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CLINICAL COLUMN

Cardiac Resynchronization Therapy in Congestive Heart Failure Patients

Jennifer Williams, RN, BA, BN, NP

Cardiac Resynchronization Therapy in Congestive Heart Failure Patients

Congestive heart failure (CHF) is a complex, progressive health issue estimated to affect 500,000 people in Canada with 50,000 new patients being diagnosed each year (Heart and Stroke Foundation, 2014). It continues to be associated with significant morbidity and mortality, with an average annual mortality rate of 5% to 50% depending on severity of symptoms, heart dysfunction, age and other associated factors (Arnold et al., 2006). Canada's annual in-hospital mortality rate is 9.5 deaths/100 hospitalizations in patients over 65 years, with mortality rising to 12.5 deaths/100 hospitalizations in patients over 75 years (Lee et al., 2004). Prognosis for heart failure patients is poor, with an average one-year mortality rate of 33% (Lee et al., 2004). Management of CHF requires a unique plan of care for each individual, based on his or her symptoms, clinical presentation and disease severity (Arnold et al., 2006). The Canadian Cardiovascular Society (CCS) consensus conference outlines the recommendations for management of heart failure. These guidelines begin with accurate diagnosis of heart failure and include patient education, lifestyle modifications and consideration of co-morbidities, combination pharmacological therapy, mechanical device therapy and surgical measures (Arnold et al., 2006). A collaborative effort among heath care teams, patients, and their caregivers is required in order to achieve optimum results that have a measurable impact on CHF patients (Arnold et al., 2006).

Congestive Heart Failure

CHF is defined as a complex clinical syndrome in which abnormal heart function results in or increases the risk of clinical signs and symptoms of low cardiac output and/or pulmonary or systemic congestion (Arnold et al., 2006). Heart failure (HF) can be divided into systolic or diastolic heart failure. In systolic heart failure, there is reduced cardiac contractility, whereas in diastolic heart failure there is impaired cardiac relaxation and abnormal ventricular filling (Hobbs & Boye, 2014).

Medical management of CHF requires a combination of therapies. Lifestyle modifications include weight reduction, appropriate management of co-morbidities and regular physical activity individualized to the patient's symptoms and functional capacity (Arnold et al., 2006). Restricting dietary sodium intake to less than 2g/day helps minimize fluid retention. Further sodium and fluid restriction may be suggested for those with ongoing fluid retention and congestion despite diuretic therapy (Arnold et al., 2006). Current recommendations for pharmacological therapy include a patient specific combination of angiotensin converting enzyme inhibitor (ACEI), and/or angiotensin receptor blocker (ARB), beta blocker and aldosterone antagonist. Careful consideration must be given to renal function while titrating CHF therapy. Persistent CHF symptoms may also be treated with digoxin and vasodilators. Diuretic therapy is recommended for most patients with congestive symptoms. Once acute symptoms are relieved, the lowest dose should be used to maintain stable symptoms (Arnold et al., 2006). Where available, referral is recommended to multidisciplinary outpatient clinics with expertise in heart failure for patients with recurrent symptoms to provide education, specialized evidence-based medical therapy, and referral for appropriate interventions (Arnold et al., 2006).

Although there have been many advances in the management of heart failure, there continues to be a significant number of patients with persistent symptoms despite maximum tolerable therapy (Kumar & Saxon, 2003). A great deal of research has been conducted to find therapies to treat this population of patients.

Classification of Congestive Heart Failure

Heart failure is classified by the severity of functional limitations and correlates fairly well with prognosis (Hobbs & Boye, 2014). Health care providers require documentation of functional capacity in order to manage heart failure effectively and evaluate outcomes. One validated tool that is currently used to measure functional capacity is the New York Heart Association (NYHA) classification system. Careful consideration must be given to the classification of patient symptoms when making decisions about patient management.

The Effects of Ventricular Dyssynchrony

One quarter to one third of patients with CHF have some form of intraventricular conduction abnormality (Jarcho, 2005). This electrical conduction delay often results in dyssynchronous ventricular contraction, which is mechanically inefficient (Jarcho, 2005). This can lead to abnormal interventricular septal wall motion, reduced stroke volume, reduced

rise in LV pressure, reduced diastolic filling times and worsening mitral regurgitation (Kumar & Saxon, 2003). Ventricular dyssynchrony is shown to have a negative impact on the progression of heart failure and has been associated with severe symptoms and poor prognosis (Arnold et al., 2006). Traditional right ventricular pacing devices create an artificial conduction delay, which has been shown to impair ventricular function (Jarcho, 2005). Studies have shown that patients with left ventricular (LV) dysfunction and delayed ventricular conduction may benefit from more synchronous contraction. Since the mid-1990s synchronized biventricular pacing has been used in CHF patients to resynchronize ventricular contraction and thus improve the pumping function of the heart.

Cardiac Resynchronization Therapy

Cardiac resynchronization therapy (CRT) involves simultaneous pacing of both ventricles to reestablish coordinated contraction in patients with systolic dysfunction and ventricular dyssynchrony due to left bundle branch block (Neubauer & Redwood, 2014). Resynchronization with CRT has been shown to improve LV function, reduce mitral regurgitation, enhance cardiac output and reduce heart failure symptoms without increasing myocardial energy consumption (Exner et al., 2013). Placement of the CRT device involves implanting a pacemaker the size of a half-deck of cards, usually just below the collarbone. Three wires (leads) are implanted: one in the right atrium, one in the right ventricle and a third through the coronary sinus of the right atrium. It is advanced posteriorly toward the left ventricle, then through a venous branch running along the free wall of the left ventricle (Jarcho, 2005). These leads are connected to the device monitor that emits tiny pulses of electricity to pace both ventricles simultaneously (American Heart Association, 2014). Figure 1 depicts a biventricular pacing device and lead placement for CRT.

Who Qualifies for CRT?

QRS duration, functional class, and left ventricular ejection fraction (LVEF) are used to determine who qualifies for CRT (Exner et al., 2013). The updated CCS guidelines recommend CRT for patients in sinus rhythm with NYHA class II, III or ambulatory class IV symptoms despite optimal medical therapy with QRS duration >130ms and LVEF of <35% (Exner et al., 2013). Recent randomized trials (EchoCRT) have shown that use of CRT in patients with systolic heart failure and narrow QRS complex less than 130ms, does not reduce death rate or hospitalization and, in fact, increases mortality (Ruschitzka et al., 2013). Consideration should also be given to heart failure patients in permanent atrial fibrillation (AF) who are otherwise suitable for therapy (Exner et al., 2013). CRT may be considered for patients in sinus rhythm with NYHA class II, III or ambulatory class IV heart failure with LVEF <35% and a QRS >150ms not due to LBBB (Exner et al., 2013). Patients with chronic right ventricular (RV) pacing with ongoing symptoms of heart failure and LVEF <35% should also be considered for CRT (Exner et al., 2013). It is recommended that heart failure patients who need device revision be considered for upgrade to CRT if eligible (Parkash et al., 2013).

Subjective as well as objective evaluation of the pre-CRT implantation functional capacity and symptoms are important, particularly in patients in whom there is disparity between the reported symptoms and the clinical assessment, or to distinguish the non-HF related causes of functional limitation (Parkash et al., 2013). Implantable cardioverter-defibrillator (ICD) should also be considered for CRT patients who meet the requirements for ICD therapy (Howlett et al., 2009).

Benefits and Risks of CRT

Clinical trials such as the Comparison of Medical Therapy Pacing, and Defibrillation in Heart Failure (COMPANION) study and the Cardiac Resynchronization in Heart Failure (CARE_HF) study have shown the potential benefits of CRT for patients with symptomatic heart failure and a wide QRS complex. It has been shown that patients with a QRS duration greater than 150 ms respond more favourably than those with lesser degrees of QRS prolongation (Howlett et al., 2009). CRT has been found to decrease the combined risk of death from any cause or first hospitalization, and when combined with an ICD, significantly reduces mortality (Bristow et al., 2004). Also of importance, patients have noted an increased sense of security following CRT device insertion.

