care method based on the patient's swallowing status and dependency for oral care completion; this information is included on the back portion of the tool for easy reference. The modified OHAT (see Appendix A at: http://www.longwoods.com/content/23321) is now located in the patient's bedside graphic chart, and any relevant findings identified during the oral health assessment are recorded in the patient's medical chart.

3. Development of a CNS oral care policy

Interprofessional collaboration and discussion helped create the policy. The group met regularly over the course of a two-year period. Consultation with pertinent regulatory bodies occurred during times of doubt or ambiguity regarding scope of practice. Prior to any significant decision-making, each inter-professional champion within the task team would in turn relay information to the relevant professional group at LHSC-UH in order to ensure accuracy of perspectives and inclusion in the process. Professional Practice at LHSC was consulted. As well, the CNS management team was kept abreast of the task team's objectives and overall initiative throughout this process.

4. Education for the interprofessional team

Education sessions for the CNS interprofessional team with hands-on learning opportunities were completed over a three-week period. The education sessions were completed by the CNS clinical educator and the regional education coordinator of the SWO Stroke Network, with input from the S-LPs. Every nurse and allied health team member was required to participate in a brief 20-minute education session. Opportunities for hands-on training were built into the education session for practice with the recommended oral care tools and products.

5. Identification of supports to facilitate implementation into practice

As part of CQI, strategies were put in place to further support ongoing implementation. Examples include incorporating oral care education into CNS new staff unit orientation, ensuring that oral care is a standing agenda item at patient care rounds, and reporting progress and issues at the CNS CQI Council meetings. Further work will entail the development of bedside reminders (e.g., visual prompts) and identification of oral care champions within each scheduled shift to act as a resource for staff. We believe that these latter supports are key to ensuring the sustainability of this initiative.

Objectives

The objectives of the oral care initiative were as follows:

1. An oral health assessment will be completed on every inpatient admitted to the CNS inpatient unit at University Hospital within 24 hours of admission by the admitting Registered Nurse.
2. A valid, reliable and feasible oral health assessment tool will be utilized to help guide appropriate oral health interventions for patients.
3. Every interprofessional team member who has been consulted for a patient will contribute to the oral care plan.
4. Every interprofessional working on the CNS unit will receive education regarding oral care best practice.
5. Appropriate oral care tools will be selected for each patient based on interprofessional team input.
6. Every patient will have the proper oral care tools at his or her bedside within 24 hours of admission and receive oral care at a minimum twice daily.
7. An improvement in overall oral health status of the CNS inpatient population will be achieved following implementation of oral care best practices.

Positive Outcomes

Prior to implementation there was a 30% response rate to our oral care survey. Respondents included nurses (80%), OT, PT and S-LP staff members in the neurology and neurosurgery units at LHSC-UH. Survey results revealed three main knowledge gaps. The first related to uncertainty regarding frequency of oral care provision, where responses varied from: once daily (8.7%), twice daily (45.7%) and after each meal (45.7%). Incorrect product usage was also identified as a knowledge gap; responses included use of Vaseline® versus lubricating jelly for dry, cracked lips, and mouth swabs soaked in mouthwash for oral care, all of which are considered substandard care according to the recommendations cited above. There was also uncertainty as to the timing and frequency of an oral health assessment. Responses included: within the first week (0%), within the first hour of admission (39.1%); within 24 hours of admission (47.8%); within 48 hours (4.3%) and unsure (8.7%). Concomitantly, 28 bedside audits were completed, revealing some common themes – including incorrect oral care products at the bedside (e.g., 32% of patients had their oral care completed with mouth swabs dipped in water or mouthwash and 42% of patients did not have a toothbrush). Patients with dysphagia, cognitive–communication barriers or both were more likely to have received less frequent or no oral care.

Preliminary post-implementation data indicate that oral health assessments are being completed within 24 hours of patient admission. A recent bedside audit showed 96.4% compliance in using the OHAT within 24 hours of patient admission. Recommended oral care products are now properly stocked and located at the bedside. For example, our unit has toothbrushes and toothpaste available for all patients. Bite blocks are now available for patients who have facial weakness or impairment in overall jaw mobility. Suction toothbrushes for patients deemed at higher risk for aspiration are now available. Interprofessional collaboration regarding patient-specific oral care needs occurs daily on the CNS units and recommendations are being documented in the patient's medical chart. Oral care plans for patients with dysphagia are now clearly communicated, with interprofessional documentation in the medical charts affirming this practice.

Challenges and Recommendations

Generally speaking, changes in healthcare practices are a challenge for all healthcare professionals, particularly those who have been practising for many years. We found that the acceptance of this new practice and its transition were facilitated by one-on-one conversations using evidence-based facts rather than through didactic modes of instruction. For newer clinicians, hands-on training at the bedside with an actual patient was by far more effective and meaningful than the education sessions. The standardization of these guidelines into practice was notably enhanced after introducing various teaching modalities that aimed at meeting the individual learning needs of staff. In addition, having oral care champions available on call for challenging oral care situations was crucial, particularly for those newer clinicians who required more support in the initial implementation of this best practice.

Given that the CNS CQI Council at LHSC-UH have now developed and implemented a policy and an oral health assessment tool, it would be our recommendation that other units and healthcare settings adopt our guidelines for use in best practice. Our future aim is to continue to measure outcomes related to high-quality oral care best practice, including nosocomial infection rates, aspiration pneumonia rates, satisfaction and patient/family perception of care, as well as continued surveys and bedside audits to ensure compliance with the initiative.

Conclusion

The frequency and quality of oral care has significantly improved on the CNS inpatient unit. In line with stroke best practice recommendations, an oral health assessment with a reliable, valid and feasible tool is now being completed on every patient admitted within 24 hours. There have been marked improve-

ments not only in the stocking of appropriate oral care tools, but also in the correct selection and frequency and use of these products. Ultimately, our goal is to reduce nosocomial pneumonia rates within the CNS inpatient population, particularly patients experiencing cognitive and functional deficits, including those suffering from stroke and other neurological impairments.

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Mothers' "Liquid Gold": A Quality Improvement Initiative to Support Early Colostrum Delivery via Oral Immune Therapy (OIT) to Premature and Critically Ill Newborns

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Abstract

Early breast milk, known as colostrum ("liquid gold") provides immune benefits to infants, offering potential risk reduction for nosocomial infection (NI) and necrotizing enterocolitis (NEC), a serious gastrointestinal emergency. Provision of colostrum is recognized as oral immune therapy (OIT) and is valuable to all NICU infants unable to feed orally. A quality improvement project was initiated by the multidisciplinary NICU Quality Care Council at London Health Sciences Centres-Victoria (LHSC-VH) to obtain mothers' colostrum for early OIT. The initiative was driven by the Canadian EPIQ (Evidence-based Practice for Improving Quality) group as a means of reducing the rates of NEC and NI, two major morbidities in the NICU. The overall aim was to facilitate the availability of OIT to preterm and critically ill neonates as soon as possible after birth.

Introduction

A quality improvement project was initiated by the multidisciplinary NICU Quality Care Council at the London Health Sciences Centre – Victoria Hospital (LHSC-VH) that aims to provide colostrum to preterm and ill infants who are unable to receive oral feeding. It involves the implementation of oral immune therapy (OIT) as an alternative route of administering mothers' "first milk" to vulnerable infants in the Neonatal Intensive Care Unit (NICU). This initiative was driven by recommendations from the Canadian EPIQ-II (Evidence-based Practice for Improving Quality) network as a means of decreasing the incidence of necrotizing enterocolitis (NEC) and nosocomial infection (NI) in medically fragile neonates (EPIQ-II 2013).

Colostrum is produced by a woman's mammary glands in late pregnancy and provides baby's first milk for up to three to four days after birth. Colostrum is rich in protein and lower in fat than regular breast milk. It contains antibodies that protect the newborn against disease, and for this reason is recognized as an immune therapy (Newburg and Walker 2007). The immune factors unique to preterm colostrum last throughout the first weeks of life and, therefore, provide much-needed immune protection when these infants are at highest risk for infection (Araujo et al. 2005; Mathur et al. 1990; Montagne et al. 1999). Early provision of mothers' breast milk is thought to reduce the risk of necrotizing enterocolitis, an inflammatory and infectious condition of the bowel, which may result in the death of intestinal tissue. NEC most often affects preterm, very low birth weight (VLBW) or sick babies and is one of the leading causes of death among this vulnerable population (Edmond and Bahl 2006).

Typically, preterm and critically ill infants are too immature or fragile to breastfeed. Nutrition is provided enterally via a nasogastric (NG) feeding tube. Mothers are encouraged to express breast milk, which can be administered through the NG tube. Although mothers aspire to bond with their babies through breastfeeding, it should be recognized that attachment and nurturing are still achieved by a mother providing this nutrient-rich substance for her newborn, no matter how it is given. Unfortunately, because of the nature or degree of the infant's illness and immature digestive system, our ability to provide colostrum safely through an NG tube may also be restricted. In this case, it is proposed that a small amount of the mother's own milk, administered orally, may offer the safest alternative (Rodriguez et al. 2009). OIT involves placing small amounts of colostrum directly onto the oral mucosa, with the expectation that selected components (human milk oligosaccharides and cytokines) found in colostrum will be absorbed by the mucous membranes in the oral

cavity and upper respiratory tract (pharynx). This route of administration may provide a local barrier of protection based on the ability of these specialized immune components to block the adhesion of pathogens onto epithelial cells, thereby preventing NI and secondary ventilator-associated pneumonia in this high-risk population (Andersson et al. 1986; Coppa et al. 2006).

