Nurse-Client Situated Interaction (NCSI): A Constructivist Grounded Theory of the Indicators and Clinical Reasoning Processes that Registered Nurses Use to Recognize Delirium in Older Adults in Acute Care Settings

By

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ABSTRACT

Delirium is an acute disorder of attention and cognition in older adults. It affects half of the older adults admitted to acute care settings and is a major cause of increasing mortality and healthcare costs. Delirium is preventable in 30–40% of cases and its early recognition is crucial to improve prognosis. Registered Nurses’ (RNs) prolonged interactions with older adults place them in an advantageous position to recognize delirium. Regrettably, RNs often fail to recognize delirium in older adults. The goal of this research was to identify the indicators and clinical reasoning processes that RNs use to recognize delirium in older adults in acute care settings. Purposive and theoretical sampling techniques were used to recruit 17 RNs for this study. Data gathering and analysis from participants’ interviews was done concurrently using Constructivist Grounded Theory. The logic of constant comparison and memo-writing facilitated the transitioning from initial to focused coding. Coding for processes culminated in the emergence of the Nurse-Client Situated Interaction (NCSI) as the core category of the substantive grounded theory. NCSI refers to the main strategies that RNs used to resolve concerns of delirium recognition in older adults in acute care settings. NCSI consists of 3 subcategories that emerged from data. Each subcategory is rooted in several properties that were derived directly from the rich descriptions provided by the participants in the interviews. The subcategories and their respective properties in relation to the current state of the science are discussed in this thesis. Discussions of the recommendations that are relevant to the practices of RNs are included. Finally, limitations of the study and the agenda for future research (concatenation) are discussed.
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Dedication

To my wife Hala and my son Adam
Table of Contents

UNIVERSITY OF CALGARY ........................................................................................................................................ ii
ABSTRACT ........................................................................................................................................................ iii
ACKNOWLEDGEMENTS ........................................................................................................................................ iv
DEDICATION ....................................................................................................................................................... v
TABLE OF CONTENTS ........................................................................................................................................ vi
LIST OF TABLES ................................................................................................................................................ x
LIST OF FIGURES .............................................................................................................................................. xi
CHAPTER ONE: BACKGROUND OF THE STUDY ............................................................................................... 1
Relevance to Nursing .......................................................................................................................................... 6
The Study .......................................................................................................................................................... 7
Significance of the Study ................................................................................................................................. 8
Delirium in Acute Care Settings ...................................................................................................................... 9
Conclusion ...................................................................................................................................................... 14
CHAPTER TWO: REVIEW OF THE LITERATURE ............................................................................................... 15
Literature Review and Grounded Theory ......................................................................................................... 15
Historical Evolution of Delirium ..................................................................................................................... 17
Pathophysiology of Delirium ............................................................................................................................ 20
Factors Leading to Delirium ........................................................................................................................... 22
Delirium Recognition by Registered Nurses in Acute Care Settings ........................................................... 25
Nature of Delirium and Nurses’ recognition ..................................................................................................... 25
Education and Recognition of Delirium .......................................................................................................... 27
Communication Barriers and Delirium Recognition ....................................................................................... 31
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chameleon Nature</td>
<td>90</td>
</tr>
<tr>
<td>Actively Engaging with the Situation</td>
<td>93</td>
</tr>
<tr>
<td>Mapping</td>
<td>102</td>
</tr>
<tr>
<td>Tracking the Footsteps</td>
<td>105</td>
</tr>
<tr>
<td>Anchoring Clinical reasoning</td>
<td>106</td>
</tr>
<tr>
<td>Medicalizing Nursing</td>
<td>108</td>
</tr>
<tr>
<td>Policy Making and Implementation</td>
<td>110</td>
</tr>
<tr>
<td>Institutionalizing Clinical Reasoning</td>
<td>110</td>
</tr>
<tr>
<td>Nurse-Client Situated Interaction: The Theory</td>
<td>118</td>
</tr>
<tr>
<td>Summary</td>
<td>120</td>
</tr>
<tr>
<td>CHAPTER SIX: DISCUSSION AND RECOMMENDATIONS</td>
<td>121</td>
</tr>
<tr>
<td>Situated Interaction</td>
<td>122</td>
</tr>
<tr>
<td>Chasing the Mirage</td>
<td>127</td>
</tr>
<tr>
<td>Chameleon Nature</td>
<td>127</td>
</tr>
<tr>
<td>Actively Engaging with the Situation</td>
<td>128</td>
</tr>
<tr>
<td>Mapping</td>
<td>132</td>
</tr>
<tr>
<td>Tracking the Footsteps</td>
<td>133</td>
</tr>
<tr>
<td>Anchoring the Clinical reasoning process</td>
<td>134</td>
</tr>
<tr>
<td>Medicalizing Nursing</td>
<td>141</td>
</tr>
<tr>
<td>Policy Making and Implementation</td>
<td>144</td>
</tr>
<tr>
<td>Institutionalizing Clinical Reasoning</td>
<td>144</td>
</tr>
<tr>
<td>Recommendations</td>
<td>148</td>
</tr>
<tr>
<td>Recommendations for Bedside RNs</td>
<td>148</td>
</tr>
</tbody>
</table>
LIST OF TABLES

Table 4.1 Profile of the participants.................................................................77
## LIST OF FIGURES

Table of Contents

<table>
<thead>
<tr>
<th>Figure</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Emergence of NCSI</td>
<td>89</td>
</tr>
<tr>
<td>5.2</td>
<td>Nurse-Client Situated Interaction</td>
<td>119</td>
</tr>
</tbody>
</table>
CHAPTER ONE: BACKGROUND OF THE STUDY

The problem of delirium in older adults in acute care settings is substantial. The World Health Organization (WHO, 2010) defines delirium as a syndrome distinguished by disturbances of consciousness and attention, in addition to alterations in perception, thinking, memory, psychomotor behaviour, emotion, and the sleep-wake schedule. These manifestations occur simultaneously and their etiology is undetermined. The duration of these manifestations is variable and the degree of severity ranges from mild to very severe (WHO, 2010). Ely and Page (2011) found that on average 1 in 6 patients in acute care settings become delirious. Additionally, delirium affects 4 of 5 patients on mechanical ventilation, 2 of 5 patients in the acute geriatric ward, and 3 of 5 patients admitted with a fractured neck of the femur. Although acute care settings have a variable number of patients affected by delirium, Ely and Page (2011) maintain that on a representative day in an acute general hospital of around 1000 beds, there are more than 100 delirious patients. Moreover, delirium is the most likely complication an older adult is at risk of developing during hospitalization in any in-patient setting (Jones et al., 2010).

On a similar note, in 2013 the American Psychiatric Association (APA) concluded that the incidence of delirium increases with age and 6% to 56% of hospitalized older adults experience delirium during hospitalization (DSM-5). In addition, delirium occurs in 15% to 53% of patients postoperatively and in 70% to 87% of those in the intensive care units (DSM-5) (American Psychiatric Association [APA], 2013). Furthermore, Gonzalez et al. (2009) established that mortality increases by 11% for every additional 48 hrs of active delirium, highlighting the need for timely detection and treatment. The mortality rate among hospitalized older adults with delirium is high and 40% of these patients die within a year after diagnosis (DSM-5) (American Psychiatric Association [APA], 2013).
Despite the magnitude of the problem, Registered Nurses (RNs) underrecognize delirium in their patients, regardless of its severity in 30% to 75% of cases (Cerejeira & Mukaetova-Ladinska, 2011; Cole, 2004; Fick & Foreman, 2000; Han et al., 2009; Inouye et al., 2001; Khan & Bourgeois, 2009; Lemiengre et al., 2006; Page et al., 2011; Pun & Boehm, 2001; Rice et al., 2011; Ryan et al., 2013; Saxena & Lawlwey, 2009). Several studies worldwide identified the continued prevalence of delirium underrecognition in acute care settings as a critical issue requiring further investigation (Sampson, Blanchard, Jones, Tookman, & King, 2009; Siddiqi, House, & Holmes, 2006; Young, Murthy, Westby, Akkune, & O’Mahony, 2010). Therefore, it appears that delirium occurrences are far more frequent than their recognition by RNs.