As with any invasive procedure, there are risks associated with CRT insertion. These may include infection, reaction to medications used during the procedure, blood loss or damage to a blood vessel or the heart wall (St. Jude Medical, 2014). Unfortunately, for reasons that are not always clear, CRT therapy does not benefit all patients. In some cases unsuccessful lead placement may be the cause or the severity of dyssynchrony may have been overestimated prior to insertion (Jarcho, 2005).

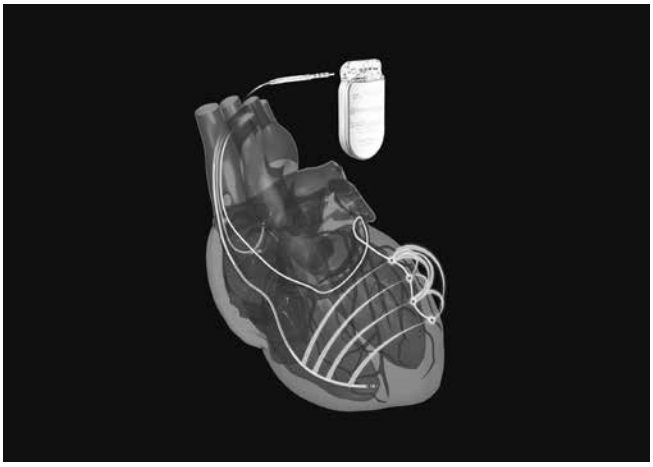

Figure 1: Lead Placement for CRT
(Used with permission from St. Jude Medical)

Studies and the Evidence

As noted, there have been numerous studies conducted on the use and benefit of CRT in heart failure patients. In 2004 the COMPANION study concluded that compared to medical therapy alone, CRT significantly reduced the rate of death or hospitalization by 34% in the pacemaker group and by 40% in the pacemaker-defibrillator group (Bristow et al., 2004). Another large-scale study, CARE_HF followed in 2005 and CRT patients were compared with patients who had medical therapy only. The CRT group had significantly fewer deaths from any cause and fewer hospitalizations for a major cardiovascular event. The CRT group also had better improvement in ejection fraction, overall symptoms and quality of life scores than the group with medical therapy only (Cleland et al., 2005). In 2008, the REsynchronization reVErses Remodeling in Systolic left vEntricular dysfunction (REVERSE) trial demonstrated that CRT, in combination with optimal medical therapy, reduced the risk for heart failure hospitalization and improved ventricular structure and function in NYHA functional class I-II patients with previous HF symptoms (Linde et al., 2008).

Bradley et al. (2003) did a meta-analysis looking at the efficacy of CRT. They showed that CRT reduced heart failure hospitalizations, but its benefits were seen mainly in patients with NYHA class III-IV symptoms. A second meta-analysis showed that CRT reduced the number of deaths from progressive CHF by 51% and hospitalizations by 29%, although no significant reduction in all-cause mortality was found (McAlister et al., 2004). It is evident that in addition to standard pharmacological therapy, CRT improves symptoms and quality of life and reduces complications and the risk of death (Cleland et al., 2005).

Conclusion

Over the past 20 years, researchers and health care teams have gained a better understanding and developed many new therapies for heart failure that have improved the prognosis for those affected (Arnold et al., 2006). As new data are collected, the management and treatment of heart failure continues to evolve. Researchers strive to develop best practices in order to improve both the quantity and quality of life for CHF patients. CRT is not exempt from this scrutiny. Investigators continue to look for improved and alternate therapies in order to optimize patient care, as well as clarify the role and benefit of CRT in heart failure patients who fall outside the current recommended guidelines. ♥

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A Relational Approach to Implantable Cardioverter-Defibrillator Generator Replacement: An Integrative Review of the Role of Nursing in Shared Decision-Making

Krystina B. Lewis, RN, MN, PhD (student), CCN(C), Rosalie Starzomski, RN, PhD, and Lynne Young, RN, PhD

Abstract

***Background**: Implantable cardioverter defibrillator (ICD) implantation rates are increasing as advances in heart failure and arrhythmia management progress. Consequently, the number of ICD generator replacements is rising and ICD replacement is an opportune time for shared decision-making (SDM). Nurses should have distinct roles and responsibilities in SDM processes.*

***Objectives:** To use a relational lens to localize the role of the nurse in SDM, and recommend ways in which nurses can be involved in SDM.*

***Methods:** An integrative review of 17 articles was conducted to determine the role of nurses in SDM.*

***Results:** Our analysis revealed four themes that helped us articulate nurse involvement in SDM; knowledge as a basis for SDM, sharing power in the nurse-patient relationship, utilization of decisional support strategies, and communication.*

***Conclusion:** Our findings support the participation of nurses in SDM. Nursing implications are offered, specifically for the management of patients facing ICD replacement.*

Key words: decision-making, shared; nurse's role; patient participation; defibrillators, implantable

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Implantable cardioverter-defibrillator (ICD) implantation rates are rapidly increasing, as advances in heart failure and arrhythmia management progress (Bardy et al., 2005; Moss et al., 2002). ICDs are small battery-powered devices implanted in a person's chest or abdomen programmed to detect life-threatening cardiac arrhythmias that can lead to sudden cardiac arrest. Once detected, the ICD can restore a normal heart rhythm by delivering electrical impulse(s) such as anti-tachycardic pacing or an internal shock to the heart. They are an effective treatment modality for patients at risk of sudden cardiac death. It is estimated that more than 85,000 Canadians are eligible for ICD therapy, with numbers increasing by the thousands every year (Fishman et al., 2010; Simpson, Hoffmaster, & Dorian, 2005). ICDs require a battery, or pulse generator to function, which must be replaced every four to six years (Kramer et al., 2013). Researchers have found that most patients do not reflect on ICD generator replacement, presumably because the elective nature of the procedure is rarely discussed (Fluur, Bolse, Stromberg, & Thylen, 2013; Kramer, Buxton, & Zimetbaum, 2012). Discussing the option of non-replacement should be considered an essential component in the ongoing conversation among patients, their families, and the health care team.

Many factors should be considered when replacing an ICD pulse generator. For instance, replacement includes substantially greater procedural risks, as compared to initial implantation such as infection, lead malfunction, pneumothorax, and hematomas requiring evacuation (Krahn et al., 2011; Poole et al., 2010). Long-term risks of ICD therapy include inappropriate shocks, safety advisories (Sengupta et al., 2012), psychosocial adjustment difficulties (Sears, Todaro, Lewis, Sotile, & Conti, 1999) and, in the setting of an appropriate shock with presyncope or syncope, possible temporary driving restrictions (Thijssen et al., 2011). It is also an opportune time for patients to reassess their health care goals, as the ICD can affect a person's mode of death. After careful consideration of these factors, a patient may legitimately choose to decline ICD pulse generator replacement.

Shared Decision-Making

The discourse of patient-centred care has been widely adopted by the nursing and medical communities (Barry & Edgman-Levitan, 2012; Registered Nurses' Association of Ontario [RNAO], 2006; Shafir & Rosenthal, 2013). Shared decision-making (SDM) has been referred to as the "pinnacle of patient-centred care" (Barry & Edgman-Levitan,

2012). SDM is a model of treatment decision-making in which patients and health care professionals jointly consider the evidence of the treatment options and patients' preferences and values to reach a decision based on mutual agreement (Charles, Gafni, & Whelan, 1997). Health care professionals who use a shared decision-making approach are concerned with giving patients relevant and meaningful evidence-based information, aligning this information to their patients' preferences and values, and offering them the opportunity to make a decision in concordance with their values. SDM is appropriate when patients are faced with preference-sensitive decisions. These decisions involve making value trade-offs between benefits and harms that are dependent on informed patient choice, and whereby patient preference can legitimately overrule evidence (Wennberg, 2002). ICD pulse generator replacement is an example of a preference-sensitive decision.