The overall purpose for introducing the Liquid Gold initiative at LHSC-VH was to formalize the delivery of OIT to preterm and critically ill neonates. The core team involved in this process included a neonatologist, neonatal nurse practitioner (NP), clinical educator, lactation consultant, staff nurse and registered dietitian. Ad hoc members from the Obstetrical Care Unit (OBCU) and Mother Baby Care Unit (MBCU) were also involved at various stages throughout planning and implementation.

The role of perinatal healthcare professionals is critical in providing families with the most accurate information to support their decision regarding breast-feeding. As NEC represents one of the most devastating and resource-intense illnesses affecting preterm babies, it is imperative that healthcare professionals provide information to mothers regarding the immune properties inherent in colostrum (California Perinatal QCC 2008). Offering fundamental knowledge in terms of the benefits of breast milk may encourage mothers to express for their preterm infants. The success of this program depends upon a multidisciplinary, family-centred approach to supporting mothers in providing this vital nutrition and immune protection for their babies (Meier 2003; Meier and Engstrom 2007; Miracle et al. 2004).

Background

Studies in both animal models and human adults involving the delivery of various immune factors found in colostrum given via the oral mucosal route have demonstrated a benefit to overall systemic immune activity (Andersson et al. 1986). Although OIT is in the early stages of research with regard to outcome measures, it is actively being studied for tolerance and safety. In fact, a recent pilot study using oropharyngeal administration of 0.2 mL q2h of colostrum to extremely low birth weight infants demonstrated a high level of tolerance (Rodriguez et al. 2010).

While continued OIT intervention trials will be important to confirm the clinical benefits, many studies have already confirmed a dose-related effect between mothers' own milk and risk reduction of NEC and NEC-related deaths in VLBW infants (Lucas and Cole 1990; Meinzen-Derr et al. 2009; Sisk et al. 2007).

Given the documented safety of OIT and the dose-related effects of expressed breast milk, a secondary goal of early colostrum delivery is increased rates of "exclusive" breast milk feeding during and following hospitalization. A recent multi-centred quality improvement initiative successfully increased breast milk delivery to VLBW infants after launching an educational breastfeeding campaign (Ward et al. 2012).

The indisputable health benefits of breastfeeding merit the cooperation and coordination of perinatal healthcare staff to educate and encourage women and their families to choose breastfeeding (AAP 2012; ACOG 2013; Pound and Unger 2012). The provision of mothers' own milk is especially crucial for preterm and critically ill infants and is used as an effective strategy for reducing neonatal morbidity and mortality rates in the NICU.

Design and Implementation

The Plan-Do-Study-Act (PDSA) model for improvement was used as the theoretical framework for designing and implementing the Liquid Gold initiative (Langley et al. 2009). Collaboration with the LHSC Perinatal Program involved creating new practice guidelines, revising documentation forms and planning education and communication strategies.

The impact of this initiative depends on early and ongoing educational support to mothers. The antenatal consultation process between expectant parents and the neonatal team has always included a discussion regarding the benefits of providing colostrum and breast milk to preterm babies. A parent education handout, "Babies Need Their Mother's Milk," now enhances this consultation and offers parents the opportunity to make an informed decision.

When a baby is admitted to the NICU, an additional handout, "What Is Colostrum?" prompts the nurse to provide instructions to mothers on how to collect colostrum and provide OIT for their babies. Mothers are empowered to take an active role in record-keeping, documenting their breast milk expression schedules and volumes obtained. In this way, mothers are active participants in providing care for their baby.

To facilitate safe identification, handling and storage of colostrum, breast milk labels and colostrum collection kits containing sterile syringes and caps are made available to mothers soon after birth. Mothers are responsible for collecting and labelling their breast milk. Our bar-code scanning system, Women and Infants®, was reprogrammed to allow direct scanning of freshly expressed

breast milk. This patient identification system ensures safe coupling between the mother and her infant.

Preprinted medical order forms currently include OIT orders for all infants unable to feed orally unless breast milk is contraindicated for medical reasons. This practice ensures that all eligible infants admitted to the NICU have the opportunity to benefit from "liquid gold."

Education

The success of the Liquid Gold initiative is dependent upon a comprehensive education program offered to all healthcare professionals involved in the care of mothers and infants. Formal education sessions were provided weekly on day and evening shifts, from July through October 2012. Although nurses were the targeted audience, education sessions were open to all disciplines. The 30-minute sessions were taught by the NICU clinical educator and lactation consultant. Content included pathophysiology of NEC/infection in VLBW infants, clinical research supporting the benefits of mothers' own milk, the protective factors of colostrum and the safety and efficacy of OIT administration. A short video clip illustrating manual expression of breast milk was shown, and hands-on training using a breast simulator reinforced proper technique. A self-directed online teaching program addressed learning needs of staff unable to attend scheduled education sessions.

Advertising the Liquid Gold initiative included newsletters, online education updates, posters, bulletin board displays, informal group discussions and regular agenda items at Quality Care Council meetings.

Research

Objectives

1. To ensure that all infants in the NICU who are unable to feed orally will receive expressed mother's own milk within six hours of delivery via OIT.
2. Mothers will develop a sense of empowerment as they collect, organize and administer breast milk to their baby.
3. Mothers of infants admitted to the NICU will achieve an increased milk supply through early initiation, instruction and support of hand expressing and pumping.
4. Initiation of OIT and early expression is expected to increase exclusive use of mothers' own milk for infants admitted to the NICU.
5. Increasing mothers' own milk given to preterm infants in the NICU will result in decreased incidence of NEC and NI, especially in VLBW infants.

Data collection and EPIQ-II

In order to study the outcomes of this initiative, baseline data were collected on 30 consecutive NICU admissions that met the criteria for OIT. Charts were audited for (a) time of expressing first milk, (b) time of baby's first OIT dose and (c) exclusivity of breast milk feeding at discharge. This data will be analyzed in comparison to data from 30 admissions collected three months following implementation. Preliminary post-implementation data demonstrates that, on average, OIT is being given at six hours of birth as opposed to 13 hours, which was the average prior to the initiative. At the end of the study, statistics regarding NEC and NI outcomes will be drawn from the Canadian Neonatal Network database and analyzed over the same time periods, before and after the intervention. Centre-specific neonatal morbidity and mortality rates, presented yearly at the national EPIQ-II data sharing conference, will then be correlated to the NEC and NI outcomes at LHSC-VH.

Positive Outcomes

Having an ill or preterm infant in the NICU can be an overwhelming experience for parents. Parents are seemingly grateful to be offered the opportunity to engage in their baby's care, specifically assuming the role of providing vital nutrition and immune support. Mothers experience a great sense of satisfaction and accomplishment when able to express valuable drops of liquid gold. Fathers also enjoy administering OIT to their babies, and this practice is encouraged as it serves to curb feelings of helplessness, common among parents with sick infants. Additionally, mothers are more likely to continue expressing regardless of whether they are postpartum patients or are transferred to other inpatient areas. Consequently, nursing staff outside obstetrical care are increasingly becoming educated and engaged in the Liquid Gold initiative.

Providing standardized education and training for proper technique of hand pumping/expressing moves us closer towards meeting organizational criteria for WHO/UNICEF Baby-Friendly Hospital designation. Moreover, hand expressing is cost-effective, does not require sophisticated equipment and expedites the collection of colostrum soon after birth.

Despite limited financial resources we have achieved a successful campaign. The purchase of the breast simulator was a worthwhile investment for hands-on training. Additional staffing and supply costs from our milk preparation area were mitigated by having mothers prepare and label their own syringes. Software modification to our current breast milk identification system was negotiated at minimal cost, and a "quick feed" option was added for OIT in

order to maintain the safety standard of breast milk provision. Moreover, as part of national collaboration that occurs through EPIQ-II, access to teaching resources from other NICUs across the country was available. This access greatly reduced the cost and workload required to develop staff and parent education materials.

The greatest reward came, however, unexpectedly in the form of enhanced therapeutic relationships with mothers, babies and their families. This bolstered our planning group's sense of team building and encouraged them to expand this collaborative spirit to include staff and stakeholders in other areas of the hospital. For example, the Critical Care Trauma Centre (CCTC) team is now acutely aware of the need to consult with a lactation specialist for critically ill mothers who wish to provide breast milk for their babies.

Challenges and Recommendations

Challenges were inevitable considering the task of implementing practice change across an entire perinatal program. Thoughtful planning, collaboration and comprehensiveness are fundamental to education campaigns of this magnitude, which demand early leadership support and resource allocation. The education component for OIT required a substantial time commitment to address the knowledge and skill development of approximately 350 staff members.

An added challenge was implementing an initiative that not everyone had accepted as evidence-based practice. Although most nurses recognize the importance of breast milk nutrition, many practitioners do not appreciate the significance of providing breast milk to reduce the risk of NEC and other life-threatening infections. This quality initiative met the collective learning needs of staff from OBCU, MBCU and NICU in order that all perinatal caregivers would better understand the role of breast milk in reducing morbidity and mortality in preterm and ill infants. As a result, nurses began to acknowledge the valuable contribution they could make by supporting mothers in providing immune protection for their babies.

An important next step will be to disseminate outcome results in relation to OIT delivery and post-intervention rates of NEC and NI among preterm and VLBW neonates who are exclusively receiving mothers' own milk.

Finally, as members of the EPIQ-II Steering Committee at LHSC, our recommendations for moving forward include a commitment to continued education, ongoing evaluation of staff compliance and close monitoring of patient outcomes.

Conclusion/Next Steps

EPIQ-II continues to address the need for ongoing evidence-based practice. Members of the multidisciplinary NICU team at LHSC wish to contribute to the continuous quality improvement initiatives active in 27 NICUs across Canada. We have successfully implemented the Liquid Gold initiative, which includes the early introduction of colostrum given via OIT to preterm and critically ill neonates who may not otherwise receive breast milk owing to their fragile state. Members of the NICU Quality Care Council at LHSC remain dedicated to supporting families in protecting the health and healing of these precious little miracles. We hope you will join us!