Various studies have investigated the reasons for delirium underrecognition. Ely et al. (2001); Milisen, Foreman, Godderis, Abraham, and Broos (1998); and Vermeersch (1990) have concluded that inadequate assessment is the primary reason for delirium underrecognition. Nurses tend to focus assessment on orientation and do not detect the significant cognitive deficits associated with delirium (Rice et al., 2011; Souder & O’Sullivan, 2000). According to Rice, Bennett, Clesi, and Linville (2014) there is little evidence supporting the notion that nurses do what they say they do in recognizing and managing delirium in older adults. In addition, Ryan et al. (2014) established that delirium is not a high diagnostic and therapeutic priority, despite its treatability and relevance to outcomes, especially for older adults with poorer prognosis. Doyle (2001), Rockwood et al. (1994) and Sanders (2002) underscored that the lack of knowledge of cognitive disorders is the primary cause of delirium underrecognition. Other studies established that quiet delirious patients are a significant challenge for RNs, resulting in a magnification of underrecognition (Rapp, Mentes, & Titler, 2001; Rice et al., 2011). Underrecognition of hypoactive delirium is particularly challenging and requires dedicated monitoring of patients’
behaviour in an attempt to recognize worsened concentration, decreased mobility or motor
activity, reduced appetite and social withdrawal (Cerejeira et al., 2011). In another study
conducted by Foremen, Wakefield, Culp, and Milisen (2001), failure to interpret signs and
symptoms correctly emerged as the common pattern for delirium underrecognition. Other
studies focused on the lack of routine screening as a cause of underrecognition (Inouye,
Foreman, Mion, Katz, & Cooney, 2001; Sherman, 2002). Screening is usually done by using
clinical tools such as the Confusion Assessment Method (CAM). Remarkably, when CAM is
utilized and rated by nurses not trained in using it, delirium is often underrecognized (Inouye et
al., 2001). Cerejeira et al. (2011) espoused that CAM is highly specific and sensitive when used
by trained nurses.

The findings of failure to peruse nursing notes by Fick and Foreman (2000) were similar
to the findings of Cerejeira et al. (2011) where the lack of daily chart reviews of patients status
based on nursing and medical notes were deemed as contributing factors for underrecognition.
Moreover, the atypical presentation of delirium in the older adults was also a leading cause of its
underrecognition (Cole, McCusker, Dendukuri, & Han, 2003; Flagg, Cox, McDowell, Mwose, &
Buelow, 2010). Delirium is often manifested as a sign of an underlying undiagnosed condition
that requires immediate intervention and therein lays the dilemma (Ely et al., 2004). The
recognition of delirium by nurses is further complicated by the fact that delirium continues to be
attributed to normal aging, or misdiagnosed by physicians as dementia or depression (Ely et al.,
2004). Caraceni and Grassi (2011) added that delirium is multifactorial, complex, and is usually
defined by a cluster of signs and symptoms, or “a set of concurrent psychopathological
symptoms” that comprise its crucial diagnostic features (Lipowski, 1999, p. 41); thus, it is a
syndrome and not a disease (Caraceni & Grassi 2011, p. 42). This “chameleonic-like” (Fann 2000,
behaviour of delirium is a common yet not well-defined and repeatedly underrecognized clinical dilemma in acute care settings. Admittedly, the complexity of delirium underrecognition stems from its convoluted phenomenology and lack of pathognomonic features (Cerejeira et al., 2011) making its recognition a difficult nursing goal to accomplish. Rice et al. (2014) concluded that delirium recognition remains a serious challenge that nurses have yet to overcome in the hospitalized older adult. Nurses’ philosophical perspectives involving false assumptions toward aging (McCarthy, 2003a), and delirium superimposed on dementia, are suggested as barriers to delirium recognition (Fick & Foreman, 2000; Inouye et al., 2001). However, tangible reasons for underrecognition remain speculative and poorly understood. Speculations about such reasons are insufficient for action and, at present, a grounded explanation does not exist to clarify the high percentage of delirium underrecognition. Hence, interventions cannot be recommended without an adequate explanation of the reasons for underrecognition. The foregoing discussion supports the premise that delirium is, with a level of certainty, a significantly misunderstood phenomenon nurses encounter when working with hospitalized older adults (Fick, Hodo, Lawrence, & Inouye, 2007; Steis & Fick, 2008). However, only tentative explanations for this problem are proposed by investigators. Thus, it can be conjectured that delirium requires the utilization of optimal clinical reasoning processes for better recognition by registered nurses.

Tanner (2006) defined clinical reasoning as the process of interaction that requires active engagement and deliberate practice, asserting that while engaged in the process of clinical reasoning continuous reflection is necessary, particularly on activities designed to improve performance. Tanner (2006) further added that “clinical reasoning must arise from engaged, concerned stance, always in relation to particular patient and situation and informed by generalized knowledge and rational process, but never as an objective detached exercise” (p.
Kuiper, Pesut, and Kautz (2009), in another study, established that nurses’ clinical reasoning integrates experiential, formal, and informal knowledge and utilizes both inductive and deductive cognitive skills to solve problems. Simmons (2010), asserted that the clinical reasoning in nursing is “a complex cognitive process that uses formal and informal thinking strategies to gather and analyze patient information, evaluate the significance of this information, and determine the value of alternative actions” (p. 1156).

Thus far, it can be inferred that delirium recognition is a complex process that is underdetermined, ambiguous, and often fraught with value conflicts among individuals and competing contextual interests. Furthermore, the use of clinical reasoning to recognize delirium is challenging for RNs because of the characteristic “waxing and waning” symptoms and variability in its presentation (Rice et al., 2014, p. 137). I am proposing that the underrecognition of delirium in older adults and the subsequent inadequate management during hospitalization represent a serious gap in clinical reasoning and judgment processes. It can be assumed that the nature of this gap is poorly explored and understood. In addition to the clinical significance of delirium underrecognition, the gap in clinical reasoning provides an ideal base for further exploration and strong justification for conducting the current study. As such, understanding the clinical reasoning processes used by RNs and the context of the situations that influence these processes potentially places RNs in a predominant position to improve delirium recognition rates. Consequently, further studies which determine nurses’ understanding of delirium, the barriers and facilitators to recognizing delirium, and the clinical reasoning processes by which nurses make their judgments are needed.
Relevance to Nursing

According to Dahlke and Phinney (2008), delirium is the “silent unspoken piece of nursing practice” (p. 41) that directly impacts all nursing related actions, reactions, and interactions. Delirium occurs in higher frequency in older adults (> 65 years) than younger populations, especially in older adults with pre-existing cognitive impairment. Likewise, delirium presents in hyperactive, hypoactive, or mixed forms in up to 42% of older adults admitted to acute care settings (Siddiqi et al., 2006) and is often associated with poor outcomes (McCusker et al., 2010). Hence, RNs deal with the unpredictable and fluctuating condition of delirious patients. Delirium can lead to impending “chaos” (Serghis, 1998) in the acute care setting, creating disruption in the nurses’ flow of routine care that may overwhelm and cripple workload. Furthermore, delirium in older adults is associated with poor outcomes leading to higher hospital costs, increased length of stay, and prolonged bed occupancy (Steis & Fick, 2008). In the U.S., healthcare costs associated with the care of delirium patients is more than two and a half times the costs associated with the care of patients without delirium (Mittal et al., 2011). In Canada, there is an increase in healthcare cost of 23.4% for patients diagnosed with delirium (Lachaine & Beauchemin, 2012). Caring for and observing patients with active delirium results in caregiver anxiety (Morita, Hirai, Sakaguchi, Tsuneto, & Shima, 2004). Caregivers whether RNs or family members, need support, education, and resources to assist them to understand and shape their perception of delirium, as well as to develop effective coping strategies.

Registered nurses are in a unique position to recognize delirium as their practice entails close interactions over a span of time with patients. Consequently, RNs are expected to recognize subtle changes in patients’ mental status in acute care settings and to identify behavioural
alterations that may lead to early recognition of delirium. Registered Nurses are requested to make decisions on interventions based on valid and reliable evidence, leading to best practices and positive patient outcomes. Moreover, RNs strive to recognize early warning signs and take remedial action, either independently or in consultation with the clinical nurse specialist (CNS), nurse practitioner (NP) or physician, to prevent further worsening of patients’ conditions and increase the chances of recovery (Kovner & Gergen, 1998; Minick, 1995).

Delirium recognition or lack thereof is attributed to unknown clinical reasoning processes that facilitate or hinder RNs from constructing accurate decisions based on observations, interpretations, and actions in situations involving older adults. Thus, developing an interpretive theory that captures the interactions between RNs and older adults with delirium, and which explains the nature of this interaction, can provide better understanding of the clinical reasoning processes of delirium recognition. This potentially may lead to early recognition and the prevention of delirium, contributing to positive patient outcomes and probable reduced individual health care costs, consequently contributing to a reduction in the overall health care system costs.