Nursing and shared decision-making. Until now, much of the literature regarding SDM has focused on the physician-patient dyad (Légaré, Ratté, Gravel, & Graham, 2008). Given the increasing focus on interprofessional care delivery, and the role of nurses in assessing and managing the care of patients with ICDs, nurses should be involved in SDM processes (Institute of Medicine, 2003). However, there is a paucity of literature on the role of the nurse in SDM to support patients and their families, particularly in the context of ICD decision-making. This literature review has been conducted to determine the particular roles and responsibilities nurses can adopt to promote SDM in clinical practice. Findings will form the basis for recommendations for the clinical scenario of ICD pulse generator replacement.

ICD Pulse Generator Replacement in Current Practice

Current widespread practice at ICD generator replacement is often an automated process, focused on efficiency with little exploration of patients' values and preferences (Kramer et al., 2012). In many institutions, nurses play an important role in the assessment and care management of patients during ICD interrogation visits. Nurses are often the first to detect a depleting battery, and are, therefore, the first to enter a relational space with the patient regarding its implications. There are many reasons a patient could prefer to let the battery lapse. For instance, since the initial implant, the patient could have been diagnosed with a life-limiting illness, his/her cardiac status might have deteriorated, or the psychological sequelae caused by life with an ICD might have perturbed his/her quality of life (Flemme, Hallberg, Johansson, & Stromberg, 2011; Sears et al., 1999). Increased frailty and co-morbidity could warrant a person to want to focus on quality of life rather than prolonging it through life-saving measures such as an ICD. For others, the risks of the replacement procedure may outweigh the benefits. Adopting an SDM approach at ICD replacement is an ideal time to encourage patients to reflect on and clarify how the ICD fits within their revised health care goals. Nurses can take an active role in these discussions, given their established presence with this patient population.

Theoretical Underpinnings

The Interprofessional Shared Decision-Making model provides a theoretical basis for this paper, as those using it explicitly locate the patient at the centre of the decision-making process, and acknowledge the contributions of two or more disciplines in SDM (Légaré et al., 2011). It was created following a detailed theory analysis of existing SDM models, key interprofessional concepts, and a stepwise consensus-building and validation exercise with key stakeholders in primary care. The model is built on three levels, an individual (micro) level and two health care system levels (meso and macro). At the micro level, the patient presents with a health problem requiring decision-making. An underlying assumption of the model is that to achieve patient-centred care, the patient must be involved in the decision-making process. Together with a team of health care professionals, the patient is guided through a structured process whereby the practitioners provide treatment options based on the best available evidence, while seeking the patients' value-based perspectives about those options. At the meso level, the roles adopted by health care professionals are understood within their organizational contexts. Further, at the macro level, it is recognized that system level factors such as health policies, professional organizations, and social context influence care delivery (Légaré et al., 2011).

The philosophy of relational ethics has also been integrated throughout this review, which stipulates that relationships are the location for ethical action in nursing practice (Bergum, 2013). In this way, acting ethically requires attentiveness and responsiveness when engaged with others. The nature and quality of nurses' relationships with others can inform and powerfully influence nurses' advocacy actions (MacDonald, 2007).

Shared decision-making and relational ethics are naturally in concordance, as they are both primarily concerned with relationship building and partnering with patients (Charles et al., 1997; Doane & Varcoe, 2013). Through this lens, nurses call for consciousness and intentionality when engaged with patients and their families (Doane & Varcoe, 2005). Personal circumstances need to be elicited, discussed, and respected when contemplating potential life-saving therapies such as an ICD. These considerations humanize the experience of health and illness by relationally understanding the particularities of each patient's circumstances, their preferences, and their values.

Purpose

Our purpose in this review was to critically explore how a relational ethics lens can inform a nurse's role in SDM. Specific objectives included:

1. To review, appraise, and analyze the existing evidence regarding the nursing role in SDM.
2. To consider this evidence using a relational ethics perspective.
3. To recommend ways in which nurses can be involved in SDM, particularly when an ICD generator is in need of replacement.

Methodological Approach

Whittemore and Knafl's (2005) five-step process was used to conduct an integrative review and critical analysis of the literature on the topic of the nursing role in SDM. The five stages begin with the identification of a problem, followed by a literature review, data evaluation, data analysis, and the dissemination of findings. All pertinent literature, empirical and theoretical, was considered in this review to achieve a comprehensive understanding of this question to inform practice, policy, and research.

Problem

ICD pulse generator replacement is currently an automated process. ICD replacement is an opportune time for shared decision-making (SDM). Given nurses' roles in the assessment and care management of this patient population, nurses should be involved. Little is known about the roles and responsibilities that nurses should adopt in SDM.

Literature Search

A literature search was conducted using multiple strategies. The literature search audit trail is highlighted in Figure 1. Electronic databases such as CINAHL, Medline, PsycInfo, and the Cochrane Database of Systematic Reviews were searched. A field expert in SDM was contacted for access to unpublished and informally published materials. Ancestry searching was also used. Search terms included nurse, nurse role, nursing, patient, nurse patient relations, patient participation, decision-making, ethics, nursing ethics, relational ethics, and implantable cardioverter-defibrillator. The initial search was limited to English peer-reviewed articles and those published after 1982. This is when the concept of patient participation in health decisions was introduced. For inclusion, the nursing profession had to be addressed in the context of decision-making when adult patients with decision-making capacity were faced with a choice related to clinical care. Articles were excluded if they referenced nurses' roles in decision-making within the interprofessional team without patient involvement, or within organizational decision-making. Articles with nurse practitioners or midwives as the primary sample were also excluded. Perspective articles, case reports, and interviews were not included. Another exclusion criterion was later applied as many articles were concerned with patients' preferences for decision-making, with the nurse's role addressed in terms of practice recommendations. These were excluded since the evaluation of the proposed recommendations was not their main purpose. Using the criteria described above, 24 articles were included for review.

Data Evaluation and Analysis

Data evaluation involved the critical appraisal of the literature using the John Hopkins' Evidence Based Nursing Research and Non-Research Evidence Appraisal tools (Newhouse, Dearholt, Poe, Pugh, & White, 2007). Studies were critically appraised based on strength of the evidence according to study design, and on the quality of the evidence based on methods and execution. No study was eliminated on the basis of low strength or quality. The review of older articles revealed that nursing's disciplinary perspective and role in patient decision-making had progressed in recent years. Included articles were, therefore, read, critiqued, and analyzed in reverse chronological order. When data saturation was achieved, older articles were excluded. No new themes transpired following the review of 13 articles. Four more were included to ensure saturation. Seventeen articles were included in the analysis.