Acknowledgements

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The Lunch Bunch: An Innovative Strategy to Combat Depression and Delirium through Socialization in Elderly Sub-Acute Medicine Patients

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Abstract

Hospitalized sub-acute medicine patients face challenges to their functional and cognitive abilities as they await transfer to long-term care facilities or return home. The Continuous Quality Improvement (CQI) Council, representing a multidisciplinary team of healthcare professionals working in the Sub-Acute Medicine Unit (SAMU), implemented a twice-weekly lunch program called the Lunch Bunch in order to combat depression and delirium in our elderly and cognitively impaired patients.

The Lunch Bunch initiative includes chaplains, nurses and physiotherapists who have provided a framework through which essential socialization and exercise for this vulnerable population is facilitated. Providing a means for both mental and physical stimulation also allows patients to open up and discuss hidden feelings of loneliness and isolation, thereby beginning a journey of spiritual and emotional healing.

Introduction

Although acute care hospitals provide vital medical services, they are not properly equipped to offer the specialized care required by elderly persons. The elderly patient may have mobility, hearing and vision, or cognitive deficits, or some combination of these, that further complicate their care. They may be dealing emotionally and spiritually with the transition from healthy independence to a more limited lifestyle marked by dependence and possible institutionalization. Without consistent access to resources such as occupational therapy (OT) and physiotherapy (PT) that promote regular exercise and spiritual care for conversations about meaning and purpose, the elderly patient becomes more socially, spiritually and emotionally detached. Furthermore, the socialization involved in these activities helps prevent the isolation, loneliness and depression that are often a result of prolonged hospitalization; that, in turn, places them at a greater risk for complications in both their physical and mental health. Therefore, without interventions that include regular exercise and social/spiritual activity, this degenerative process leads to more serious, and sometimes irreversible, states of debilitation and delirium (Inouye 2006).

Studies support the premise that elderly patients who are admitted to hospital are prone to both physical and cognitive dysfunction. In fact, according to Inouye and colleagues (2000), approximately 34% to 50% of hospitalized older adults experience some degree of functional decline, which is associated with prolonged hospital stays, increased mortality, higher rates of long-term institutionalization, increased need for rehabilitation services and greater healthcare expenditures (Inouye et al. 2000). Other studies report that among seniors, pre-hospital rates of delirium range from 14% to 24% and increase to approximately 60% of those in post-acute care. In addition, mortality is more probable among patients suffering with delirium, with rates as high as 76% (Saxena and Lawley 2009). Researchers have suggested that strategies to prevent delirium among hospitalized elderly patients have proven effective when directed towards addressing the six main risk factors: (a) orientation and therapeutic activities for cognitive impairment, (b) early mobilization, (c) minimizing psychoactive drugs, (d) interventions to prevent sleep deprivation, (e) adaptive communication and equipment for vision and hearing impairment and (f) early interven-

tion for volume depletion (hypervolaemia) (Saxena and Lawley 2009). Studies also support the effectiveness of a cognitive-behavioural focused intervention with patients facing chronic illnesses. Greer and colleagues (1992) studied cancer patients experiencing psychological distress as measured by anxiety, depression and helplessness and lack of a "fighting spirit." Interventions – which included discussions related to coping strategies, concrete problem solving and increased communication – led to lower degrees of psychological distress, a better attitude towards healthcare and a greater "fighting spirit" (Greer et al. 1992). Other studies have reported improvement in functional status as a result of multidisciplinary interventions that included exercise, increasing staff involvement in rehabilitative efforts and cognitive awareness sessions for patients (Mudge et al. 2008).

Members of the Continuous Quality Improvement (CQI) Council of the Sub-Acute Medicine and Palliative Care program at London Health Sciences Centre aimed to combat the incidence of depression and delirium among elderly patients on their unit by introducing the Lunch Bunch, a program that involves staff and patients' sharing a meal together as well as participating in a series of light rehabilitative exercises.

Setting
University Hospital (UH) campus, belonging to the London Health Sciences Centre (LHSC), is a 350-bed acute care teaching hospital serving the region of southwestern Ontario. The Sub-Acute Medicine Unit (SAMU) and Palliative Care Unit is a subsidiary of the medicine program and may accommodate up to 15 inpatients who meet the necessary requirements for extended care. Patients on the SAMU/Palliative Care floor are typically transferred from an acute care unit in the hospital after they have become stable, yet require continued nursing care for rehabilitative or palliative reasons. These individuals may be, for example, experiencing "failure to cope" with their illness, recovering from the sequelae of an acute infection, entering end-stage cancer or in various states of dementia. The patients' ages range from 60 to 98 years, and they present with a broad spectrum of functional ability. Patient care is provided by physicians in the medicine program, a number of registered nurses (RNs) and one registered practical nurse (RPN), as well as housekeeping and support service workers (SSWs). Referrals to professional support staff such as spiritual care, social work, physiotherapy and dietetics are done by request and consultation with the primary healthcare team.

Design and Implementation

The Lunch Bunch initiative is a twice-weekly exercise and socialization program targeted at sub-acute patients awaiting transfer to long-term care facilities in the community or returning to their homes.

Having assessed the need for a multidisciplinary intervention, particularly for SAMU patients, the CQI team benchmarked other units for existing programs within LHSC. At Victoria Hospital, the sister campus to UH, one such program implemented once weekly has run successfully for some time now. The leadership for this program is provided primarily by the physiotherapy (PT) staff, with a focus on a 20-minute exercise program followed by a time of socialization and conversation among patients. The program takes place mid-morning, with tea and cookies being provided for patients. The area in which the program is held is the PT assessment room, which can accommodate up to seven patients and includes a kitchen, a large recreational space, light exercise equipment and a cozy seated section for meals and conversation.

Customizing the program for the University Hospital site involved several key factors. At UH, nursing staff took the lead for this initiative and partnered with physiotherapy and spiritual care staff for additional support. In adapting the program to the environment, the CQI team decided to integrate it into the patients' daily routine therefore, the choice to was made to meet at lunch time. The group began with a short exercise program led by physiotherapy, followed by a communal time for light conversation. Hospital lunches were delivered to the designated area for all participants. Patients were encouraged to feed themselves while staff assisted only when indicated to optimize nutrition and fluid intake. Infection control measures were strictly followed, including hand washing and exclusion of patients who were isolated for potential or confirmed cases of Clostridium difficile (C. difficile).

Inclusion criteria

Initial criteria for selecting participants:

- Able to follow instruction
- Taking part in the PT case load exercise program
- Medically stable
- Not a flight risk
- Those on contact precautions (i.e., methicillin-resistant Staphylococcus aureus (MRSA) could attend; those with active C. difficile were excluded.

Unfortunately, owing to space restrictions, no more than four individuals may attend each group session. The minimum staffing requirement includes one nurse and one other supportive staff member, often from spiritual care, physiotherapy or a student nurse.

Objectives
- To enhance patient endurance, movement, balance and ability to tolerate activity
- To enhance cognitional functionality as patients support one another through conversation and sharing of experiences, both successes and challenges
- To encourage independent feeding, nutritional and fluid intake
- To informally assess patients' functional ability
- To facilitate physical and emotional transition from independent living to a structured living facility
- For staff and patients to develop therapeutic relationships in a non-formal setting

Implementing the program was relatively simple. Space was reserved in a training room on the same floor as the unit. Lunches were rerouted to that space and provided to patients once their exercise program was completed. A list of potential patients are confirmed the morning of the program, followed by checking for patients' willingness to attend, their availability (e.g., timing of tests) and current medical condition.

Description of the Program
Patients would walk independently or were assisted to the designated area at noon on Tuesdays and Thursdays. On Thursdays, the physiotherapist would conduct a seated exercise program to music appropriate to the age group (e.g., "golden oldies") for approximately 10–15 minutes.

During lunch, patients would engage in conversation with staff and with one another. In some sessions, a structured conversation might be introduced that invited patients to participate in self-reflection, share stories of past memories or discuss current events. Thanksgiving was an opportunity to talk about family traditions and childhood experiences. In some sessions, conversations were focused on the challenges of aging, with patients offering their experiences and coping strategies. One patient remarked, "old age is not all it's cracked up to be." That opened up the conversation to talk about what made life worth living; the patients often reported the chance to see grandchildren, the caring received from loved ones and phone conversations with distant friends. This listing of

"positive attributes" is one strategy encouraged by Propst (1988) for patients dealing with depression (Cole and Pargement 1999). One patient took pride in encouraging his hospital "roommate" to participate in the Lunch Bunch, expressing satisfaction that he could still make a contribution towards helping others. One elderly patient joined the group saying he didn't want to remember past happier times because they cast a depressing light on his present; before too long, he was claiming his share of the conversation and telling parts of his story. Participants agreed that humour was the best coping mechanism, and often some quiet comment would create a ripple of laughter around the circle. Others shared their fears as they transitioned from independence at home to institutional care.

As time went on, it became clear that patients enjoyed the opportunity to eat communally, to get out of their rooms and to engage in a social time together. They expressed appreciation for the opportunity to share their experiences. In light of this finding, the criteria for participation were eased and more patients were invited to attend. In fact, we found that not all patients were able to engage in conversation, yet even those with some dementia tended to "perk up" during lunch.

The program's multidimensional objectives make it adaptable. Therefore, when physiotherapy is available, exercise is included; otherwise, the focus is on cognitive and emotional/spiritual functioning.