The Study

The principal research question is: what are the indicators and clinical reasoning processes that RNs use to recognize delirium in older adults in acute care settings? The central goal of this study is to construct a theory that describes and explains the indicators and the clinical reasoning processes by which RNs conceptualize and engage with the concept of delirium in older adults. Constructivist grounded theory is beneficial in this context because it accounts for variations in RNs’ perspectives and provides a way to understand and investigate the constructed meanings and assumptions of the clinical reasoning and judgment processes. It is
also suitable because clinical reasoning processes are, in part, shaped by culture according to shared and often tacit rules and values.

The 3 Specific Objectives of the Study were to identify:

1. RNs’ understanding of older adults with delirium in the context of acute care settings.
2. The indicators and the clinical reasoning processes that RNs use to recognize delirium.
3. The processes that form the basis of interactions between RNs and older adults with respect to delirium.

Significance of the Study

Delirium has the highest incidence rate among hospitalized older adults and differs according to patients’ characteristics, settings of care, and the sensitivity of the used delirium recognition clinical assessment tool (DSM-5) (American Psychiatric Association [APA], 2013). The intricacies of delirium make it a significant challenge for RNs to recognize and manage, thus a greater understanding of delirium is needed to address the problem of its underrecognition. This study presented an opportunity to develop new nursing knowledge with the potential of decreasing the incidence and prevalence of delirium in acute care settings. Further understanding of the process of delirium recognition may potentially lead to early detection laying the foundation for implementing preventive measures and reducing potential complications of delirium. Increased understanding of the clinical reasoning processes may lead to the development of sensitive clinical assessment tools that meet the RNs’ educational preparation and different levels of clinical experience. Concurrently, with knowledge gained from this study, researchers are better equipped to focus on developing interventions to prompt early recognition and management of delirium. With increased understanding of the significance of early recognition of delirium, RNs are potentially more prepared to involve patients’ families, and
Develop empowerment strategies with families who participate in the care of a family member experiencing delirium. In general terms, this research, can potentially impact and improve the quality of nursing care of older adults/patients and ultimately promote positive health outcomes.

In addition to expanding knowledge on delirium recognition, this study addresses the contextual factors that influence the clinical reasoning processes of interaction between registered nurses and older adults. This research is timely with the prospect for far-reaching applications, as the study addresses a knowledge gap related to RNs’ clinical reasoning processes in recognizing delirium in acute care settings. Finally, the evidence obtained in this study identifies promising patient safety strategies for delirium recognition and prevention. By preventing or recognizing delirium early, evidence from this study can reduce the risk of delirium associated infections, falls, pressure ulcers, and physical restraint use, and thus, offers significant potential system-wide cost savings.

**Delirium in Acute Care Settings**

The context of acute care settings can create a challenge for RNs to early recognize problems. As well, the context of the acute care setting can produce a barrier for RNs to optimally perform intricate interventions due to rising patient acuity, increased patient workload, and the fast-paced nature of the environment (Aiken, Sloane, & Sochalski, 1998). This inability of RNs to recognize early the significance of patient changes may result in undesirable patient outcomes and occasionally death (Scott, Sochalski, & Aiken, 1999). Older adults are the primary users of acute care settings relative to the span of age groups and once admitted stay longer in hospital (CIHI, 2011). In Canada, an older adult’s overall average length of stay in acute inpatient care is roughly 1.5 times that of non-older adults (nine days versus six) (CIHI, 2011). Foreman, Wakefield, Culp, and Milisen (2001) found that hospitalization generates challenges
for the older adults through changes in the environment usually contributing to sensory overload or sensory deprivation in addition to stress and alterations in sleep. Inouye and Charpentier (1996) championed that there is an association between the incidence of delirium in older adults and the clinical environment. They asserted that environments such as acute care settings where the use of multiple medications, physical restraints, immobility, medical and surgical procedures, noise, and other prevalent factors, precipitate delirium. The sedative effects of select medications dispensed in acute care settings and the cognitive, sensory, and physiologic imbalances that older adults experience put them at a higher risk of developing delirium. Bondoc et al. (2012) defined acute care as an inpatient setting where patients are admitted to the hospital due to a serious medical status or unexpected decline in their medical, surgical, or functional condition. The principal goal of acute care settings is to stabilize patients’ conditions, address life threatening conditions, and intervene to prevent loss of function (Needham, 2008). Acute care settings are characterized by their high pace of activity, people in multiple roles, frequent movements of patients between units and departments, the presence of professionals and students and high patient turnover, in addition to loud talking, telephones ringing, televisions blaring, and patients’ alarms and surveillance equipment (Nilsson, Rasmussen, & Edvardsson, 2013).

Aside from the noisy environment, the space in acute care settings is usually limited with most patients sharing rooms. Under these circumstances, it is difficult for family and support members to interact with the patient, thus impeding the patient’s social and family support. Additionally privacy concerns restrict the ability to conduct physical and psychological exams in the patient’s hospital room, sometimes requiring the transfer of a patient to an alternate area. As environmental changes can trigger delirium in a patient experiencing dementia, even small shifts in environment promote imbalance (Nilsson et al., 2013). Nilsson et al. (2013) affirms previous
findings by McCusker et al. (2001a) who identified several environmental factors as potentially modifiable risk factors contributing to delirium, such as the number of room changes, the absence of a clock or watch, and reading glasses.

Delivery of care in acute care settings is often described as reactive and not proactive; that is, interventions occur in response to unmet needs that have escalated to the extent of either disrupting the usual flow of the setting or creating an immediate safety issue to the patient himself or to other patients. Registered Nurses practicing in acute care settings work with high acuity patients with complex and demanding needs, and thus the workload rises dramatically, potentially affecting the delivery of optimal nursing care. Due to the shortage of space and staff, in acute care settings (McCusker et al., 2013) a higher nurse-patient ratio is one strategy that hospitals employ to cover this shortage and accommodate patients (Ebright, Patterson, Chalko, & Render, 2003). Potter et al. (2005) established that caring for patients in acute care settings involves a complex array of physical and cognitive activities. Acute care settings are considered complex work environments due to the acuity and demands of their patient population. The unpredictability and the constant change in patients’ conditions are two cardinal features of acute care settings. Understanding the complex nature of acute care settings offers a unique perspective of the significance of contextual environmental conditions contributing to the efficiency of nursing care. Registered Nurses implement nursing interventions in response to patients’ changing medical and clinical conditions, anticipating ongoing needs, physician’s orders, the RNs’ pattern of organizing care, and the routines of the various settings. In such a complex environment, minute-to-minute nursing assessments and interventions are ideally tailored to ascertain that patients are responding to the care delivered. Klein (1998) added that performance in acute care settings is often affected by human and environmental factors, including the quality
of information available, the experience of RNs, uncertainty, unpredictability, competing goals, and time pressures.

In acute care settings, care is organized by disease rather than by the patients’ multifaceted needs, and by routines of the setting rather than by patients’ subjective needs (Nilsson et al., 2013). Due to the fast pace and the patients’ acuity level in acute care settings, priority is given to organizational needs for delivery of care which changes the health care team’s approach to patients. Kirkley et al. (2011) added that the organizational culture impacts the course of interaction between staff and patient; thus, working within a disease oriented and efficiency driven organization potentially diminishes the holistic perspective of nursing and leads nurses to be “one step behind” (Wolf et al., 2012, p. 6) in relation to patients’ needs.

The complexity of delirium recognition in acute care settings presents multiple challenges to ensuring safe, effective, and quality care during admission, assessment, and treatment. Complexity is compounded by the care environment that serves as a factor which can either help or deter nurses’ precise clinical judgments (McCarthy, 2003a). In acute care settings, interventions may be intensive, with priorities that change due to wide variations in patients’ needs and expectations (Bridges et al., 2010; Nystrom et al., 2003). Such characteristics can contribute to errors (Campbell, 2009) and lead to an increased risk of delirium in older adults. For example, the noisy, crowded, and constantly lit environment of the acute care settings can disturb the patients’ sleep-wake cycles and contribute to delirium. Older adults in acute care settings might meet up to 19 different health care workers during a two-day hospital stay (Nilsson et al., 2013). The multiple interactions are potential barriers for organizing patient information in an effort to holistically understand the client and provide a route to a continuity of
care. Similarly, Kirkley et al. (2011) identified multiple interactions as a stress factor leading to confusion for older adults.