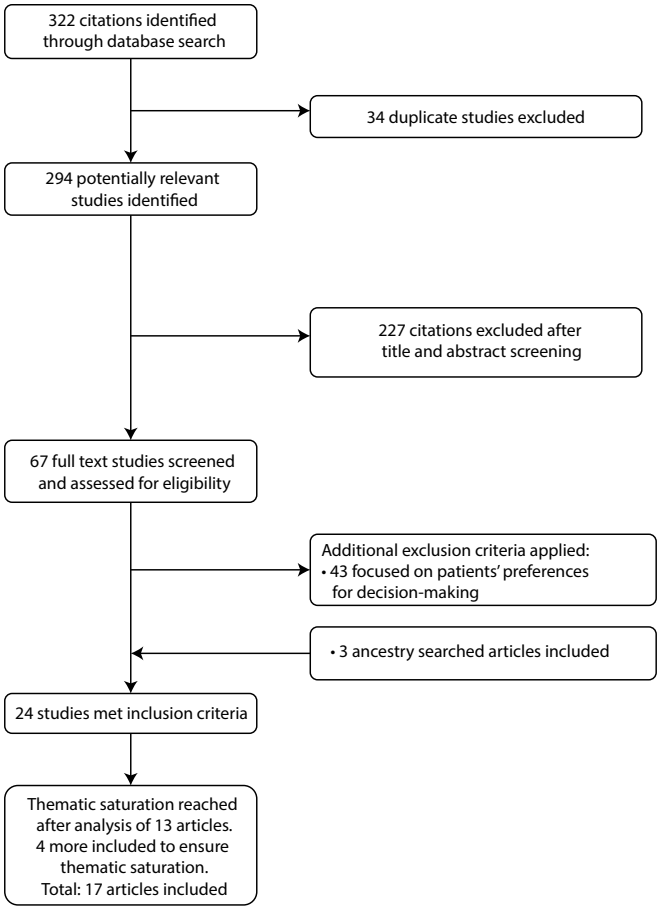

Figure 1: Literature search audit trail

The data analysis stage involved ordering, coding, and categorizing the data for synthesis. A constant comparative method was used to interpret the content of text data. The majority of articles were authored in Europe (n=10), North America (n=5), and Australia/ New Zealand (n=2). There was one quantitative study (n=1), one mixed methods study (n=1), and seven qualitative studies (n=7). The remainder were non-research based (n=8) in the form of clinical practice guidelines, concept analyses, and literature reviews with one for the purpose of framework development. Areas of nursing practice are listed in Table 1.

Table 1: Areas of nursing practice in which the nurses' role in SDM was studied

Area of practice	n=number of articles (%)
General Nursing Practice	5 (29.4%)
Oncology	3 (17.6%)
End of Life	2 (11.8%)
Call Centre	2 (11.8%)
Mental Health	1 (5.9%)
Chronic Illness	1 (5.9%)
Primary Care	1 (5.9%)
Critical Care	1 (5.9%)
Residential Care	1 (5.9%)

Findings

Nursing role and responsibilities in SDM can be articulated from the four emerging themes: (a) knowledge as a basis for SDM, (b) sharing power in relationships, (c) utilization of decisional support strategies, and (d) communication. These themes are not mutually exclusive, and will be applied to ICD generator replacement in the discussion section of this article. The findings are summarized in Table 2.

Knowledge as a Basis for SDM

Despite nurses' adoption of SDM as rhetoric, major gaps were identified between their intentions to involve patients and their actual ability to do so (Florin, Ehrenberg, & Ehnfors, 2006; Stacey et al., 2008; Stringer, Van Meijel, De Vree, & Van der Bijl, 2008; Upton et al., 2011; Zoffman, Harder, & Kirkevold, 2008). It appeared that the main reason for this disparity stemmed from a lack of knowledge. The transfer and exchange of information to build knowledge was a key feature of SDM (Ballinger et al., 2012; Barthow, Moss, McKinlay, McCullough, & Wise, 2009; Florin et al., 2006; Frank, 2009; RNAO, 2006; Sahlsten, Larsson, Sjostrom, & Plos, 2008; Stacey et al., 2008; Stacey, O'Connor, Graham, & Pomey, 2006; Stringer et al., 2008; Upton et al., 2011; Zoffman et al., 2008). In order to engage patients in SDM processes, nurses needed to acquire two forms of knowledge; knowledge about SDM and patient-specific knowledge.

Upton et al. (2011) suggested there is a "fundamental misalignment" between what nurses believe SDM is, and how it is enacted in practice. Nurses should be exposed to

Table 2: Nurses' role and responsibilities in SDM as four emerging themes

Knowledge as basis for SDM	Sharing power in the nurse-patient relationship	Utilization of decision support strategies	Communication
Building knowledge through communication **Knowledge about SDM** Education about SDM Clinical exposure Confidence Decision coaching training In-depth knowledge of specialty area **Patient-specific knowledge** Consider all dimensions of a patient Verify information about a patient with the patient Assessment Reflection From disease-oriented perspective to life-oriented perspective Assess patient readiness for decision-making Avoid assumptions Ask patient about their preferences	Nurses hold too much power Unwillingness to relinquish power Surrender power and control Recognize potential for dominance Minimize imbalance Authority Clinical knowledge perceived as power Patient empowerment Create opportunities for choice Acquiesce to patient choice	**Decision coaching** Guide process of decision-making Clarify values Discuss evidence Elicit preferences Neutral facilitator Decisional support Patient engagement Patient empowerment Increase satisfaction **Patient decision aids** Adjuncts to SDM Makes explicit the decision to be made Patient involvement Evidence-based information Clarify personal values Prepare for consultation Maximization of consultation time	Exchange of information Influence of contextual circumstances Respectful communication Mutual understanding Moral action **With the patient** Nurse as translator or mediator Provide explanations Clarification of options Increase comprehension Focus dialogue Central to difficulties in decision-making **Within the interprofessional team** Collaboration Understanding of others' roles Informed Advocacy for patients Facilitate decision-making SDM as a process Decisions can shift over time

educational opportunities to develop a better understanding of SDM (Stacey et al., 2008; Stringer et al., 2008). With educational opportunities and clinical exposure, nurses' level of involvement increased, and the quality of their decisional support improved (Barthow et al., 2009). This is in accordance with Stacey et al.'s (2008) findings that nurses' limited knowledge, skills, and confidence in SDM hindered the delivery of quality decision support. In their mixed method study of call centre nurses, 92.9% of nurses believed they needed to enhance their knowledge of decisional support to assist patients in health decisions. In a randomized controlled trial, the recipients of a structured coaching protocol intervention for call centre nurses offered significantly higher decision coaching quality than the nurses in the control group ($p<0.001$) (Stacey et al., 2006). They were more likely to have assessed the callers' decisional needs, and were better able to tailor their coaching according to those needs.

Nurses' knowledge of treatment intent and regimes in one's specialty area was also important to facilitate decisional involvement. For example, Ballinger et al. (2012) identified 69% of nurses who believed education would improve communication regarding adjuvant chemotherapy with patients.

Knowledge of the multiple dimensions of a person was also necessary to contextualize decision support and facilitate meaningful decisions (Barthow et al., 2009; Sahlsten et al., 2008). Zoffman et al. (2008) coined the phrase "co-creating person-specific knowledge" (p. 673) where they called on nurses to verify information obtained from the patient with the patient. This could be achieved through assessment, reflection, and by moving beyond a disease-oriented perspective to a life-oriented one. Numerous foci for decision-making assessment existed, including patients' understanding and acceptance of prognosis, their level of decisional capacity, their wishes and expectations for treatment, and their informational needs (Florin et al., 2006; Frank, 2009; Stacey, Graham, O'Connor, & Pomey, 2005). Other needs were related to dimensions of nursing care, including physiological, psychological, and spiritual ones (Florin et al., 2006). Zoffman et al. (2008) discerned two types of reflection to construct person-specific knowledge: the preferred situational reflection, which referred to contextual knowledge specific to a patient's unique circumstances, and non-situational reflection, referring to generalized knowledge accrued from experience and evidence.

A critical barrier to objectivity in assessment was the presence of assumptions (Beaver et al., 2007; Florin et al., 2006; Frank, 2009; Rushton, 2007; Stringer et al., 2008; Tuckett, 2006; Upton et al., 2011; Zoffman et al., 2008). These assumptions hindered the opportunity for SDM in practice (Upton et al., 2011). The most common assumptions made by nurses were concerned with patient demographics, such as age and social status, and their impact on treatment preferences and preferred level of involvement in decision-making (Beaver et al., 2007; Florin et al., 2006; Upton et al., 2011). Tuckett (2006) cautioned care providers to "not fall prey to cultural stereotypes by assuming that all persons of a particular group ascribe to a culturally-derived position" (p. 167). Perhaps the most influential assumption carried by some nurses was that symptom control and disease management were more important than sharing power in consultations (Beaver et al., 2007; Stringer et al., 2008; Upton et al., 2011). Tuckett (2006) suggested a simple way for nurses to learn their patients' informational needs, promote best interests, and avoid paternalism: ask them about their preferences!