Positive Outcomes
The intervention was started in October 2012 with a once-weekly frequency. As the team recognized the benefits of the intervention and the willingness of patients to return to the lunch program, the frequency was increased to twice weekly.

Measuring outcomes quantitatively remains challenging given the varying levels of cognitive ability and the high turnover of patients on the unit. Therefore, we depend upon anecdotal measures of outcomes, including observation of the patients who strive to keep up with the conversation and who readily share life experiences, as well as the humour expressed once patients and staff begin to relate to one another on a different level. In addition, there appears to be a therapeutic value in patients' reflecting upon their circumstances (e.g., how it feels to be in this transition, what supports are present for them, what is missing) as they move from independent living to institutional care. Given the opportunity, patients seek to encourage and support one another in reciprocal relationships, thus exercising the empowerment many feel is threatened at this stage of their lives. Patients who come for the first time, uncertain about what to expect,

begin to look forward to the next sessions. Family members have reported that they heard about the program and appreciated the efforts being made to enrich the lives of their loved ones in hospital. Despite not having any measurable outcome, those involved with the Lunch Bunch project have no doubt that they are providing best practice, and believe that all the proof they need is in the testimonies of those who participate.

The Lunch Bunch also provides an opportunity for nursing assessment of patients' cognitive and mobility functioning and has made it possible to assess for any subtle changes. Barriers to discharge can be addressed and interventions or supports planned ahead of time. Nurses who bring their own lunches to the group have experienced a sense of joining in with patients rather than supervising a program. Sharing stories with patients allows nurses to decrease the power differential implicit in the nurse–patient relationship and enables nurses to experience patients as whole persons, thus avoiding depersonalization. The chaplain has engaged in assessing patients' spiritual needs during the program and, with patient consent, follows up with patients individually as the need arises.

Physicians have reported an observed benefit to their patients' care and improved compliance, consequently making repeated requests to have their other patients included in the program. In addition, healthcare professionals from other units have begun to recognize the positive results and have requested access for patients in other areas of the hospital.

The Lunch Bunch is a program that can be implemented quickly and has proven to be sustainable over time. It requires a relatively small investment by the hospital for what we would argue is a great return. Considering that we are using lunches that are already being delivered, and only one staff nurse from the unit, with one additional support from spiritual care or physiotherapy, has made organizing and running the sessions cost-effective and easy. Not only is this initiative an effective intervention for promoting health and healing in the elderly, it is sustainable in the long term. It could easily be adapted to other settings, in both acute care and long-term facilities, providing much-needed care and support to those who are often forgotten.

Challenges and Recommendations
Space
As may be the case in other hospitals, finding adequate space for our program was a challenge. We are limited to a small education/training room the size of which restricts the program to three or four participants at a time. Creating an

environment that is farther away from the institutionalized nature of the hospital setting would also be beneficial to creating a more comfortable environment for the participants. A more home-like space, with visual and other sensory inputs, is a proven way to open communication with dementia patients. Other more natural settings may include the use of an outside patio garden in the summer when weather permits.

Finding the right patients

There were times when the process of finding patients who met the appropriate criteria seemed a tedious and difficult task. In some sessions, only two patients were available to attend because not all SAMU patients are located on our unit, and those located "off service" were not permitted to participate.

Measuring outcomes

Finding an outcome that is measurable in this population is a challenge. Some patients are available to attend for several sessions; in these cases, a pre and post measure of function might be possible. For others, expeditious discharge minimizes the impact of the program on the patient's cognitive, spiritual, emotional and physical abilities. Originally, we planned to develop a survey for participants, but recognized that the cognitive abilities of some of our patients would make this difficult to administer. Utilizing a measurement tool to quantify outcomes might be desirable but would depend on a greater investment of time and resources.

A similar program in New Haven, Connecticut claims an improvement in the quality of hospital care for older patients, as measured by hospital outcomes and satisfaction with care for this target population. (Inouye et al. 2000). It may be possible to measure outcomes of the Lunch Bunch through a comparative study of patient satisfaction scores at LHSC between those who have and those who have not participated in the Lunch Bunch program.

Conclusion

The Lunch Bunch program, initiated by the CQI Council on SAMU/PC, has become a popular means of improving the hospital experience for our patients. Exercise and conversations support physical and cognitive/spiritual functioning while allowing the multidisciplinary team to assess and plan further supports for these elderly persons. This program showcases the ability of front-line leaders to innovate with few resources; it takes as little as a meal, some exercise and conversation to show that we are committed to providing the best patient-centred care for those whom we are honoured to serve.

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The Effectiveness of Superficial Subcutaneous Lidocaine Administration Prior to Femoral Artery Sheath Removal

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Abstract

The dynamic world of healthcare requires continuous review of practice to ensure that patient care aligns with current evidence and best practice. Superficial subcutaneous lidocaine injection has been an order option at London Health Sciences Centre – University Hospital (LHSC-UH) for use in post-percutaneous coronary intervention (PCI) prior to femoral artery sheath removal (FASR). The purpose of administering lidocaine is to reduce pain during FASR, subsequently enhancing the patient's experience. A critical appraisal was performed by the Continuous Quality Improvement – Cardiac Care Council (CQI-CCC) at LHSC-UH, evaluating the effectiveness of superficial subcutaneous lidocaine for use in patients undergoing FASR. This paper details the process followed to evaluate this practice and reports on the subsequent findings and recommendations. A literature review, a retrospective chart audit, a blinded online survey and peer hospital polling were compiled, and a summary of findings was shared with the cardiac interventionists, with subsequent polling. No significant evidence for pain reduction was identified when lidocaine injections were administered prior to FASR. As such, a unanimous decision was reached to remove lidocaine from the LHSC Coronary Angioplasty Clinical Pathway order form.

Introduction

In order to perform a post-percutaneous coronary intervention (PCI), access to an artery is required. A percutaneous sheath is used to gain access to the radial or femoral artery, thus allowing therapeutic instruments to be inserted into the artery and guided towards the stenosed area. This is necessary in order to conduct the required lifesaving intervention. After the procedure is completed, the sheath remains in situ until it is safe to remove without risking complications related to bleeding. Depending on the medications administered during the procedure, the removal criteria may vary. The criteria include either (a) achieving a specified time frame (i.e., two hours post-procedure) or (b) results of blood work indicating an activated clotting time (ACT) value within prescribed limits. If either of the criteria for sheath removal has been achieved, the most qualified healthcare professional will perform the procedure. At LHSC-UH interventionists are responsible for removing radial artery sheaths, while qualified registered nurses remove the femoral artery sheaths. FASR is an added nursing skill; the registered nurse performing the procedure must have completed additional education and clinical training.

At LHSC-UH, FASR is accomplished by applying manual pressure or using a C-clamp to the groin region. During removal, sufficient pressure is applied proximal to the puncture site to promote hemostasis of the arterial puncture. This pressure is gradually eased, on average taking between 20–40 minutes, dictated by ongoing patient assessment. This procedure is slightly uncomfortable for most patients; however, it can be painful for others related to patient-specific factors and the diminished effect of local anesthaesia by the time removal is initiated.

Background

One option listed on the pre-printed LHSC Coronary Angioplasty Clinical Pathway order sheets is to administer superficial subcutaneous lidocaine prior to FASR. However, this practice was not routinely ordered and was seldom administered by the registered nursing staff. This finding raised questions among the members of the CQI-CCC, including: Was superficial subcutaneous lidocaine effective in pain management during FASR? Was a localized pain regimen beneficial versus a systemic pain regimen? Why were the registered nurses not administering lidocaine when it was ordered? Would further education on superficial subcutaneous lidocaine injection change medication administration rates and thus improve patients' experience? To answer these questions and to determine current best practice, the CQI-CCC initiated an investigative review of current literature regarding this practice.

Literature reviews were compiled by an LHSC clinical librarian using the search words "(femoral [ti] OR femoral artery [mh]) AND (lidocaine [mh] OR lidocaine [ti] OR lignocaine [ti] OR anesthetics, local [mh]) AND (pain [mh] OR device removal [mh])" in the National Center for Biotechnology Information PubMed and "MH sheath removal+ and (MH treatment related pain+ or MH lidocaine OR TI lidocaine or MH anesthetics, local+)" in Ebsco Publishing CINAHL. This search identified studies with involvement of superficial subcutaneous lidocaine administration and its effectiveness prior to FASR.

Within the literature, an applicable Cochrane Database review was found titled, "Pain Relief for the Removal of Femoral Artery Sheath After Percutaneous Coronary Intervention" (Wensley et al. 2011). Four studies involving a total of 971 participants were included in the review. Of the 971 participants, 498 were involved in studies that analyzed pain scores of patients given subcutaneous lidocaine injections versus control (null) treatment. The review concluded there was no statistically significant change in pain scores between patients given subcutaneous lidocaine injections prior to FASR versus the control group; mean difference (MD), 0.12 (95% confidence interval [CI] –0.46 to 0.69) (Wensley et al. 2011). The report stated that "in all groups the pain intensity was relatively mild with mean pain scores ranging from 1.88 to 4.10 in the [lidocaine] groups and 2.67 to 3.67 in the control group" (Wensley et al. 2011: 9). The reviewers went on to suggest that significant pain reduction scores were discovered with other regimens, including intravenous pain regimens, that were not observed in the lidocaine trials. Moreover, the reviewers acknowledged the need for further studies as not all treatment arms were properly blinded and study sizes were small. Overall, the literature review did not support the current administration practice of superficial subcutaneous lidocaine injections to reduce patient pain and improve the patient experience during FASR. Further investigation was necessary to determine best practice and thus alter current practice accordingly.