Lipowski (1990) affirmed that delirium is a disorder of cognition. Cognition as perceived by Lipowski (1990) is a part of consciousness that reflects the individual’s ability to react and interact with the surrounding environment. In his view, cognition encompasses the mental operations that convert and modify the sensory information in multiple manners, then code it, store it, and retrieve it from memory for later utilization, similar to an information processing center. He added that processes such as problem solving, decision making, reasoning, and action planning are fundamental elements of cognition. The nature of delirium as a disorder of cognition makes it even more difficult for older adults to adapt in the acute care setting environment. Therefore, lack of cognition in patients with delirium hinders attempts to mine into the patients’ history or evaluate their baseline status. In turn, this may lead to corresponding delays in meeting the older person’s needs, preventing optimal care, and delaying discharge (Chiovenda et al., 2002). Parke and Chappell (2010) discussed the role of intact cognition in ensuring the safety of older adults in acute care settings; in their interpretation, impaired cognition affects the older adults’ ability to remember, follow directions, solve problems, perform independent self-care, and communicate relevant information required for accurate and timely assessment, eventually impeding timely and accurate diagnoses, and thus leading to delayed interventions (Thomas & Brennan, 2000).

Acute care settings in Canada receive the greatest share (37.3%) of public-sector health care dollars out of all the components of Canada’s health care system (Lewis, 2009). Although older adults make up only 14% of the population (MacAdam, 2008), 40% of acute hospital stays were for patients aged 65 and older (CIHI, 2011). Therefore, modifying the preparation and
support for RNs in acute care setting in terms of understanding the processes of interaction with older adults can potentially decrease the incidences of delirium and the costs associated with its prolonged hospital stay, management, as well as possible long term neuro-cognitive complications for the patients themselves.

**Conclusion**

Delirium is a complex syndrome that is common in acute care settings. Without expert assessment, delirium can be misdiagnosed and confused with dementia, depression, or acute psychoses. Moreover, delirium is often underrecognized by RNs, due to the diversity of its clinical presentations. Many clinical assessment tools have been developed to help RNs recognize delirium, yet the processes of recognition of delirium remain a complex and not well understood phenomenon that requires further exploration and understanding. In order to understand RNs’ underrecognition of delirium in acute care settings, there is a need for an in-depth comprehensive exploration of the complex clinical reasoning processes of interaction between RNs and older adults. Thus, a constructivist grounded theory approach was chosen as the research method to examine and explain the processes of interaction between RNs and older adults. In summary, this chapter outlined the context of this study and its potential contribution to theoretical development and practice. Finally, the goals, objectives, and the significance of the study were introduced and delineated.
CHAPTER TWO: REVIEW OF THE LITERATURE

In this chapter, I discuss the contentious and problematic issue of conducting a literature review when using grounded theory, then I present my position with regards to this issue. I also furnish a brief historical overview about delirium followed by discussing its pathophysiology. A strategic and critical review of the literature related to delirium recognition by RNs in acute care settings is provided. The literature review has provided context for this study; in addition it sensitized my knowledge and understanding about issues and topics relevant to delirium recognition that needed to be addressed. According to Hammersley (2008), the idea of human action can only be understood in ‘context’. Hammersley argued that human actions are situated and people’s actions and words should not be interpreted without integrating the context. He maintained that it would be difficult to comprehend the immediate, local context without taking into consideration the context of the larger society and the “global processes” (p. 122).

**Literature Review and Grounded Theory**

Grounded theorists are not unified on their approach to reviewing the literature and have articulated opposing views regarding the utilization of the literature in the research process. Charmaz (2014) recommended a comprehensive and purposeful literature review to support the position of the researcher and to avoid “rehashing old empirical problems” (p. 306). Charmaz (2006) elaborated on her recommendation by asking the researcher to go “across fields and disciplines” (p. 166) and to “give earlier works its due” (p. 166) stressing that they should avoid being “cavalier” (p. 166) and superficial in their literature reviews. However, Charmaz (2006) cautioned researchers that a literature review may hinder creativity and “strangle the theory” (p. 166) and drenches it with preconceived ideas and pre-existing categories. She summarized her
argument focusing on the significance of literature review in uncovering gaps in the extant knowledge and demonstrating how the emerging grounded theory will bridge this gap.

According to Stebbins (2001), previous knowledge must be scrutinized and critically analyzed in order to produce new knowledge. Charmaz (2006) added that even without any review of literature prior to inquiry process, researchers possess knowledge that has the potential to bias their research process and findings. Charmaz (2014) suggested that, instead of “don[ning] a cloak of objectivity”, researchers must readily acknowledge and account for their preconceptions as these are “inherently ideological activities” (p. 305). The argument about a literature review becomes rhetorical and the focus should not be on when the literature is reviewed, but how and for what reasons the review is done over the course of the study (Chenitz & Swanson, 1986).

Throughout the evolution of grounded theory, researchers have repeatedly debated the approach and utilization of existing literature within the research study (Bryant & Charmaz, 2007). Glaser and Strauss (1967) unequivocally and overtly suggested writing the literature review after completing the analysis so as not to contaminate the research findings. They added that reviewing the literature in advance influences researchers’ theoretical preconceptions and, therefore, should be delayed until completion of data analysis. They adopted the objectivist school of thought where researchers are expected to approach the field as a tabula rasa. Likewise, Strauss and Corbin (2008) affirmed that because “there is always something new to discover” (p. 36), it is unnecessary to review all of the literature prior to the start of the study. Other grounded theorists have approached the review of literature as necessary to both “situate your work within the body of related literature” (Bryant & Charmaz, 2007, p. 123), and to “set the stage for what you do in subsequent sections or chapters” (Charmaz, 2006, p. 166). My
position on literature review is similar to Charmaz’s position as the path of exploration can be doomed to failure if not culminating with a product of new knowledge. Thus, in alignment with Charmaz’s approach to grounded theory tradition, I prefer a dynamic approach in dealing with the literature, i.e., engaging in the literature as an ongoing practice throughout the entirety of the research process “without letting it stifle [my] creativity (Charmaz, 2014, p. 308). Stebbins (2001) affirmed that, to be truthful to the exploration process, “exhaustive literature reviews are wholly justified…to determine the nature and scope of prior scientific activity there, so that proposed work will truly add to the corpus of writings” (p. 42). He added that literature reviews are done to demonstrate the scarcity of research that has been conducted on a specific group, process, or activity under consideration and that “an open-ended approach to data collection is therefore, wholly justified” (p. 42). However, Stebbins (2001) cautioned researchers about conducting a literature review “without modification” (p. 42) and recommended that researchers should first search for the studies that come closest to examining what these researchers explored and found, then show how these studies/findings have left unexplored specific critical aspects of the area under investigation. The literature review in this study follows Stebbins’s (2001) recommendations, ferreting out several gaps in the literature related to delirium recognition.

**Historical Evolution of Delirium**

The history of understanding and treating delirium dates back 2,500 years (Lipowski 1990). Lipowski relied on Hippocrates’s works in order to uncover delirium’s earliest description in the literature. Delirium, as described by Hippocrates, occurred in two main forms: Phrenitis (raving) characterized by restlessness, insomnia, and hallucinations, and Lethargus (low) which was manifested by undue quietness and sleepiness. In both the raving and the low forms, delirium’s core features include incongruous conceptions and confused thoughts, distorted
visual perceptions, and disturbed behaviour (Lipowski, 1990). The term “delirium” was first defined and coined in the medical literature by Celsus in the first century A.D., who described delirium as a syndrome that develops in different contexts. Delirium was used to describe either “insanity” or an acute transient mental disorder caused by infections and fever until the end of the 18th century; as well delirium was described as the dreams of waking persons and febrile insanity (Lipowski, 1990). In the first half of 19th century, delirium was linked with the concepts of disordered consciousness and confusion (Lipowski, 1991). Later, the phrase “clouding of consciousness” became popular, increasing in frequency in the second half of the 19th century (Lipowski, 1990). The most important contribution to the concept of delirium in the 20th century was the work of Engel and Romano (1959). They conducted clinical and experimental studies, and concluded that delirium was a disturbance in the level of consciousness manifested by cognitive attentional disturbances. The syndrome of delirium was due to a reduction in the brain metabolic rate, as indicated by the slowing of the EEG background activity. The degree of cognitive impairment was directly related to the electroencephalogram slowing: the greater the impairment, the greater the slowing.