Sharing Power in the Nurse-Patient Relationship

Several authors identified a fundamental flaw in the nurse-patient relationship that underpinned nurses' inability to fully engage in SDM processes: nurses hold too much power (Frank, 2009; Sahlsten et al., 2008; Silén, Svantesson, & Ahlstrom, 2008; Upton et al., 2011). Despite nurses' ideological endorsement of equality, signs of unwillingness to relinquish power persist (Stringer et al., 2008). In a concept analysis of patient participation, nurses' surrender of power and control was a key component to patient participation (Sahlsten et al., 2008) suggesting that nurses should recognize their potential for dominance and establish relationships in ways to minimize this imbalance.

In an interview study, one nurse believed that "most patients are usually just led along the path, which has already been decided [for them]"(Beaver et al., 2007, p. 729). Similarly, Silén et al. (2008) found that some patients did not know they had the right to refuse treatment due to perceived authority in the nurse-patient relationship. In another interview study, a nurse suggested that nurses hold this power by virtue of their clinical knowledge (Upton et al., 2011). Yet, this exertion of power over patients was not motivated by a desire for dominance, but rather, to ensure compliance for the treatment plan (Rushton, 2007; Stringer et al., 2008; Upton et al., 2011).

Not all patients desired the same level of involvement in decision-making (Beaver et al., 2007). For example, Florin et al. (2006) found that no patient wanted to make health decisions solely on their own. The majority (36%) preferred a collaborative approach with the health care team. For patients who wanted more involvement, nurses' awareness of the benefits to patient empowerment, such as a sense of decision ownership (Upton et al., 2011), increased self-esteem (Ballinger et al., 2012), decreased stress (Ballinger et al., 2012), improved well-being (Ballinger et al., 2012), and increased compliance (Sahlsten et al., 2008) motivated the shift in power from a mere illusion to materiality. In spite of these benefits, however, the abnegation of power came with a greater challenge: acquiescing to patients' informed choices in defiance of evidence-based recommendations (Christensen & Hewitt-Taylor, 2006; Rushton, 2007). When appropriate, nurses should create opportunities for choice

(Frank, 2009; Rushton, 2007). Patients cannot express their preferences if they have not been presented with options. The authors of an exploratory, in-depth, interview-based study revealed that patients who asked about options were more likely to be offered them (Beaver et al., 2007). Yet, patients who did not request participation in decision-making might have been patiently waiting for the invitation.

Utilization of Decisional Support Strategies

It is within the scope of professional nursing practice to support patients in making decisions regarding their health (RNAO, 2006). Preference-sensitive decisions, such as ICD pulse generator replacement, can elicit a sense of uncertainty for patients (Stacey et al., 2008; Stacey et al., 2006). Unresolved decisional conflict can lead to decisional delay, reversal, regret, and poor outcomes (Stacey et al., 2008). Nurses can adopt two strategies to assist patients and their families with health-related decision-making: decision coaching and PDAs.

Decision coaching. Decision coaching can be adopted by any health care professional to guide patients through the process of decision-making, and help them clarify personal values with the evidence-based outcomes of the presented treatment options (Stacey et al., 2008). Decision coaching offers one-to-one guidance by a trained, neutral, and supportive facilitator (Rushton, 2007; Stacey et al., 2005). Many researchers have concurred that nurses are well positioned to use decision coaching strategies to identify decisional conflict and provide decisional support (Barthow et al., 2009; Frank, 2009; RNAO, 2006; Stacey et al., 2005; Stacey et al., 2008). As seen in a randomized controlled trial, a nurse's training and level of experience with decision coaching is directly related to his/her ability to offer it (Stacey et al., 2006).

Decision coaching enables patient engagement and empowerment, increases patient satisfaction, and improves decision quality (Stacey et al., 2008). Using a mixed methods approach, Stacey et al. (2005) reported that more than 98% of call centre nurses agreed that recipients of decisional support were more likely to ask questions and be active in decision-making. Decision coaching can, therefore, be used as a strategy to encourage a greater degree of patient involvement. This could potentially result in better informed patients, and improved consensual proceedings.

Patient decision aids (PDAs). Decisional support can be enhanced using PDAs as adjuncts to a SDM-guided consultation (RNAO, 2006). PDAs are tools that help people become involved in decision-making by making explicit the decision that needs to be made, providing evidence-based information about the options and outcomes, and by clarifying personal values (RNAO, 2006; Stacey et al., 2008). Nurses can assist and support patients in the navigation of PDAs in preparation for the clinical encounter with their physicians to maximize patient-practitioner consultation time.

Communication

None of the roles and responsibilities described above could be carried out without communication. An exchange of information is necessary for nurses to be privy to patients' contextual circumstances, which undoubtedly influences their choices. Facilitating respectful communication is best described by Rushton (2007). It requires "shifting from telling to discovering, from judging to inquiring, and from blaming to uncovering" (p. 153). It is indispensable with both the patient and the interdisciplinary team, and is a bridge to greater mutual understanding and moral action.

With the patient. Our findings from this review support the notion that nurses are translators, or mediators, of information provided by the medical team (Allen, 2004). Nurses can explain and clarify treatment options, and can assist with the processing of information to increase comprehension (Ballinger et al., 2012). Focused and respectful dialogue can also reveal patients' values and expectations for care (Ballinger et al., 2012). Supporting this contention, Frank (2009) found a key link between a patient's participation in decisions and the verbal and non-verbal communication and information sharing skills of the practitioner. In concordance, Zoffman et al. (2008) found that difficulties with decision-making were central to communication. For SDM to occur, person-centred communication should always be adopted, with consideration for patients' concerns, and health care goals.

Within the interprofessional team. Educating nurses to be competent interdisciplinary team members is held to be foundational to fostering quality care (Institute of Medicine, 2003). Inadequate communication within the interprofessional team can lead to insufficient collaboration, misunderstandings of team members' roles and responsibilities, and can result in nurses being uninformed and, thus, less likely to provide information or discuss treatment options (Barthow et al., 2009; Silén et al., 2008). When fully informed of the treatment plan, nurses are able to advocate and contextualize their patients' wishes, and facilitate patient decision-making (Ballinger et al., 2012; Frank, 2009).

Finally, a key component of communication in SDM is that it is a process (Ballinger et al., 2012; Florin et al., 2006; Rushton, 2007; Sahlsten et al., 2008; Stringer et al., 2008). Preferences in accordance with treatment options and outcomes are context dependent, and can shift over time. This is an important consideration for the interprofessional team who follow patients with ICDs from the moment the devices are implanted to the end of life.

Discussion

SDM, through a relational lens, requires nurses to acknowledge variability in patient perspectives and desires, and strive to understand the patient's moral experience. "Through genuine engagement with the other's experience, the moral decision-making process is rendered ethical, not

by virtue of the outcome, but by virtue of the relational process through which the decision came to be made" (Wright & Brajtman, 2011, p. 24). This relational process occurs through dialogue, and can be guided by the fundamental themes of relational ethics: environment, embodiment, mutual respect, and engagement (Bergum, 2013).

Many patients facing ICD replacement, or any preference-sensitive decision, may enter this relational space adopting a patient discourse, never challenging or questioning recommendations. For others, the increase in democratic thinking has them more cognizant of their rights, demanding information, and expecting choice. Nurses should extend invitations and lead patients into the relational space to communicate, assess for decisional conflict, and offer support. Decision coaching and the use of PDAs can inform patients of the evidence behind the continuation or discontinuation of ICD therapy while clarifying their values about each option, and can also reduce clinician variability in the type and quality of information presented (Légaré & Stacey, 2009; O'Connor, Stacey, & Légaré, 2008; RNAO, 2006; Shafir & Rosenthal, 2013). The development and feasibility testing of a PDA for initial ICD implantation is ongoing (Carroll et al., 2013).