Design and Implementation

Several methods of evaluation were used to determine current best practice associated with superficial subcutaneous lidocaine injections prior to FASR. A survey was conducted with nurses working within the Cardiac Program, including Inpatient Cardiology, the Cardiac Day/Night Unit (CDNU) and Coronary Care Unit (CCU) on the fifth floor of LHSC-UH. The questionnaire explored nurses' comfort with administering superficial subcutaneous lidocaine and rates of administration. This was a blinded online survey that was distributed to the nurses' confidential intranet email accounts on the LHSC GroupWise server. The nurses were notified of the survey via emails and were provided written

instructions and information regarding the study objectives. The survey data were accumulated and subsequently displayed in a table format. Retrospective patient chart audits were completed to determine rates of ordering and administration. The chart audits were blinded and randomized, with data collected on analgaesia orders and/or administration of analgaesia prior to FASR. Patient chart audit analysis was configured into graph format. Three peer hospitals were polled to inquire about their current practice. Hamilton Health Sciences, Ottawa Heart Institute and St. Michael's Toronto were contacted through email or telephone. Two educators and an interventionist were questioned on FASR practices in their respective hospitals. A summary of findings was shared with the cardiac interventionists at LHSC-UH, with subsequent polling to determine future action based on current research and accumulated data. Practice changes were then initiated with regard to patients' receiving FASR at LHSC-UH, supported by current practice and evidence identified through these methods of evaluation.

In the randomized retrospective chart audit, 24 charts from the Cardiac Day/Night Unit and the Cardiac Care Unit at LHSC-UH were reviewed for the number of times superficial subcutaneous lidocaine injection and morphine intravenous injection were selected on the pre-printed order sheet (see Figure 1). Included in this review was the number of medication administration records (MARs) that demonstrated the administration of lidocaine or morphine prior to FASR. The chart audits revealed that 17% ordered superficial subcutaneous lidocaine, yet out of those 17%, no lidocaine injections were administered to the patients (see Figure 2). Morphine intravenous injections were ordered in 25% of the time, yet out of those 25% only one injection was administered. These findings confirmed the limited use of lidocaine for FASR at LHSC-UH and also highlighted the limited use of morphine for this procedure. The findings identified the need for further research into the practice of administering superficial subcutaneous lidocaine prior to FASR. They also suggested that the use of morphine injection be investigated for efficacy of patient analgaesia post-FASR, as it is infrequently ordered and seldom administered.

Figure 1. Percentage of lidocaine ordered on the pre-printed clinical pathway

Lidocaine ordered
Morphine ordered
No medication ordered
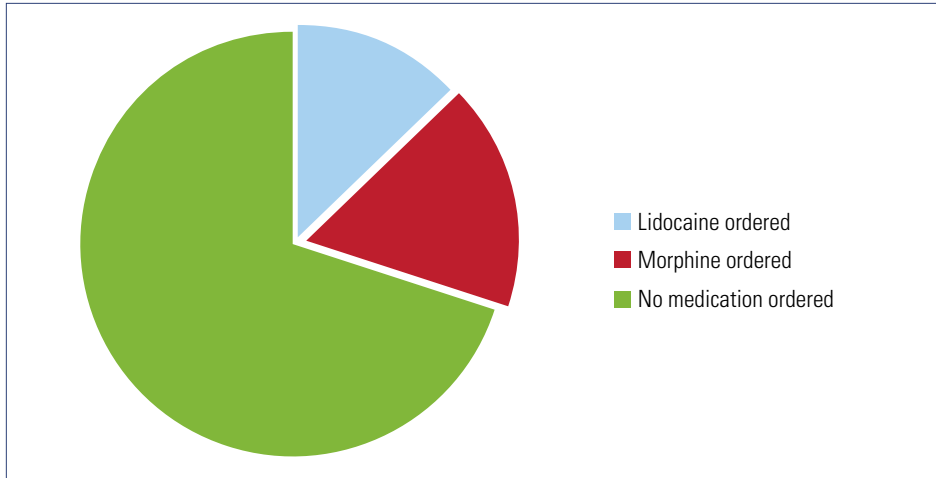
Figure 2. Percentage of lidocaine administered to patients when ordered on the pre-printed clinical pathway

Lidocaine Administered
Morphine Administered
No Medication
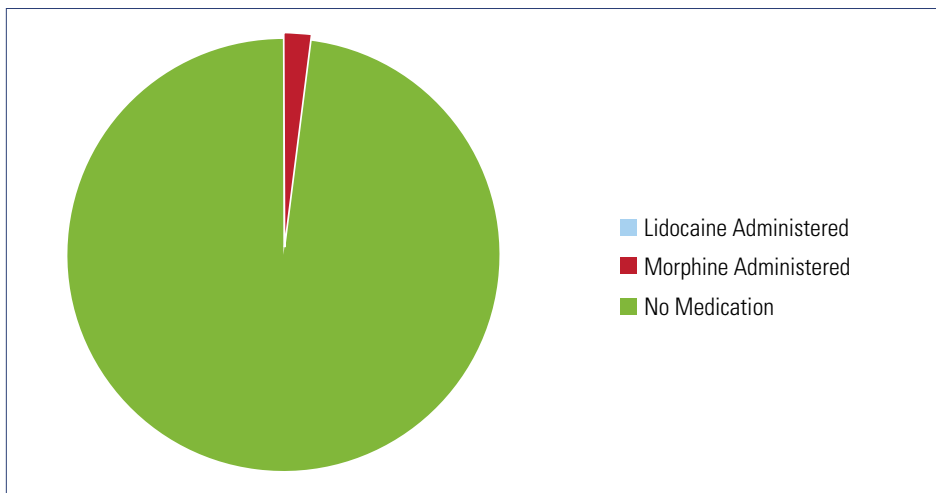
In search of a rationale to explain why superficial subcutaneous lidocaine injections were not being administered, a blinded online survey was sent to all registered nurses working in the cardiac care units where nurses were trained and qualified to perform FASR. Forty-three surveys were completed by the closing date. Three questions were listed on the yes/no blinded survey:

1. Do you feel proficient in using subcutaneous (SC) lidocaine for femoral artery sheath removal (FASR)?
2. Do you feel you need more education to use SC lidocaine for FASR?
3. If you were to be provided with additional education re SC lidocaine, would you be more willing to use it?

Of the 43 respondents, 74% stated they did not feel proficient in SC lidocaine administration, 52% stated they did not require further education on the skill and 65% stated they would not use lidocaine if given additional education (see Table 1). With these results, the members of the CQI-CCC concluded that staff nurses in the areas performing FASR did not feel proficient in the skills required to administer lidocaine. However, with additional education, which 48% determined would be required prior to performing the skill of administering lidocaine, the majority (65%) indicated they still would not change their practice and administer lidocaine. This finding may indicate that staff nurses do not observe a significant benefit to patients. This interpretation was validated when the additional comments section at the end of each survey was reviewed. Therefore, the survey revealed that the primary reasoning behind the limited use of lidocaine injection was that nurses did not find lidocaine injection to have enough of a therapeutic effect on patients' experience of pain to warrant its use prior to FASR.

Table 1.

Blinded online nursing survey. This table illustrates the proficiency and need for lidocaine administration education among the nursing staff in the Cardiac Care Program at LHSC-UH.

Blinded Survey Questions	Response 'Yes'	Response 'No'
Proficiency in administering lidocaine subcutaneous (SC) for femoral artery sheath removal (FASR)	11	32
Further education required to adminster lidocaine SC	21	23
Willingness to utilize lidocaine if education provided	15	28

To further investigate current best practice regarding the use of superficial subcutaneous lidocaine, three peer hospitals providing tertiary cardiac care were polled. These hospitals were Hamilton Health Sciences, Ottawa Heart Institute and St. Michael's Toronto. Clinical educators at the first two hospitals and an interventional Cardiologist at the latter were contacted through emails and telephone.

Hamilton Health Sciences' clinical nurse educators completed a study, "To Freeze or Not to Freeze? A Randomized Controlled Pilot Trial" (Cook et al. 2008), assessing the efficacy of administering subcutaneous lidocaine to decrease pain and reduce the vasovagal response prior to FASR. Analysis of the data showed that the pain scores among the control and intervention arms were low. Based on the study findings, and Hamilton Health Sciences' own literature review, lidocaine injections were removed from their post-PCI order sets (Cook et al. 2008).

Telephone contact with the clinical nurse educator from Ottawa Heart Institute provided the information that lidocaine was replaced with the administration of intravenous fentanyl (25 µg) and intravenous midazolam (1–2 mg) to enhance the patient experience and alleviate discomfort and pain (personal communication, October 12, 2012).

 A cardiac interventionist from St. Michael's Hospital in Toronto was also contacted by phone. The cardiac catheterization lab at St. Michael's Hospital prepares patients for cardiac procedures and sees them through recovery after these procedures are performed. Patients who undergo a PCI require intravenous medications to prevent clot formation during the procedure. Following their PCI, patients are recovered in this unit, receiving a dose of intravenous protamine sulphate to reverse the anticoagulant effect of the medications given during the PCI. Trained staff are then able to perform FASR immediately following the PCI using a technique employed at LHSC-UH that restores haemostasis to the insertion site using pressure (personal communication, October 12, 2012). This approach obviates the need for lidocaine injection as the sheaths are pulled while the effects of the local anaesthesia are still intact.

With the evidence gathered and summarized, the interventional cardiologists were polled to determine whether superficial subcutaneous lidocaine should continue as an order option on the pre-printed order sheet, LHSC Coronary Angioplasty Clinical Pathway, for administration prior to FASR. The votes were unanimous in the decision to remove this practice from the order sheet.