In 1990, Polish born psychiatrist, Dr Lipowski articulated a broad definition for delirium that has influenced current understanding of the syndrome and upon which several research projects were conducted by other researchers and treatment plans designed. Lipowski (1990) defined delirium as “a transient, global disorder of cognition, consciousness and attention regardless of the level of consciousness (awareness) or psychomotor activity that a given patient exhibits which may often change from one extreme to another in the course of a single day” (p. 44). In the 1960s, a number of researchers investigated delirium induced experimentally in volunteers by administering drugs with anticholinergic activity (Lipowski, 1990). This research
underscored the pathogenic function of cholinergic blockade in causing delirium. In the 1970s, the American Psychiatric Association published the *Diagnostic and Statistical Manual of Mental Disorder* (DSM) to establish diagnostic criteria for mental disorders. The DSM has evolved over the years as did the definition and diagnostic criteria for delirium. The definition of delirium and its diagnostic criteria are being continuously reviewed in order to help clinicians to better recognize delirium in their practice.

Registered nurses in particular recognized delirium in less than 1 in 3 patients with delirium (Inouye, Foreman, Mion, Katz, & Cooney, 2001). Ely and Page (2011) echoed this finding in their study where nurses failed to recognize delirium in up to 3 out of 4 cases. More specifically, nurses were able to identify “inattention” only 15% of the time when this feature was present (Inouye et al., 2001). The inability of nurses to recognize “inattention” is a significant finding, as inattention is a substantial feature of delirium and the defining criterion in most delirium screening tools.

Due to the significance of recognizing inattention in detecting delirium, the recent version of *Diagnostic and Statistical Manual of Mental Disorders (DSM)*, DSM-V changed the diagnostic criteria for delirium. The fourth revised edition of DSM, DSM-IV T-R, identified the first criterion for delirium as “a disturbance of consciousness, (i.e., reduced clarity of awareness of the environment) with reduced ability to focus, sustain, or shift attention” (p. 73). In the fifth edition of DSM-V the first criterion is re-written to identify delirium as “a disturbance in attention (i.e., reduced ability to direct, focus, sustain, and shift attention) and orientation to the environment” (p. 41). The rationale for substituting “consciousness” with “inattention” is that consciousness is currently being viewed as too vague and rather a heavily loaded term to guide diagnostic assessment. DSM-V suggests that inattention can explicitly describe a patient’s state
of awareness, which remains the most central concept in conveying the essence of delirium (APA, 2012).

**Pathophysiology of Delirium**

Delirium has been conceptualized as a global disorder of attention and cognition associated with decreased level of consciousness, increased or decreased psychomotor activity and a disturbed sleep-wake cycle (Lipowski, 1989). Macleod (2006) stated that delirium “is a difficult clinical concept” (p. 305).

In order understand the biomedical viewpoint, I went back to the organic pathological roots of the problem, noting that delirium can be considered as a physical and not a mental disorder (Rockwood & Bhat, 2004). Delirium occurs in patients with congestive heart failure, myocardial infarction, infection outside the central nervous system or in patients with metabolic abnormalities in which the brain is “affected secondarily” (Rockwood & Bhat, 2004, p. 77).

Several researchers have demonstrated that an aberration in the cholinergic system is associated with the development of delirium (Hshieh, Fong, & Marcantonio, 2008). Lipowski (1989) and Power (2004) established that the cholinergic system is one of the most essential modulatory neurotransmitter systems in the brain. It regulates high cognitive functions such as memory, learning, information processing, attention, dendrite arborization, neuronal development and differentiation. Acetylcholine (ACh) released by the cholinergic system is a neurotransmitter responsible for keeping these functions intact (Lipowski, 1989). The cholinergic system is affected by aging, and medications such as benzodiazepines that have anticholinergic characteristics can contribute to delirium. Many mechanisms are involved in inducing cholinergic deficiency thus eventually leading to delirium; these include but are not limited to: impaired acetylcholine synthesis, cholinergic synaptic mechanisms related to enhanced or
reduced uptake of acetylcholine by the post-synaptic neurons, ischemia and global stressors, and neurotransmitter imbalance. It is also postulated that dopamine and acetylcholine are inversely proportional in concentrations in the brain in patients with delirium (Maldonado, 2008). Based on this hypothesis, increased levels of dopamine can cause decreased levels of acetylcholine leading to delirium, as seen in treatments with dopaminergic medications. Dopaminergic blocking agents are used to treat delirium (Maldonado, 2008), by temporarily rebalancing the acetylcholine and dopamine ratios. Delirium can also be caused by direct injury to neurons, and this injury can be metabolic or ischemic in nature. These injuries can damage the blood brain barrier, making the brain more susceptible to the effects of inflammation; consequently, any condition that increases the levels of pro-inflammatory cytokines such as cancer or sepsis can cause delirium (Dimitrijevic, Stamatovic, & Keep, 2006).

Maldonado (2008) studied the ability of the thalamus to act as a filter allowing only relevant information to travel to the cortex in patients with delirium. Maldonado (2008) asserted that the interruption of the thalamic gating function by certain medications can compromise the thalamic gating function leading to sensory overload and hyperarousal. The final common pathway of delirious states appears to consist of a cholinergic deficit combined with dopaminergic hyperactivity (Ali et al., 2011). Mori (1978) and Trzepacz (2000) found a relationship between right sided lesions and delirium. The authors suggested that right cerebral artery and middle cerebral artery infarctions are associated with agitated delirium.
Factors Leading to Delirium

Delirium is also referred to as acute brain dysfunction and is one of the most frequent, underrecognized, costly, and disabling conditions experienced by older adults in acute care settings (Ely, Shintani, & Truman, 2004). Long-term consequences of delirium include: greater likelihood of discharge to a place other than home, greater functional decline, increased mortality rate for one year after the incidence of delirium, and long-term neurocognitive impairment (Vasilevskis, Pandharipande, Girard, & Ely, 2010). There are numerous risk factors contributing to the development of delirium. Frequently, the risk factors are categorized as precipitating and predisposing (Allen & Alexander, 2012; Inouye & Charpentier, 1996). An early study by Culp et al. (1997) demonstrated the existence of multiple factors that can cause delirium, noting that 86% of cases of delirium in older adults appear related to a cluster or group of factors rather than a single factor. Precipitating risk factors are those that are not present at admission and may be considered modifiable risk factors. These factors are also known as iatrogenic risk factors; examples include the use of medications such as benzodiazepines, infections, dehydration, sleep deprivation, immobilization and alterations in electrolytes and blood urea nitrogen (BUN) levels (Allen & Alexander, 2012). Conversely, Allen and Alexander (2012) described predisposing risk factors as those that are less modifiable and are a result of a patient’s overall health prior to admission to acute care settings. Inouye (1999) asserted that delirium is rarely caused by a single factor; rather, it represents an intrinsically multifactorial syndrome where the predisposing factors interact with precipitating factors. Clinical judgment plays an important role in recognizing the interplay between the two as a means of identifying high risk patients. Advanced age (65 years and older), chronic illness, and baseline cognitive impairment are
examples of predisposing risk factors for delirium. Schor et al. (1992) established an age of 80 years or more identified as an independent predisposing risk factor for delirium development.

In Canada, increasing longevity is an extended challenge facing the health care system. According to Human Resources and Skills Development Canada (HRSDC, 2012), the Canadian population is “graying”, as older adults constitute an increasing proportion of the population. Older adults are defined as individuals over the age of 65 years (HRSDC, 2012). In 2010, approximately 4.8 million Canadians were 65 years old or older (HRSDC, 2012). This number is predicted to double in 25 years, to an estimated 10.4 million by 2036 (HRSDC, 2012). It is expected that one in four Canadians will be 65 or older by 2051 (HRSDC, 2012). As the most important factor for the development of delirium is age (Conley, 2011), more Canadians are expected to experience delirium as they grow older. Additionally, the physiological, psychological and social changes associated with aging and the potential individual, societal, and economical challenges that these changes might create are expected to surge as older adults in Canada are still in the youngest age range of this group (65 to 74). The proportion of the older adults in the age range of 85 years and older is growing rapidly. In 2010, about 53% of older adults were between the ages of 65 and 74 years, 33% were between ages 75 and 84 years and 13% were 85 years and older. This latter group accounted for 2% of the total population of Canada in 2011. It is expected that by 2052, older adults in the age range of 85 years and beyond will account for 24% of all older adults and 6% of the total population in Canada (CIHI, 2011).