Some patients have reported only truly understanding the risks and side effects of ICD therapy following ICD implantation (Matlock et al., 2011). Thus, SDM in the context of ICD therapy is a process that needs to occur over the length of time the ICD is in place to ensure those living with it are empowered to achieve optimal health-related quality of life from their perspective. Through relational practice, a key goal for nurses is to facilitate this optimal health-related quality of life of those in their care. Nurses must be prepared to offer decisional support to patients with ICDs during the entire tenure of this implanted device, from insertion to death.

Readily generated and disguised as knowledge, assumptions can deprive patients of the relational experience necessary to explore their preferences and beliefs in accordance with the options. Patients may voice their preferences, which may not be heard by the health care team, thus interrupting the delivery of meaningful, quality health care. In the context of ICD therapy, assumptions may also cloud nurses' ability to understand their patients' values associated with the device. Nurses should seek, listen to, and respect patients' voiced concerns and desires, because it is only through understanding and acting on patients' perspectives that patient-centred quality care can be delivered.

Limitations

It is important to note some limitations in the included studies. First, ethics approval was acknowledged in all but one study. This omission could be explained by the authors' consideration of a returned survey as implied consent. Second, many of the sample sizes in the qualitative studies were small, some without mention of data saturation. Third, some participants had limited experience in the clinical field being studied. A lack of experience rather than external factors may have influenced results. Four, the survey and interview-based studies may have been vulnerable to response bias, as respondents may have provided socially desirable responses. Five, a degree of researcher bias may have influenced findings, as reflexivity was not addressed. Six, the predominant Eurocentric perspective might limit the transferability of the findings. Many authors quoted this as a limitation due to the specificity of their settings and populations. However, the identification of similar themes across studies suggests that nurses hold similar roles in decision-making regardless of the setting and patient population for whom care is being provided.

Nursing Implications

Numerous nursing theorists have called for collaboration with patients to achieve the outcome of health-related quality of life from the patient's perspective (Thorne et al., 1998). The inclusion of relational ethics is an important contribution to the study of theoretical perspectives to clarify and advance SDM as a highly interactive process underpinned by moral obligation in the therapeutic relationship. A nurse's involvement in SDM is enhanced by being in relation with the patient, accruing knowledge about them, and about SDM. The latter form of knowledge can be gained and supported by the development of nursing competencies for SDM for nursing students and staff, and promoted in an environment that fosters SDM. To accrue patient-specific knowledge, nurses must establish partnerships with patients based on equality, with consideration for the patient's preferred level of involvement in decision-making. When patients are nearing ICD generator depletion, they should be informed of the option of ICD replacement versus non-replacement, along with its risks and benefits. Advanced care planning should also be addressed. Substantial time should be allotted for reflection prior to making a final decision. We suggest that future research should aim to develop knowledge about nurses' roles in SDM in the context of ICDs. Decision support strategies for patients facing ICD replacement should also be designed and trialed.

Conclusion

The goal of SDM is to offer patients a high-quality decision-making process characterized by the receipt of evidence-based information, consideration for their personal values, and freedom from coercion. The unpredictability of the future arouses uncertainty in the present, but through intentional moral reasoning, decisions are "probable, reasonable, wise, prudent, and balanced" (Hermsen & Ten Have, 2005, p. 564). SDM can facilitate the conscious exploration of patient choice, a core value in the provision of ethically sound patient-centred care (Canadian Nurses Association,

2008). In efforts to understand the whole person, theories of nursing are concerned with nurses sharing their time, expertise, and selves. It is, then, no surprise that if circumstances allow, nurses are willing and prepared to share the decision-making process, as well. ♥

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CCCN Dates to Remember

Session Session Date / Submission Deadline

August 31, 2014: Recognition & Awards

August 31, 2014: Clinical Improvement Grant

October 25–28, 2014: Canadian Cardiovascular Congress & CCCN Annual General Meeting and Scientific Sessions, Vancouver, BC

Notice: CCCN Annual General Meeting

Date: Sunday October 26, 2014
Time: 16:00–17:00
Location: Vancouver Convention Centre

Avis : Assemblée généralle annuelle du CCIISC

Date : le 26 octobre, 2014
Heure : 16 h 00–17 h 00
Lieu : Centre des congrès de Vancouver

RESEARCH COLUMN

Sampling Methods in Cardiovascular Nursing Research: An Overview

Damanpreet Kandola, BHSc, MSc, Davina Banner, PhD, RN, Sheila O'Keefe-McCarthy, PhD, RN, and Debbie Jassal, BScN

Abstract

Cardiovascular nursing research covers a wide array of topics from health services to psychosocial patient experiences. The selection of specific participant samples is an important part of the research design and process. The sampling strategy employed is of utmost importance to ensure that a representative sample of participants is chosen. There are two main categories of sampling methods: probability and non-probability. Probability sampling is the random selection of elements from the population, where each element of the population has an equal and independent chance of being included in the sample. There are five main types of probability sampling including simple random sampling, systematic sampling, stratified sampling, cluster sampling, and multi-stage sampling. Non-probability sampling methods are those in which elements are chosen through non-random methods for inclusion into the research study and include convenience sampling, purposive sampling, and snowball sampling. Each approach offers distinct advantages and disadvantages and must be considered critically. In this research column, we provide an introduction to these key sampling techniques and draw on examples from the cardiovascular research. Understanding the differences in sampling techniques may aid nurses in effective appraisal of research literature and provide a reference point for nurses who engage in cardiovascular research.

Keywords: sampling, probability sampling, non-probability sampling, cardiovascular nursing research

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Sampling Methods in Cardiovascular Nursing Research: An Overview

Researchers are frequently charged with the task of undertaking research that is both credible and has wider reaching applicability to the larger population. This is particularly important in the area of cardiovascular health, where the growing levels of cardiovascular disease continue to put a strain on global health care systems and create significant burden for sufferers and their loved ones (Berra, Fletcher, Hayman, & Miller, 2011; Deaton et al., 2011; World Health Organization, 2007; Yusuf & McKee, 2014). Continued research is needed to drive improvements in the clinical management of cardiovascular disease and the development of effective and responsive health care systems.

The time and expense involved in research can make it challenging for researchers to study entire populations and, as a result, sampling techniques are used to assist in the selection of a representative sample (Sandelowski, 2000). The process of selecting a sample can be complex and the researcher must have sound knowledge of the population characteristics and sampling methods in order to ensure that a valid and robust sample is selected. If the researcher fails to achieve this, the research may not capture an appropriate target population and, as a result, may have limited applicability and usefulness at the practice level. In this research column, we will provide an introduction to the importance of sampling, followed by an overview of the key sampling techniques. We will draw on examples from cardiovascular research to highlight these. Understanding the different sampling techniques can assist cardiovascular nurses as they appraise research literature for application to practice, and it can provide a foundation for novice researchers as they begin their research journey.

Sampling: A Critical Part of the Research Process

Decisions around sampling are critical to the overall research process and there are several points that a researcher must consider when choosing a sampling method for research. These include the research problem, the researcher's personal experiences, and the intended audience (Creswell, 2013). As a starting point, the researcher must have a strong grasp of the population under study and may require access to detailed information about the overall population. This may include a consideration of factors such as gender, clinical status, geographical location, or institutional affiliation (Creswell, 2013). Once the target population is identified, the researcher must then consider the sampling techniques to be used.

Sampling Techniques

There are two main sampling approaches: probability and non-probability sampling (Bowling, 2009). These approaches will now be defined along with an overview of the key sampling techniques.