The research process carried out by the CQI-CCC – including a literature review, a blinded online nursing survey, a retrospective randomized chart audit and peer hospital polling – identified many different factors affecting the limited use of superficial subcutaneous lidocaine, including lack of proficiency and confidence among the nursing staff regarding its administration, clinical perception of minimal benefit to the patient and ultimately, limited use of the order option by the interventional cardiologists' at LHSC-UH. Furthermore, the literature reported

only a small increase in pain scores during the FASR procedure and supportive evidence that peer hospitals within Ontario had removed lidocaine injections for this reason. Therefore, this study confirmed the need to change practice based on the identified current evidence and best practice, in order to continue to provide high-quality patient care within the PCI program at LHSC-UH.

Objectives
Although the purpose of this study was to gain an understanding of why superficial subcutaneous lidocaine was not routinely ordered and administered prior to FASR, the overriding objective was to incorporate current evidence-based research into best practice, ensuring a safe, comfortable and positive patient experience.

Positive Outcomes
The definitive decision was made to eliminate the practice of superficial subcutaneous lidocaine injections post-percutaneous coronary intervention and prior to FASR at LHSC-UH based on the listed evidence. Cessation of superficial subcutaneous lidocaine injections is expected to reduce patient risk of pain and complications related to receiving the lidocaine injection, consequently improving patient safety, outcomes and satisfaction. Moreover, removing this additional nursing procedure means a reduction of time allotted for these interventions, therefore improving service efficiencies.

Challenges and Recommendations
Upon study review, the CQI-CCC identified areas that could have been enhanced. Owing to staff's limited research experience, a research proposal was not presented to the Western University Office of Research Ethics committee and therefore, chart audits could be performed only retrospectively. The limited number of chart audits (24) and number of peer hospitals polled (3) by the CQI-CCC provided a very small sample size. Increasing the size of the study would have provided greater confidence in the findings. In hindsight, the added collection of patient pain scores during the chart-auditing phase would have complemented the results. The treatment arms listed in the Cochrane Database of Systematic Reviews had notably small study sizes and limited blinding procedures, suggesting that additional studies are required (Wensley et al. 2011). In addition, these studies compared administration of subcutaneous lidocaine with intravenous interventions, which may have influenced the identified outcomes (Wensley et al. 2011). A further recommendation would be to investigate patient benefits related to the administration of intravenous morphine prior to FASR: the literature suggests significant pain score reductions with intravenous interventions (Wensley et al. 2011), yet IV morphine is infrequently ordered or administered at LHSC-UH.

Conclusion

This paper demonstrates how the CQI-CCC at LHSC-UH effectively identified an area for inquiry and completed a critical appraisal resulting in a practice change to improve patient care outcomes and experience. Overall, the study concluded that superficial subcutaneous lidocaine injections were not found to reduce patient pain scores significantly (Wensley et al. 2011), were not consistently ordered or administered at LHSC-UH and have been removed from practice at peer hospitals in the same region. Presentation of the data resulted in the interventional cardiologists' unanimous agreement to remove superficial subcutaneous lidocaine injection from the pre-printed order sheet LHSC Coronary Angioplasty Clinical Pathway, and subsequently from practice. Members of the CQI-CCC remain dedicated to identifying areas of practice that require change based on current research and best practice.

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Collaborative Hospital Orientation: Simulation as a Teaching Strategy

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Abstract

For nurses, the stress caused by entering a new place of employment may give rise to insecurity and a lack of confidence. Lack of confidence in one's nursing skills can affect performance and, ultimately, patient care and safety. In healthcare, growing fiscal constraints have resulted in lost resources, and support for new nursing staff is limited by both time and cost considerations. Clinical educators therefore must find innovative ways to provide education and support, including creative learning modalities that facilitate nurses' transition into a new role and work environment.

This is the spirit in which clinical educators in the Medicine Program at London Health Sciences Centre – Victoria Hospital (LHSC-VH) adopted a new continuous quality improvement (CQI) initiative, aimed at advancing the nursing orientation program for new nurses entering into medicine.

Nursing staff recruited to the LHSC-VH Medicine Program attend a five-day central nursing orientation (CNO) along with an additional day of unit-specific orientation and education. It is during this phase of orientation that valuable information regarding organizational processes and policies is introduced, primarily through didactic measures such as lectures and slide presentations. However, critical thinking and decision-making skills needed to attain confidence in practice are difficult to learn in a classroom setting. Nursing programs in most academic centres across Canada have adopted simulation into their undergraduate nursing curricula as an adjunct to clinical placements. This paper will outline how, through the use of simulation, the clinical educators within the Medicine Program at LHSC-VH transformed the medical orientation program from the classroom to the bedside, offering a more engaging and interactive experience for new nurses.

Introduction

Orientation for all new nurses entering LHSC consists of five days of central nursing orientation (CNO) followed by one day of unit-specific orientation preparing nurses for their introduction to clinical practice with the aid of a preceptor. The purpose of CNO is to welcome new staff to LHSC and provide information regarding hospital policy, organizational strategy, infrastructure, corporate identity and institutional values, as well as a review of the basic nursing skills that are needed to practise independently. Clinical educators then require an additional day to present focused content that is unit-specific and geared towards providing specialized nursing care. Traditionally, both the CNO and unit-specific orientation programs were delivered using formal means of instruction, where minimal time was permitted for hands-on demonstrational learning.

Nursing staff are hired into the Medicine Program with varying degrees of experience and exposure to clinical settings. With a high percentage of new graduate nurses entering our workforce, clinical educators are challenged to engage all practice levels in critical thinking and problem-solving activities necessary to perform safely in a highly acute and complex patient care environment. It is expected that "faced with increasingly complex clinical situations, nurses must respond with accurate clinical judgment" (Yuan et al. 2011: 26). A number of barriers exist to providing education to new nurses in a formal academic setting, including information overload, inability of participants to concentrate, lack of retention, use of distractible devices and diminished participation, which collectively have a negative impact on the effectiveness of the orientation program.

In retrospect, we asked ourselves how we might improve the learning experience for new nurses in the medicine program. Upon deeper reflection and a subsequent litera-

ture search, the answer to this question came in the form of an idea of using simulation as an added teaching modality for our unit-specific orientation. Simulation has been widely accepted as a highly effective teaching strategy for use with healthcare providers (Lapkin et al. 2010). It has been utilized in a broad scope of healthcare education programs, resulting in positive outcomes with regard to knowledge acquisition, skill competency and building confidence in dealing with complicated clinical scenarios. With more attention given to performance, simulation-based education allows nurses to actively demonstrate skills, recognize and recall knowledge, and develop technical and communication techniques that contribute to high-quality, safe patient care (Beauchesne and Douglass 2011).

High-fidelity medical simulation is the use of technology for replicating a life-like clinical situation involving a virtual patient. With the aid of this specialized equipment, healthcare professionals can practise both procedural and decision-making skills in an environment that is safe from judgment or any potential harm. In collaboration with simulation specialists at Fanshawe College (a local community academic centre), LHSC clinical educators were supported in adopting simulation as an interactive tool for providing a new and innovative program for nurses' orientation to the medicine floor. By creating a multidimensional clinical case scenario executed by simulation technology, clinical educators were better able to synthesize the various concepts involved in the nursing process, facilitate reflection and critical thinking skills, integrate corporate initiatives and reinforce standards of practice as outlined by the College of Nurses of Ontario (2006). In addition, supportive measures were implemented during structured debriefing sessions that coincided with each segment of the simulation scenario, thereby encouraging participants to voice their concerns, ask questions, discuss specific observations and reflect on past experiences.

Background

The use of simulation as an educational tool in nursing is guided by the principles underlying various adult learning and education theories. Malcolm Knowles and colleagues (1998) carried on the tradition of adult learning theory designed by his mentor Eduard Lindeman (1926), yet Knowles went on to develop theories of his own which highlight the difference between formal and informal adult education. Although, like Lindeman, he recognized the importance of encouraging social participation, Knowles was more interested in building a framework by which to execute this form of teaching (Smith 2002).

One of the major components of Knowles's theory is the premise of "life-centered orientation to learning," which describes the adult learner as one whose perception of knowledge shifts from a "still" application to an immediacy for "action", or rather

from "subject-centeredness" to "problem-solving" (Knowles et al. 1998). Simulation offers nursing education a unique venue for knowledge translation that is both pragmatic and relevant to "real life," with opportunities for problem-solving in a broad spectrum of clinical scenarios (Knowles et al. 1998).

Concomitantly, clinical educators also recognize the need for nurses to develop specialized knowledge and skills that are best characterized by another education theory known as Bloom's Taxonomy. Benjamin Bloom's Taxonomy Theory (1956) outlines three separate yet interrelated learning domains – cognitive, psychomotor and affective – that are essential to understanding practice development.

The cognitive domain involves the initial learning and application of knowledge. Nurses develop skills related to recall and recognition of knowledge and develop the ability to comprehend and apply various concepts. Professional development encourages advanced skill acquisition including critical thinking, problem-solving and conflict resolution. Furthermore, the integration and synthesis of knowledge acquired through clinical practice equips the nurse with the capacity to meet even the most complex needs of patients (Bloom 1956).

The psychomotor domain is concerned with technical skills associated with performing tasks. Skills acquired from this domain are relevant to various nursing practices, as competencies are gained by "imitating" or reproducing the observed skill (Bloom 1956). The College of Nurses of Ontario instructs nurses to "ensure that they are competent in both the cognitive and technical aspects of a procedure prior to performing it" (CNO 2006: 8).

The affective domain relates to values, attitudes and behavioural competencies such as integrity, communication, commitment to professional development and reflective practice. Nurses require these skills to interact effectively with patients, families and other members of the healthcare team (Bloom 1956). Simulation-based education serves to consolidate the learning needs of all three domains by providing opportunities to assimilate the necessary knowledge, skill and clinical judgment to practise both confidently and competently. That is to say, "Simulation-based learning provides a risk-free environment where students can incorporate cognitive, psychomotor and affective skill acquisition" (Yuan et al. 2011: 30).