Inouye (1999) identified 4 predisposing factors that put older adults at a greatest risk for delirium. These factors are vision impairment, severe illness, cognitive impairment, and BUN/creatinine ratio. Inouye (1999) considered these factors as a predictive model for the incidence of delirium. Similarly, Gallagley and Byrne (2004) demonstrated that older adults are
more likely to develop delirium due to the assumed loss of intellectual and physical reserve and the tapering of mental adaptability. Burns, Gallagley, and Byrne (2004) maintained that older adults are more susceptible to side effects from medications owing to age-related changes associated with the progressive decline in the renal and hepatic functions which can lead to changes in body composition, pharmacodynamics, and metabolism. In Canada, the Canadian Institute for Health Information (CIHI, 2011) established that the proportion of older adults using multiple prescription medications has surged in recent years, as nearly two-thirds of older adults on public drug programs have claims for 5 or more drugs from different drug classes, and nearly one-quarter of these have claims for 10 or more (CIHI, 2011). The Canadian Institute for Health Information (2011) also found that more than half of older adults on public drug programs regularly use prescription drugs to treat two or more chronic conditions, and among this group, the most commonly used medications treated hypertension and Congestive Heart Failure (CHF). Polypharmacy, an established risk for delirium development in older adults (CIHI, 2011), remains a major concern, with close to one in every four (23%) older adults taking 10 or more prescription drugs (CIHI, 2011).

In 2009, Saxena and Lawley echoed the aforementioned findings concluding that increased age and pre-existing cognitive deficits as the 2 most common predisposing factors for delirium. Trifiro and Spina (2011) added that aging leads to visual, renal, and cognitive functional deterioration contributing to delirium. The Canadian Institute for Health Information (CIHI, 2011) in their report, “A Focus on Seniors and Aging”, found that older adults are living longer and with more chronic diseases. Moreover, they are excessive and frequent users of hospital services, and this use is measured not only by the number of hospital visits but also by resource use during those visits.
Delirium Recognition by Registered Nurses in Acute Care Settings

A review of the literature related to delirium recognition by registered nurses in acute care settings was undertaken presenting an assessment of the current state of science and the theoretical development in the substantive areas of delirium recognition.

Search terms included delirium detection, recognition, underrecognition and diagnosis were used. Databases included CINAHL, MEDLINE, PsycINFO, and Google Scholar. Inclusion criteria included: the article was written in English and based on studies with humans. Research articles using quantitative and qualitative approaches as methods of inquiry and focusing on delirium recognition by registered nurses were included in the review. Patients who were 65 years or older and admitted to an acute care facility with a diagnosis of acute confusion and patients who developed acute confusion after admission were the focus in this review. Conference proceedings, editorials, opinion pieces, review papers, letters, published dissertations, and case series of three patients or fewer were also included in the review to establish data triangulation in order to enhance the rigour of this study’s findings.

Nature of Delirium and Nurses’ Recognition

The recognition of delirium by RNs may be hindered by its fluctuating course, which can be either hyperactive, hypoactive, or mixed delirium (Saxena & Lawley, 2009). Patients with hyperactive delirium are easy to recognize because they exhibit agitation, restlessness, and excitability. These patients move frequently, gesticulate, speak loudly, and may also exhibit disruptive behaviour such as shouting or reacting in an exaggerated manner to stimuli. Patients in this category may resist attempts to be kept still (Lipowski, 1990), and experience vivid hallucinations usually expressed as rage or excessive fear (Lipowski, 1990). Hypoactive delirium

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1 Nurses is the most common title referred to in the literature. The Registered Nurses title is used sparingly which potentially creates some confusion to the reader with regards to the educational level of the nurses referred to in the studies.
on the other hand, is more common than hyperactive delirium but less recognized by RNs and physicians due to its ambiguity (Neitzel, Sendelbach, & Larson, 2007; Ski & O’Connell, 2006). It is characterized by decreased psychomotor activity and can be manifested as depression or misperceived as a side-effect of sedation (Han et al., 2009). Patients with hypoactive delirium usually have decreased speech patterns eventually becoming unresponsive (Yang et al., 2009). Moreover, delusions, illusions, misperceptions of the environment, or visual hallucinations may be experienced by hypoactive patients. These patients also demonstrate lack of concentration and a poor attention span (Brown et al., 2007). Symptoms of hypoactive delirium are less noticeable than other types of delirium and may involve lethargy, apathy, fearfulness, and emotional lability (Brown et al., 2007; Young & Inouye, 2007); thus patients with this type of delirium are easy to miss because they appear either quiet and cooperative or noncompliant with treatment resulting in a poor prognosis that can lead to higher mortality rates (Brown et al., 2007; Milisen et al., 2004; Yang et al., 2009). Mixed delirium has a clinical picture that alternates between hypoactive and hyperactive variants of delirium (Ely, Siegel, & Inouye, 2001).

The fluctuating nature of delirium can at times leads to underreporting and lack of recognition of delirium. For example, Vollmer et al. (2010) investigated the incidence and prevalence of delirium in urology patients and determined the percentage of patients with underrecognized delirium in a hospital unit. The authors assessed the relationship between delirium, age, gender, co-morbidities, and length of stay. The duration of the study was six weeks and 141 patients were recruited in this study (Vollmer et al., 2010). Gathering of information occurred once per day between 7 am and 10 am. Findings indicated that the incidence rate was 6% (n = 141) and the prevalence was 12% (n = 141) in this sample. Taking into consideration the fluctuating nature of delirium, the aforementioned strategy of data
collection may have contributed to missing a significant number of delirium cases. Moreover, the phenomenon of “sun downing”, the worsening of disruptive behaviour in the late afternoon or evening time, was neglected in this study by only assessing patients in the morning. More patients with delirium may have been identified if the assessment was performed in the evening (El Hussein, Hirst, & Salyers, 2014a). Vollmer et al. (2010) recommended that nurses should consider the assessment of delirium as a routine task, labeling it as the sixth vital sign. Hosie, Agar, Lobb, Davidson, and Phillips (2014) conducted a study to explore the experiences, views and practices of acute care nurses in delirium recognition and assessment. Hosie et al. (2014) established that nurses have an unstructured approach to delirium recognition and screening. The fluctuating nature of delirium and the unstructured approach to its assessment adds a layer of complexity and potentiate the problem of delirium underrecognition. Hosie et al. (2014) acknowledged that nurses in his study self-selected to participate and it is possible that their experience reflects the views of nurses who were most interested in delirium.

**Education and Recognition of Delirium**

Gesin et al. (2012) measured the impact of a delirium screening tool and multifaceted educational interventions on RNs’ knowledge and correct assessment of delirium. The participants in the study were RNs in acute care settings with one year of nursing experience (n = 20). Gesin et al. (2012) introduced pharmacist-led lectures, web-based training, and a nurse-led bedside demonstration to develop delirium-related knowledge. Gesin et al.’s (2012) results demonstrated that the use of a multifaceted education program lead to improvement in nurses’ knowledge of delirium, and enhancement of their ability to recognize delirium. The researchers concluded that there is a causal relationship between the educational programs and the nurses’ ability to recognize delirium (p < 0.05). Gesin et al. (2012) also compared the nurses’
assessments to the assessments of a judge who used the same assessment tool to assess for delirium. The judge was identified as a clinician who received formal preparation regarding the implementation of the Intensive Care Delirium Screening Checklist (ICDS) tool by an expert in the field of delirium. Inter-rater reliability between RNs and judges was calculated and demonstrated a satisfactory index (k = 0.74). Gesin et al. (2012) acknowledged that the variation between the time of education delivery and the time of delirium assessment to be a potential weakness in the design. The authors claimed that this study has high external validity without describing how the sample of RNs was representative of the population and without referring to their sampling strategies or the inclusion and exclusion criteria for the study. The small sample size of 20 nurses is considered questionable, especially since the researchers did not give justification for their sample size (El Hussein et al., 2014). Smaller samples in quantitative studies are more likely to produce less accurate estimates than larger ones (Polit & Beck, 2012). The selection of all RNs from one site is another flaw to the study’s generalizability. According to Polit and Beck (2012), in order to enhance the generalizability of the study, researchers should consider choosing participants from various sites so as to have a sufficiently diverse sample which is representative of the population.