Probability sampling. Probability sampling can be defined as the random selection of elements from the population, where each element of the population has an equal and independent chance of being included in the sample (LoBiondo-Wood & Haber, 2013). Probability samples are most commonly associated with quantitative research studies, where a high level of control and manipulation may be required. The use of probability sampling techniques decreases the likelihood of selection bias and minimizes the potential for skewed results. There are five main types of probability sampling including simple random sampling, systematic sampling, stratified sampling, cluster sampling, and multi-stage sampling. These will now be presented.

Simple random sampling. Simple random sampling is the most straightforward form of random probability sampling. It is a sampling strategy that requires the researcher to define the overall population of interest and develop a sampling frame (LoBiondo-Wood & Haber, 2013). In the sampling frame, a list of the units of a given population is generated. The researcher then uses this to select participants using a "lottery method" or a table of random numbers based on a predefined sample size. For example, a study conducted by Benson et al. (2005) examined whether there was any difference between three methods of sheath removal following a percutaneous coronary intervention procedure: manual compression, mechanical compression with the Compressar, and mechanical compression with the Femostop device. The researchers randomly assigned 90 patients using a random-numbers table to undergo one of three methods of sheath removal. By using a simple randomized sampling technique, the researchers were able to avoid any selection bias.

Systematic random sampling. Systematic sampling is a less time-consuming form of simple random sampling. It uses a list of the population from which individuals or units of individuals are chosen at regular and predetermined intervals, for example, every ninth or "*k*th" person is selected from a list (LoBiondo-Wood & Haber, 2013). Wolf, Miller, and Devine (2003) investigated the relationship between nurse caring and patient satisfaction in patients undergoing invasive cardiac procedures. A systematic random sample of males and females hospitalized for interventional cardiac procedures was selected from a list of all patients as participants in the study. By using this approach, researchers are able to undertake a relatively simple sampling process while avoiding any selection bias. However, the risk of bias is higher when compared to simple random sampling, as the sampling interval can coincide with systematic variations in the sampling frame (LoBiondo-Wood & Haber, 2013).

Stratified random sampling. A stratified random sampling technique involves the researcher splitting the population into subgroups or strata (LoBiondo-Wood & Haber, 2013). It is best used when a sample with specific characteristics such as specific age ranges or area of residence is required. The sampling frame is divided into groups or strata according to these characteristics. Following this, systematic samples of pre-determined size are obtained at random from these strata in order to ensure equal distribution or representation of groups in the sample as compared to the larger population (Warner, 2008). In an earlier cross-sectional study, Dwyer, Williams & Mummery (2007) explored the attitudes of rural nurses towards defibrillation to assist in the development of nurse-initiated defibrillation programs. Rural registered nurses were divided into three distinct strata and a stratified sample of 30% of the full-time registered nurses (n = 436) was drawn from a list of nurses in 51 rural acute care hospitals throughout Australia. By doing this, the researchers were able to sample widely from the overall population of nurses, while maintaining an appropriate sample size.

Cluster sampling. Cluster sampling is most useful when a complete sampling frame is non-existent or when there are logistical issues such as a large geographic area or time constraints (LoBiondo-Wood & Haber, 2013). In health research, the cluster technique involves the selection of a random sample of geographical or organizational units (e.g., hospitals), within which a predetermined number of participants are sampled. Koelewijn-van Loon et al. (2009) employed this method of sampling and examined the effect of involving patients in nurse-led cardiovascular risk management on lifestyle adherence and cardiovascular risk. Stratification divided the Netherland region into four distinct geographic areas from which a total of 615 participants were selected through cluster sampling from 25 practices (13 in the experimental group and 12 in the control group). This method can be useful where there is a large or diverse target population or where resources such as financial support or time may be limited.

Multi-stage sampling. Multi-stage sampling is usually a combination of two or more of the aforementioned sampling strategies. This type of sampling involves the researcher developing sampling units or clusters. These clusters start large and become increasingly smaller. These clusters may be selected using simple of stratified random sampling techniques (LoBiondo-Wood & Haber, 2013). Multi-stage and cluster sampling may be problematic as there is greater risk of a non-representative sample because participants are chosen in strata. This aside, the advantage of using these techniques in combination is that a sampling frame of individual units is not required as clusters are used. From clusters, individual units can then be selected. Furthermore, the sample is easier to select as individual units are together in clusters instead of being scattered throughout the population.

Non-probability sampling. Non-probability sampling methods are those in which elements are chosen through non-random methods for inclusion into a research study. They include convenience sampling, purposive sampling, and snowball sampling. A drawback that exists for these types of sampling methods is that every element is not guaranteed to have a chance for inclusion into the study (LoBiondo-Wood

& Haber, 2013). Further, the research results cannot be generalized to entire populations and, therefore, are often used for pilot studies, as a basis to inform future research. While these methods are most common in qualitative research, they may also be used in quantitative research if the researcher is unable to access the data required to use random sampling techniques (Moule & Goodman, 2013).

Convenience sampling. Convenience sampling involves the selection of participants from a population in a non-random manner, selecting members simply because they are available and accessible (LoBiondo-Wood & Haber, 2013). Although convenient, this method of sampling introduces systematic difference, that is, sampling bias. The differences in sample compared to the actual population characteristics may lead to an under-representation in the sample. However, advantages include the ability to sample from an accessible population and not having to require a complete list of the population elements (Acharya, Prakash, Saxena, & Nigam, 2013). In a study by Zambroski, Moser, Bhat, & Ziegler (2005), a convenience sample of 53 patients with heart failure was recruited to determine (a) symptom prevalence, severity, distress and symptom burden in patients with heart failure; (b) impact of age and gender on symptom prevalence, severity, distress and symptom burden; and (c) impact of symptom prevalence and symptom burden on health-related quality of life (HRQOL). While this approach enabled researchers to capture the experiences of heart failure in a range of patients, there remains the potential for sampling bias if only the most motivated participants took part in the study.

Purposive sampling. Purposive sampling involves the investigation of participants based on the judgment of the researcher. Through this process, a researcher will hand-pick cases based on his/her knowledge and experience in the area (LoBiondo-Wood & Haber, 2013). A related type of sampling is known as theoretical sampling; this is typically associated with grounded theory studies (Charmaz, 2006). This sampling technique may be used to examine specific characteristics of a population (purposive sampling) or to examine areas of interest emerging from the analysis (theoretical sampling) (Coyne, 1997). In a recent grounded theory study conducted by Banner, Miers, Clarke and Albarran (2012), a sample of 30 women was recruited to explore the experience of undergoing coronary artery bypass graft surgery. An initial convenience sample was selected to garner general insights, with theoretical sampling being used to hone in on interesting leads resulting from the analysis and emerging theory. In this study, women's experiences of coronary artery bypass graft surgery were shown to be affected by levels of spousal support, as well as the relative urgency of the cardiac-related procedure. As a result, theoretical sampling was used to further compare and delineate the experiences of those with or without spousal and family support, as well as those receiving urgent and non-urgent surgery.

Snowball sampling. Snowball sampling uses initial identified participants to provide names of other potential participants. The approach is frequently used if the sample is hard to find or access (LoBiondo-Wood & Haber, 2013) and that meet the study participant inclusion criteria. It is a commonly used technique for participant recruitment involving particularly sensitive issues, such as HIV/AIDS (Muhib et al., 2001). Dykes, Rothschild and Hurley (2010), examined medical errors intercepted by critical care nurses. Participants were recruited via e-mail and health care-related listservs. To capture a wider sample, the researchers contacted these initial contacts, or those who managed these systems, and asked them to forward the links to other potential participants in related critical care settings. This can be useful in hard-to-access populations or in situations where recruitment is slow, but can lead to potential selection bias, as participants.