Design and Implementation

In consultation with the simulation specialists at Fanshawe College, an "evolving" case scenario was created that incorporated all the elements of Bloom's learning domains. Details relating to the simulated environment were given to

participants in preparation for the exercise to ensure meaningful engagement throughout the simulation learning experience. The clinical case scenario that was presented to new nurse hires reflects some of the more common clinical situations encountered by acute care nurses. The clinical case study involves an elderly patient admitted from the emergency department with a diagnosis of urinary tract infection (UTI). Complex, multiple co-morbidities are identified in the patient's past medical history. The patient is diagnosed with an antibiotic-resistant organism and has recently experienced a fall. The patient's condition then deteriorates to sepsis with resulting cardiac arrest and death. Clinical educators perform the role of the apprehensive daughter, adding to the complexity of the case. Furthermore, the scenario highlights various aspects of LHSC's corporate call to action regarding infection control and patient safety (LHSC 2012). Critical incident management and best practices guidelines are also emphasized.

Historically, simulation has catered to the psychomotor domain, referring only to technical and performance skills. However, now the perfect platform for learning has been created with the evolution of high-fidelity simulators that interact and communicate with participants. With the added capability of changing vital signs and the progression and deterioration of patient condition, simulation provides a more realistic patient experience. In addition to hands-on simulation, we recognized the need to test skills from all three learning domains. Therefore, we added the patient admission process at the beginning of the scenario in order to achieve this objective. The admission process requires psychomotor skills to carry out and document an appropriate nursing history and physical assessment. It requires effective communication skills and appropriate therapeutic interactions with the patient who is being admitted to hospital. It also involves the cognitive ability to delineate relevant data and exercise critical thinking skills needed to formulate an individualized nursing care plan. Additionally, we highlighted such attributes as communication and teamwork, thereby reinforcing the notion that effective communication reduces the risk of adverse events in our complex work environment (Beauchesne and Douglas 2011).

The patient case scenario was divided into several segments, allowing nurses to rotate through the simulation as participants while other members of the team congregated in a classroom to observe via video-conferencing technology. Each segment was followed by a structured debriefing session to facilitate group discussion and reflective practice. "Debriefing and reflection have been credited as the most critical element of a simulation scenario because this is where the most learning occurs" (Beauchesne and Douglas 2011: 32). Debriefing promotes further

knowledge application, emphasizes patient safety strategies and stresses documentation requirements as focal points of the preceding segment. Dreifuerst (2009: 10) states that "by providing opportunities to review events and make visible their meaning, debriefing offers a way to draw out the participants' critical thinking and helps to develop their complex decision-making skills."

Simulation as a teaching strategy for new nurse employees has many benefits. Nurses will perform more naturally in a life-like scenario, with each nurse demonstrating varying degrees of ability; this provides clinical educators an opportunity to assess individual learning needs based on observed strengths and weaknesses. In addition, simulation offers a safe learning environment that facilitates the transfer of skill and knowledge to the clinical setting, thereby keeping the entire experience interactive and engaging.

The simulation specialists involved in this project also acknowledged the benefit of interdisciplinary collaboration. Both simulator specialists and clinical educators play a vital role in preparing nurses for the workforce and have been given a unique opportunity to foster new and innovative ways of learning for new nurses in the Medicine Program at LHSC-VH.

Objectives

Despite the polarizing skill mix among new nurse employees in the Medicine Program, there is an ever-growing demand for higher levels of knowledge and professional competency at entry-level positions. This situation explains the emphasis placed on revitalizing the unit-specific orientation program for medicine. Initially, clinical educators hoped that the simulation would promote interest and engagement on the part of learners while adding context and meaning to the materials reviewed. Ultimately, however, the outcome has far exceeded our expectations and proved to be highly interactive, promoting critical thinking and problem-solving skills that align with LHSC's vision of achieving excellence in patient care and safety.

Positive Outcomes

To assess the impact and satisfaction of using simulation as a teaching strategy, each new employee completed an evaluation questionnaire consisting of 10 Likert-type questions (see Appendix A at: http://www.longwoods.com/content/23323). The data collected demonstrate the success of this collaboration: 94% of participants agreed or strongly agreed that simulation with the added debriefing sessions was an effective method of learning. One nurse wrote, "I wish we had done more simulation when I was in school." Additionally,

94% agreed or strongly agreed that this exercise provided an understanding of nursing protocols. Another nurse who was asked what she liked best about the orientation day replied, "It clarified expectations." The most validating outcome measure was that 100% agreed or strongly agreed that the simulation learning experience was worthwhile. As described by one of the learners, "the day was interactive and interesting." These results indicate that new employees were satisfied with the new unit-specific orientation program. According to Lapkin and colleagues (2010: 221), "Learner satisfaction is important as it may potentially enhance engagement and thereby facilitate learning." The educators all agree that the simulation and debriefing provoked more meaningful discussion among the participants than traditional methods. Moreover, debriefing sessions are more focused, and gaps in knowledge can be clearly identified as a result of the concurrent participation–observation style of simulation.

The effectiveness of the facilitators was endorsed by 100% of the learners who answered the survey. The provision of learning is undoubtedly more comprehensive when working in a simulated clinical environment. Simulation proved to be a superior venue through which to reinforce expectations of nursing practice, policies and procedure. We argue that simulation, as a form of knowledge acquisition and skill attainment, is superior to traditional learning modalities.

Challenges and Recommendations

Transforming the Medicine Program orientation from the classroom to a simulation-based learning environment proved to be a seemingly smooth transition. Most of the challenges were related to such factors as cost, availability of resources and group size. There was no staff resistance, and the approach was readily accepted by all participants. The initiative was further endorsed by corporate leadership and fully embraced by our own departmental managerial team.

Group size was an important factor, as having few participants did not permit optimal intraprofessional dialogue and therefore would not justify the cost of providing this service. In order to overcome this challenge, clinical educators invited the Medicine Program at LHSC's University Hospital campus to join the unit-specific orientation. Notwithstanding, we are forever indebted to Fanshawe College for the opportunity to participate in this collaborative endeavour at no extra cost.

In light of an obvious gap in in the research data linking simulation training to improved patient safety and clinical performance, we have contemplated the idea of pursuing research in order to study the relationship between simulation and positive outcomes for both staff and patients. Potential research questions

include: Will simulation reduce the amount of clinical orientation needed by new nurses? Are documentation requirements improved by simulation training according to the standards of practice? Does simulation training have an effect on future nursing performance evaluations?

Conclusion

Preliminary feedback indicates that simulation-based training programs are more relevant to and better accepted by adult learners than traditional programs. "The instructional methodologies used in simulation-based training programs are more in line with the tenets of adult learning" (Yaeger et al. 2004: 326), as are the functional learning domains required for effective nursing practice.

Interest in simulation training has been heightened throughout the organization as news of our orientation program spreads. With the support of simulations specialists, we were able to create a superior learning environment for unit-specific orientation. Although simulations are not routinely used in hospitals, our work has validated their use as a meaningful experience for training new employees. The clinical educators in medicine at LHSC-VH have led the way with their innovative use of simulation as a means of improving the effectiveness of orientation of new nurses to this specialty. With this success, it is hoped that simulation will be incorporated into future hospital education programs.

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Building a Healthy Work Environment: A Nursing Resource Team Perspective

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Abstract

Leadership and staff from the London Health Sciences Centre (LHSC) Nursing Resource Team (NRT), including members of their Continuous Quality Improvement (CQI) Council, attended the first Southern Ontario Nursing Resource Team Conference (SONRTC), held March 2012 in Toronto. The SONRTC highlighted healthy work environments (HWEs), noting vast differences among the province's various organizations. Conversely, CQI Council members anecdotally acknowledged similar inconsistencies in HWEs across the various inpatient departments at LHSC. In fact, the mobility of the NRT role allows these nurses to make an unbiased observation about the culture, behaviours and practices of specific units as well as cross-reference departments regarding HWEs. Studies have documented that HWEs have a direct impact on the quality of patient care. Furthermore, the literature supports a relationship between HWEs and nurse job satisfaction. Based on this heightened awareness, the NRT CQI Council aimed to investigate HWEs at LHSC. The American Association of Critical Care Nurses (AACN) Standards for Establishing and Sustaining Healthy Work Environments was adapted in developing a survey for measuring HWEs based on the perceptions of NRT staff. Each of the departments was evaluated in terms of the following indicators: skilled communication, true collaboration, effective decision-making, appropriate staffing, meaningful recognition and authentic leadership (AACN 2005). Ultimately, the Building a Healthy Work Environment: A Nursing Resource Team Perspective survey was employed with NRT nurses at LHSC, and data was collected for use by leadership and staff for creating HWE strategies aimed at improving the quality of patient care.

Introduction

In March 2012, members of the LHSC Nursing Resource Team CQI Council attended the first Southern Ontario Nursing Resource Team Conference (SONRTC). A common theme regarding healthy work environment (HWE) was highlighted by NRT nurses across the region, noting that the work environment varied significantly from one unit to another. The NRT nurses observed that units demonstrating a more collaborative culture invariably received them more positively. The Registered Nurses' Association of Ontario defines a HWE as "a practice setting that maximizes the health and wellbeing of nurses, patient quality outcomes and organizational performance" (RNAO 2006). Inspired by this shared experience and a renewed awareness of the importance of healthy environments within the workplace, the NRT CQI Council reached a consensus that examining and subsequently fostering a HWE would become a priority of its work. According to Stichler (2009: 181), a "HWE is critical to patient safety outcomes, nursing job satisfaction and organizational commitment and turnover."