The improvement of the RNs’ knowledge was established by the judge immediately after the introduction of the ICDSC tool, raising some reservations as to whether the improvement in rate of recognition or agreement was because of the tool or because RNs were more deliberate about assessing for delirium (El Hussein et al., 2014a). In other words, the presence of a tool could have motivated the nurses to perform their assessment in order to reflect the outcome of their assessment in their documentation (i.e., novelty effect) (Polit & Beck, 2012). Moreover, the
presence of the validated judge (Hawthorne effect), could have also altered the performance of the nurses (El Hussein et al., 2014a).

In spite of the above mentioned limitations, the findings of this study were similar to the findings of previous studies which demonstrated that educational programs and the use of delirium detection tools can increase nurses’ recognition of delirium (Devlin et al., 2007; Roberts, 2004). The impact of education was also discussed by Eden and Foreman (1996) in another study, who claimed that nurses’ lack of knowledge about the criteria and methods of delirium recognition in addition to their lack of effective and clear communication were immediate causes for delirium underrecognition. They also suggested that nurses’ fear of performing systematic mental assessment due to doubts in their skills and abilities were factors contributing to their underrecognition of delirium. Akechi, Okuyama, Sagawa, and Furukawa (2010) noted in their study that the nurses’ lack of knowledge is related to a lack of emphasis on delirium in nursing schools. Akechi et al.’s (2010) findings suggested that a brief educational program facilitated by expert nurses and psychiatrists can potentially improve the nurses’ self-confidence in caring for patients with delirium.

Forsgren and Eriksson (2010) distributed a survey to study the effects of education on the awareness, observation, and interventions used for delirium in Swedish ICUs. They used a questionnaire to collect data from staff nurses in adult ICUs (n = 82). The questionnaire was completed by RNs on 55 units, and the researchers reported a prevalence of delirium of 9.4% (n = 55). Forsgren and Eriksson (2010) also established that the awareness of delirium among nurses in the study was low. The authors recommended intensive sessions of education and training for nurses and the inclusion of a validated delirium recognition tool in order to improve patients’ outcomes. Findings from several previous studies concurred with Forsgren and
Eriksson’s findings and concluded that limited knowledge and awareness of delirium symptoms and the underuse of delirium recognition tools are barriers to delirium recognition by nurses (Inouye et al., 2001; Lemiengre et al., 2006; Ski & O’Connell, 2006).

In another study focusing on education, Flagg, Mcdowell, and Buelow (2010) used a survey and established that nurses in their study had inadequate knowledge about the negative results associated with delirium. Flagg et al. (2010) also highlighted the importance of routine delirium assessment to facilitate its early recognition. Flagg et al. (2010) recruited 61 nurses and asked them to complete a survey that consisted of items in the form of a Likert scale and true/false questions. The items in the survey assessed the nurses’ knowledge of delirium symptoms and its consequences, as well as nurses’ confidence levels associated with delirium assessment. The researchers concluded that providing nurses with educational resources and opportunities to apply their knowledge will augment their confidence in recognition and management of delirium. Flagg et al. (2010) did not provide details about the barriers which prevent nurses’ recognition of delirium and their use of the Likert scale and true/false questions may have limited the chances of providing nurses with options to further elaborate on their responses (El Hussein et al., 2014a). In 2014, Wand et al. concluded their study with a striking finding that was contrary to all the previous findings that claimed improved delirium recognition with the administration of educational interventions. Wand et al. (2014) established that a multifaceted educational intervention to prevent delirium managed only to improve knowledge and confidence of nurses; however the rate of recognition was poor and did not change following the educational intervention. Time and again most of the studies that addressed delirium underrecognition attempted the administration of a certain educational strategy which indeed improved knowledge but did not improve the rate of delirium recognition. Thus perhaps what is
needed is the vehicle that translates this knowledge into practice. I am proposing that this vehicle is the clinical reasoning process that nurses need to recruit in their practice in addition to the knowledge gained from experience and from educational interventions.

**Communication Barriers and Delirium Recognition**

Steis and Fick (2008) systematically reviewed 10 studies that focused on nurses’ detection of delirium and concluded that nurses encountered difficulties with adequate assessment, detection, communication, and documentation of delirium in older adults. They counted factors such as nurses’ inadequate delirium knowledge, assessment skills, documentation and issues related to nurses’ disappointment when communicating with physicians as contributing to delirium underrecognition. In another study, Laurila et al. (2004) stipulated that nurses felt frustrated and reluctant to report their findings, as physicians rarely read RNs’ notes, do not respond to RNs’ reports, and sometimes questioned RNs’ credibility. Truman-Pun et al. (2005) demonstrated that time, inadequate confidence in the use of a screening tool, and physician buy-in were additional barriers for nurses, leading to underrecognition of delirium. Lack of proper communication and the fluctuating nature of delirium are key factors in contributing to RNs’ underrecognition of delirium. Inouye et al. (2001) reported similar findings to Truman-Pun et al. (2005), claiming that patient compliance was mistakenly accepted as an indication of an intact mental condition. Inouye et al. (2001) found that the combination of hypoactive delirium, being 80 years of age or older, vision impairment, and dementia increased the risk of underrecognition of delirium by twenty times.

**Delirium Assessment Tools and Recognition**

Guenther et al. (2012) conducted a study that compared bedside nurses’ ratings of delirium using their clinical impressions and experiences against the ratings of medical students
who used the Confusion Assessment Method (CAM) tool to recognize delirium. The study was conducted in a 31-bed Cardio-Surgical Intensive Care Unit (ICU) where the authors analyzed 436 paired observations of patients. Guenther et al. (2012) demonstrated that the use of objective criteria such as the confusion assessment method (CAM) recognition tool assisted in recognizing delirium in patients. Moreover, patients who were erroneously perceived to have delirium by using the subjective criteria were identified as non-delirious when they were assessed using CAM. Previous findings from the literature are in agreement with Guenther’s findings that delirium detection increases when nurses receive comprehensive education on delirium and supervised training during the application of a validated screening tool such as CAM (Lemiengre et al., 2006; Neitzel et al., 2007; Rigney, 2006; Steis & Fick, 2008; Waszynski & Petrovic, 2008). Guenther et al. (2012) did not allude to the fact that the higher rate of delirium detection by the medical students could be related to the training session they received (a total of 75 minutes on how to use the CAM) that enhanced their skills in utilization the tool and expanded their understanding of the tool’s criteria. The lack of control of this variable can lead to competing explanation which may reflect a weakness in the internal validity of the design. Moreover, the medical students were originally recruited for the express purpose of following and detecting delirium in the ICU, while in comparison; RNs were to detect delirium as part of their regular tasks and activities on shift, thus possibly diverting their focus and affecting recognition abilities (El Hussein et al., 2014a). Another potential weakness of the study is that it was conducted in a single center on surgical patients, which limits its external validity, a fact that was acknowledged by Guenther et al. (2012).

Mistarz et al. (2011) found that the performance characteristics of delirium recognition tools contributed to nurses’ reluctance to utilize them. The key barriers to using these tools were
the time taken to effectively use these tools and the patients’ level of cooperation. The authors of this study maintained that nurses face challenges in consistently recognizing the presence of delirium through simple bedside interactions. Mistarz et al. (2011) drew attention to the need to improve delirium recognition through the utilization of delirium recognition tools or through educating nurses about delirium. Researchers in another study also reported that RNs were hesitant to utilize delirium tools for various reasons; these reasons included a high workload, shortage of RNs, and the lack of specific knowledge of the use of these tools (Soja et al., 2008). Rice et al. (2011) asserted that the sole utilization of CAM is not sufficient in improving the rate of recognition and suggested that, in addition to CAM, nurses need special education and training to help them use the tool efficiently and with confidence. The findings of Rice et al. were congruent with the findings of Wei et al. (2008), who engaged with an extensive review of the literature related to screening of delirium using CAM, and established that the CAM should not be used as the single means of delirium recognition. Wei et al. (2008) noted that clinicians should use their clinical reasoning and judgment and should implement comprehensive cognitive screening tests in order prevent and detect delirium.

In the same study, Rice et al. (2011) measured the agreement of CAM ratings by nurses and researchers (expert diagnosticians) over a period of 10 months. A convenience sample of 167 nurses caring for 170 older adults (>65 years) from six medical surgical units in a tertiary care teaching facility in the U.S. were recruited. Rice et al. (2011) did not give further details about the sample of nurses included in the study or whether the term “nurses” that was used in the study refers to RNs alone or to other level of nurses such as LPNs and NPs (El Hussein et al., 2014a). Paired CAM ratings were completed by the nurses and researchers at minimum every second day, until the patient was either discharged or the detection of delirium by the researcher.
The researchers recognized delirium in 7% (12/170) of patients in comparison to the nurses who failed to recognize delirium 75% (9/12) of the time. Rice et al. (2011) demonstrated poor agreement between the observations of RNs and the researchers (k = 0.34). Rice et al. (2011) recommended that future research should focus on the process of clinical decision making that nurses use in assessing cognitive changes. Rice et al. also made a distinction between hypoactive and hyperactive delirium and concentrated on the significance of using CAM to detect the hypoactive type.