Conclusion

Cardiovascular diseases continue to be a major area of burden in terms of health care resources, economic expenditure, morbidity and mortality (World Health Organization, 2007). There is need for ongoing research to support the development of new knowledge to improve patient care and outcomes. Understanding the potential impact that correct sample selection may have on the generalizability of research results cannot be underestimated. Effective knowledge of sampling techniques permits the nurse to critically evaluate the quality of the research evidence. Moreover, understanding the appropriate use of sampling technique(s) may further enhance the clinical utility and uptake of knowledge in current clinical practice for both health care providers and patients alike. ♥

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Call for Resolutions for the 2014 CCCN Annual General Meeting

Resolutions are invited for discussion at the 2014 annual general meeting of CCCN. Members wishing to propose a resolution must have it typed and signed by at least two other members. If the president and the secretary agree that the resolution is appropriate, it shall be included with the names of the mover and seconders in the agenda for the meeting. At the annual meeting, a member proposing a resolution or the proposer's appointed representative will be asked to clarify the background to the resolution, if necessary, and to formally move acceptance of the same.

Please submit resolutions to **info@cccn.ca** by **September 26, 2014.**

Format for submitting resolutions

The resolution has two parts; first the "preamble" and then the "resolved". Please provide the name and address of each of the individuals participating in the submission of the resolution. The following example is provided for your guidance

Preamble— "WHEREAS" *smoking is a known risk factor related to the development and progression of cardiovascular disease;*

BE IT RESOLVED—*that no smoking be permitted in any business meeting or scientific symposia hosted by the Council.*

Submitted by:

Mover: Name:_____ Address: _____

Seconder:_____ Seconder: _____

Address:_____ Address: _____

Date: September 26, 2014

Appel de résolutions pour l'assemblée générale annuelle du CCIISC de 2014

Nous vous invitons à nous faire parvenir vos résolution pour qu'elles puissent être discutées à l'occasion de l'assemblée générale annuelle du CCIIS de 2014. Les membres qui veulent présenter une résolution doivent la faire signer par au moins deux personnes. À l'assemblée générale annuelle, les membres proposant une résolution ou leur représentant(e) seront priés de donner le contexte de la résolution et, au besoin, de présenter une motion en à bonne et due forme pour son acceptation. La présidente et la secrétaire se réservent le droit de décider du bien-fondé des résolutions proposées, compte tenu des statuts du Conseil et de tout autre élément qui risque de compromettre la validité de la résolution.

Veuillez soumettre vos résolutions au **info@cccn.ca** avant le **26 septembre 2014.**

Format de présentation des resolutions

La résolution comporte deux parties, d'abord le « Préambule », puis la partie qui commence par « Il est résolu que ». Veuillez fournir le nom et l'adresse de chaque personne participant à la soumission de la résolution. Voici un exemple dont vous pourrez vous inspirer :

Préambule—*Attendu que l'on sait que l'usage de la cigarette est un facteur de risque lié à l'apparition et à la progression des maladies cardio-vasculaires,*

IL EST RÉSOLU QUE—*L'usage de la cigarette sera interdit à l'occasion des réunions d'affaires et des colloques scientifiques du Conseil.*

Soumis par :

Motionnaire : Nom : _____ Adresse : _____

Co-motionnaire : _____ Co-motionnaire : _____

Adresse :_____ Adresse : _____

Date : le 26 septembre, 2014

Canadian Journal of
Cardiovascular
Nursing

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The manuscript should be accompanied by the following:
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Manuscripts should be typed double-spaced in a standard letter quality font. Side margins should measure 2.5 cm. The manuscript can be a maximum of 20 pages including tables, figures, illustrations and references. (Compute the graphics as equivalent to one half or one full size page depending on anticipated size when published.)

Text Style: Prepare your manuscript in accordance with the style outlined in the American Psychological Association's Publication Manual (6th ed.)

Follow the APA guidelines for grammar, punctuation, gender neutral language, references and citations. Two exceptions from APA are the spelling (should be current Canadian use where applicable), and the abstract should be a maximum of 150 words.

Tables, graphs, illustrations: Prepare in accordance with the APA Manual. Each table, figure or illustration should be submitted on a separate sheet and numbered as it appears in the article (e.g., Figure 1). Illustrations should be computer-generated or professionally drawn. Photographs should be in print form in the manuscript submission, and unmounted.

Reference List: CJCN uses a reference list (in contrast to a bibliography) and its purpose is described in the APA Manual.

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An identifying title page should include the title and names, credentials and affiliations of all authors. The author with whom the editor will correspond should be indicated with telephone, fax and email numbers given.

Four to five keywords from the CINAHL Subject Heading list should appear on the title page.

Acknowledgements

Other contributing individuals and sources of research funding that resulted in this manuscript should appear in the acknowledgement section of the paper.

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Manuscripts for original articles are reviewed anonymously by peers for content and clarity. If the peer reviewers recommend publishing with content revisions, the manuscript will be forwarded to the author with a deadline for the return of the revised paper by email.

Expected timeline from submission to response is eight weeks.

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Les manuscrits doivent être tapés à double interligne, dans une police couramment employée pour les lettres. Les marges latérales doivent être de 2,5 cm. La longueur maximale permise est de 20 pages, ce qui comprend les tableaux, les figures, les illustrations et les références. (Les graphiques équivalent à la moitié d'une page ou à une page complète, selon la taille prévue lors de la publication.)

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Le style doit être conforme aux lignes directrices du manuel de publication de l'APA en ce qui concerne la grammaire, la ponctuation, le langage impartial, les références et les citations. Il y a cependant deux exceptions à l'emploi des règles de l'APA : l'orthographe devrait être conforme à l'usage canadien courant, le cas échéant, et le résumé ne doit pas dépasser 150 mots.

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- Uric acid increase

For more information:
Consult the Product Monograph at azinfo.ca/brilinta/pm274 for important information regarding adverse reactions, drug interactions and dosing information not discussed in this piece. The Product Monograph is also available by calling AstraZeneca Canada at 1-800-668-6000.[11]

*See full guidelines for complete recommendations.

References: 1. British Columbia Ministry of Health. Available from: http://www.health.gov.bc.ca/pharmacare/sa/criteria/restricted/ticagrelor.html. Accessed September 24, 2012. **2.** Alberta Health Interactive Drug Benefit List. Available from: https://www.ab.bluecross.ca/idbl/idbl_main1.html. Accessed October 1, 2013. **3.** Government of Saskatchewan Drug Plan and Extended Benefits Branch. Available from: http://formulary.drugplan.health.gov.sk.ca/. Accessed November 2, 2012. **4.** Manitoba Health. Available from: http://www.gov.mb.ca/health/mdbit/edsnotice.pdf. Accessed January 21, 2013. **5.** Ontario Drug Benefit Formulary/Comparative Drug Index. Available from: http://www.health.gov.on.ca/en/pro/programs/drugs/formulary/41_update_at_20130419.xls. Accessed April 30, 2013. **6.** Régie de l'assurance maladie du Québec. Available from: http://www.ramq.gouv.qc.ca/SiteCollectionDocuments/professionnels/medicaments/codes-medicaments-exception/Internet/codes_medicaments_exception.pdf. Accessed March 15, 2013. **7.** Government of New Brunswick Department of Health. Available from: http://www.gnb.ca/0212/pdf/NBPDP_Bulletin/2012/NBPDPBulletin8430ct9_2012Final.pdf. Accessed October 30, 2012. **8.** Government of Nova Scotia Department of Health and Wellness. Available from: http://www.gov.ns.ca/health/Pharmacare/pubs/Criteria_for_Exception_Status_Coverage.pdf. Accessed January 11, 2013. **9.** Newfoundland and Labrador Department of Health and Community Services. Available from: http://www.health.gov.nl.ca/health/prescription/covered_specialauthdrugs.html. Accessed: January 7, 2014. **10.** Canadian Cardiovascular Society. 2012 Focused Update on the Canadian Cardiovascular Society Guidelines for the use of Antiplatelet Therapy. October 2012. **11.** BRILINTA® Product Monograph, AstraZeneca Canada Inc. September 9, 2013.

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