Many acute care centres across Ontario have shifted towards a Nursing Resource Team (NRT) model in order to manage short-term vacancies (e.g., sick calls). NRTs are often confused with "float nurses" who traditionally played more of a contingency role than today's NRT nurse (Dziuba-Ellis 2006). The NRT at LHSC is a Nursing Professional Practice workforce planning strategy comprising specially trained registered nurses (RNs) appropriated to fill gaps in staffing for a wide variety of inpatient settings, including medicine, surgical, paediatric, renal, emergency, obstetrical and critical care units. NRT nurses provide essential nursing services across LHSC's multi-site hospitals, University Hospital (UH) and Victoria Hospital (VH), respectively. Unlike "float nurses," who maintain a casual work status and whose role is primarily assisting floor nurses, the NRT is made up of both part-time and full-time nurses who are skilled in providing direct patient care and are given independent patient assignments.

NRTs have increasingly been utilized as a workforce planning strategy, reflecting the organizational need for available skilled nursing staff to fill short-term vacancies and therefore complement departmental nursing teams. For most organizations, implementation of an NRT results in a dramatic decrease in casual "float nurses," and as a result, decreased dependency on agency nurses. In addition, NRTs address issues related to insufficient nursing capacity, thus decreasing the need for paying overtime to full-time staff and overextending them to the point of burnout (Baumann and Kolotylo 2005). The adaptability of nurses working under a centralized nursing framework affords the NRT nurses diverse and continuous practice that allows them to work in a variety

of medical and surgical specialties, including critical care settings. In addition, NRT nurses typically have a good grasp related to locating and utilizing corporate policies. This ability to maintain a corporate viewpoint while applying unit-specific practices allows NRT nurses to evaluate what processes are likely to be successfully implemented across the organization. In recognizing this global viewpoint, NRT nurses are also uniquely poised to compare various aspects of an organization's HWE.

Background

NRT nurses ponder, "Where am I working today?" And depending on the answer to this question, they anticipate how their day will unfold, based on how they were previously received on the unit (Good and Bishop 2011).

An extensive literature review revealed that many studies quantify HWE by leadership and/or staff perceptions of their own clinical areas; however, no studies were identified as having measured HWEs from an objective outsider's perspective. Based on this gap in the literature, the NRT CQI Council launched a pilot project aimed at investigating LHSC's HWEs from the perspective of the NRT nurse. Also delineated from the literature was the AACN's (2005) Standards for Establishing and Sustaining Healthy Work Environments (see Appendix A at: add URL), including skilled communication, true collaboration, effective decision-making, appropriate staffing, meaningful recognition and authentic leadership (AACN 2005: 189). These six standards are quoted often in HWE research and literature (Helton 2009; Maiden 2010; Robichaux and Parsons 2009; Shirey 2009; Shirey and Fisher 2008; Stichler 2009; Alspach 2009; Clevenger 2008; Gilmore 2007; Kerfoot and Lavandero 2005; Kramer and Schmalenbery 2008; Parsons et al. 2007). Based on these standards, the AACN developed a HWE assessment tool consisting of an 18-question survey. Subsequently, the NRT CQI Council adopted the AACN (2005) Standards for Establishing and Sustaining Healthy Work Environments as a foundation for creating their own HWE survey focusing on the unique perspective of NRT nurses at LHSC (see Appendix B at http://www.longwoods.com/content/23322). This was the beginning of what would become a pilot NRT CQI project aimed at examining the HWEs at LHSC.

Design and Implementation

This CQI project brought NRT staff together and permitted discussion of HWEs with the added perspective of being a virtual unit. With placements across the organization, NRT nurses are in a unique position to evaluate the operational processes and cultures that exist within departments as well as

provide a global view of the intercommunication and cross-functioning among units. For example, the surgical floor at UH implemented "verbal bedside reporting" because of the positive feedback from NRT staff who had experienced this practice on other inpatient units.

Nevertheless, the main objective for this project was to develop a HWE survey that leverages the observations of NRT nurses and supports improved patient safety and staff satisfaction. According to Maiden (2010), "nurse working conditions have been shown to affect patient outcomes, so a good work environment helps nurses sustain patient safety." With the results from the HWE survey, the NRT vision was to initiate dialogue between leadership and staff. Similar to the goals laid out by the AACN's Standards for Establishing and Sustaining Healthy Work Environments, their goal was "a thoughtful reflection and engaged dialogue about the current realities of each work environment" (AACN 2005: 13).

In the spirit of collaboration, the NRT CQI Council members sat down and explored the AACN standards within the context of their various workplaces in order to gain a deeper understanding of what a HWE means to an NRT nurse. The following discussion ensued.

Beginning with the AACN (2005) standard for skilled communication, the NRT staff noted how important it is for receiving units to demonstrate to staff and patients that they "walk the talk" and adhere to the code of conduct. The indicators for skilled communication are as follows:

1. There is consistency between words said and actions of all staff.
2. A zero-tolerance policy is enforced to support staff and to eliminate abuse and disrespect.
3. I have access to education in the form of updated resources and technology, inservices, access to a clinical educator, and knowledge and support from other staff.

With regard to the AACN (2005) standard for true collaboration, the NRT staff agreed that although there is never a guarantee how unit staff will receive NRT nurses, strong communication skills are required to open the door to effective teamwork. It is the desire of all NRT nurses that their technical skills are recognized and respected by the professional team. However, if efforts towards healthy communication are not reciprocated, then true collaboration cannot be achieved. The indicators for true collaboration are as follows:

1. My knowledge and skills are accepted and respected by team members.
2. Collaborative relationships are supported and nurtured by all staff.

In light of LHSC's core values of trust, respect and collaboration, effective decision-making is not only based on knowledge and critical thinking but is also a moral and ethical obligation to respect patient, family and staff values. NRT staff expressed deep satisfaction in having the opportunity to advocate for patient- and family-centred care and place clients' needs before pre-existing social or relational challenges on the unit. The indicators for effective decision-making are as follows:

1. Core values of the organization are considered in all levels of decision-making.
2. Perspectives of patients and families are incorporated in decision-making processes.
3. All team members share accountability in decision-making and support data-driven decisions.

As objective observers, the effects of nurse shortages and higher patient acuity are apparent to NRT staff. For all nurses, dissatisfaction is often experienced when they are unable to fully meet their patients' needs or uphold their professional practice standards. The NRT group also commented that appropriate staffing involves a unit leader's assessment of the NRT nurses' experience and technical skills in order to match their assignment. The indicators for effective appropriate staffing are as follows:

1. Staffing is appropriate to support high-quality patient care.
2. There are appropriate strategies in place to support and evaluate adequate staffing (including times of staffing shortages).
3. My patient assignment appropriately reflects my competency level.

NRT staff indicated the importance of receiving and giving meaningful recognition, especially as a vehicle to forming trusting relationships with clinical staff. Moreover, due to their mobile nature, often NRT nurses do not have the opportunity for first-hand follow-up with patient outcomes or to receive positive feedback. In order to meet the AACN standard for meaningful recognition, the NRT nurses highlighted the importance of sharing a sense of belonging with the team and recognition that their contributions were significant. The indicators for meaningful recognition are as follows:

1. My value and contributions are recognized by team members.
2. All team members meaningfully recognize the contributions of others.

For NRT staff, authentic leadership represents honesty, transparency and a genuine interest in what others are experiencing in the workplace. Leadership plays a key role in influencing the culture of a unit and affects the perceptions that staff may have about the NRT role. The indicators for authentic leadership are as follows:

1. The unit leader role-models effective communication, collaboration, effective decision-making, meaningful recognition and authentic leadership.
2. The unit leader is accessible and receptive to concerns and suggestions.

The aforementioned indicators are a representation of what NRT nurses value most about HWEs. Although there are added indicators within the AACN (2005) assessment tool (e.g., physical space), that are greatly valuable, they were excluded from the NRT's HWE survey.

Lessons Learned

HWEs remain a focus of healthcare organizations, which must continue to measure the degree of satisfaction derived from the practice environment with the appropriate tools and resources for all staff. However, available tools to understand HWEs from the NRT nurse's professional perspective remain limited in their ability to draw clear data and conclusions. The complexity of the environment for NRT staff, given their cross-cultural impact and daily changing peer contacts, further challenges determining the variables necessary to accurately capture HWEs for the NRT nurse. But the impact of satisfaction on nurse, patient and organizational outcomes is significant. The first step in improving the work environment for NRT nurses is to clearly define their environment, which may further explicate the type of tool required to capture their perspective.

Next Steps

The NRT will continue to refine the study process, including its survey, study design and measurable outcomes for future use in research. With the data collected thus far, the CQI team will analyze, discuss and disseminate results with the appropriate stakeholders, as well as explore strategies to improve its own HWE. Other considerations include developing an NRT network across the province in order to build a shared understanding of the challenges and positive influences that NRT nurses have in organizational HWEs. Another important outcome was an educational presentation for clinical leaders, expounding the role of NRT nurses within our organization.

Conclusion

Through collaboration and shared understanding, the NRT staff have gained a new perspective of HWEs within the context of their virtual unit. As a result of their efforts, a new conversation has been ignited within and between units regarding improving the work environment for staff, patients and families. Beginning with a small group of NRT nurses, who came together to form a CQI council, an idea for sharing their unique perspective of HWEs blossomed into a collaborative, intraprofessional CQI initiative for improving the organizational HWEs at LHSC. This initiative represents a greater awareness of the contributions made by all nurses, their accountability to one another and to their patients, affirming that when NRT nurses ask themselves "Where am I working today?," no matter where they go, they know that they are making a difference.

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