Rice et al. (2011) supported the notion that CAM has high sensitivity and claimed that CAM’s recognition rates were reported to be low only when performed by nurses. While this statement sounds biased, it raises serious red flags and is consistent with the literature showing that both physicians and nurses fail to recognize delirium in 60 to 84% of cases (Ely, Siegel, & Inouye, 2001). The authors also stated that RNs’ lack of assimilation of observable cues associated with delirium and inability to translate these cues into a meaningful clinical diagnosis is a leading cause of delirium underrecognition. Rice et al. (2011) suggested that the development of a new instrument based on the CAM might aid nurses in converting concrete cues into complex constructs such as delirium. This suggestion is considered far-fetched to achieve as it takes several studies and multiple assessments of the new tool in order to reach the same degree of sensitivity and specificity (El Hussein et al., 2014a) as CAM (sensitivity 97% to 100% and specificity 89% to 100%) (Toro et al., 2010). The CAM as a delirium recognition tool was experimented and validated in at least six prospective studies (Inouye et al., 2001; Laurila et al., 2002; Pompei et al., 1995) conducted on older adults. Unanimously studies concurred that CAM is a reliable and valid tool when used to recognize delirium. Moreover, CAM is currently
considered the gold standard for delirium recognition (Wei, Fearing, Sternberg, & Inouye, 2008; Wong, Holroyd-Leduc, Simel, & Straus, 2010).

Eastwood et al. (2012) surveyed 174 Intensive Care Unit (ICU) nurses at a tertiary care academic hospital in Australia using two questionnaires; the first was administered one month after a mandated but unstructured delirium assessment, and the second completed following one month of CAM assessments. An unstructured delirium assessment was defined as the routine clinical assessments performed by bedside nurses before any formal education and training sessions to recognize delirium were offered. The researchers evaluated the use of antipsychotic medications by reviewing pharmacy records to assess for differences in the rates of dispensing ampoules after the introduction of CAM. Eastwood et al. (2012) established that nurses globally agreed that knowledge related to delirium is important and that the time used in assessing patients for delirium had a significant and positive impact on their care. The administration of antipsychotic medications significantly increased during the implementation period of CAM, inferring that the nurses were more mindful in their practice about the recognition of delirium after the introduction of CAM. In conclusion, the authors demonstrated that there was a general consensus among nurses with regards to continuing to use CAM in their practice. It is worth noting that nurses were aware that the authors assessed their knowledge and attitude before and after the introduction of CAM utilizing the same questionnaire. This awareness may have sensitized the respondents following the completion of the first questionnaire, due to a resultant attitude change, thus imposing a threat to the internal validity of the design (El Hussein et al., 2014a). Eastwood et al. (2012) suggested the use of an alternative tool which needs less time to implement or requires fewer skills to perform, as nurses in this study voiced concerns in regards to the difficulty and intricacies of using the CAM. The authors of this study advised that CAM be
shortened or modified to reduce the time it takes to administer, thus putting at risk its core variables and potentially negatively impacting its validity and reliability (El Hussein et al., 2014a).

**Conceptual Understanding of Delirium**

Guenther et al. (2012) claimed that nurses lack of conceptual understanding of delirium, contributed to labeling errors. Nurses in this study interpreted their patients’ conditions as having delirium, contrary to results that were obtained when CAM was used. Guenther et al. (2012) also suggested that the conceptual understanding of delirium between nurses and medical students is not equivalent, which is a potential variable influencing the rate of detection. The comparison between nurses and medical students demonstrates a major conceptual misunderstanding of the educational background of nurses by the physicians who conducted this study. The two groups compared were non-equivalent in terms of their education; therefore, the differences in the rate of recognition of delirium could be related to the group differences rather than the effect of the independent variable (CAM). This type of selection process constitutes a substantial weakness in the design of the study and can be considered a selection bias and a major threat to the internal validity of the design (El Hussein et al., 2014a). Furthermore, Guenther et al. (2012) did not mention any measures taken to control for consultations or assistance that medical students could have received from senior attending or specialized physicians which could have skewed the ratings (El Hussein et al., 2014a).

In another study, Khan, Khan, and Bourgeois (2009) were inconsistent in the language they used with regards to the detection of delirium. They alternated between using the terms “missing” and “underrecognition”. The authors used only two case reports in order to provide an overview of delirium management and further the understanding of the pathophysiology of
delirium. The reliance on only two case studies to meet the aforementioned goals constrains the attempt to generalize the findings of this study. The authors summarized the literature related to the pathophysiology of delirium and the controversial issues related to its treatment options. Moreover, the authors’ main focus was pharmacotherapy and neurotransmitter imbalance. Nursing management was not acknowledged in this study and delirium was discussed as a physiological disturbance related to alterations in the level of inhibitory and stimulatory neurotransmitters (El Hussein et al., 2014a). According to the authors, the solution to the problem of delirium was pharmacological management.

In a survey conducted by Wu (1995), 214 nurses were asked to respond to a semi-structured questionnaire about their perception of patients’ delirium. Findings from this survey showed that nurses were inconsistent in their definitions of delirium. Milisen et al. (2002) said that “although nurses’ clinical notes contained information about patients’ cognitive status, the documentation of patients’ mental status was seldom accurate” (p. 27). Milisen et al. added that nurses “knew” what confusion was but when asked specifically to define it; they did not consistently define it in the same way. Wolanin (1977) explored the charts of 30 nursing home patients diagnosed with delirium in an attempt to examine the behavioural term used to describe these patients. He realized that 40 different categories were used in the charting of the behavior of patients with delirium. Wolanin (1977) added that physicians and nurses have major differences in their definition of delirium, which added to the confusion and inconsistencies in evaluation and interventions. The multiple definitions of delirium lead to barriers in communicating assessed findings, in addition to creating barriers in accessing published guidelines on delirium (El Hussein et al., 2014a). Lou and Dia (2002) argued that the multidimensional concept of delirium makes its definition a difficult task. Lou and Dia (2002)
identified two major causes related to the underrecognition of delirium. The first one is the “definition of delirium,” which fails to say whether all symptoms are necessary to co-exist during a specific period of time in delirious patients, or if chronic problems in behavior should be considered as symptoms of delirium. Francis (1992) indirectly supported this position by highlighting the difficulties in assessing select criteria when the patient is lethargic or uncooperative.

**Delirium as a Burden**

MacDonnell and Timmins (2012) conducted a survey to investigate the burden experienced by nurses when providing care for patients with acute delirium. The authors collected data in 2007 from a random sample of RNs (n = 800) on the national professional registry in the Republic of Ireland. The authors concluded that this burden is high and recommended reduction through delirium prevention, early detection, and treatment. The authors also proposed that nurses should be provided with appropriate education to effectively use delirium detection tools such as Confusion Assessment Method (CAM) and ICDSC (Intensive Care Delirium Screening Checklist). The authors stressed that it is not enough to provide nurses with the tools and teach them how to use them, but it is imperative to educate nurses on how to interpret the results of these tools so that they may intervene accordingly. Once again the findings of this study agree with the findings of previous similar studies that suggested that delirium detection increases when nurses receive comprehensive education on delirium and training in the use of a validated screening tool such as CAM (Neitzel et al., 2007; Steis & Fick, 2008; Waszynski & Petrovic, 2008). Although the study comprised a random sample of 800 nurses, only 181 responded (22.62%). This low response rate may have introduced non-response
bias and debatable representativeness of the sample and hence its generalizability (El Hussein et al., 2014a)

**When Delirium and Dementia Overlap**

According to Lipowski (1989), the “only other organic mental syndrome characterized by global cognitive impairment [in addition to delirium] is dementia” (p.579). Boettger, Passik, and Breitbart (2009) reiterated this finding and confirmed that both delirium and dementia involve global cognitive impairment which makes their diagnosis a challenge. They concluded that there are phenomenological differences between delirium superimposed on dementia, and delirium without pre-existing dementia. In general, there were no differences in the severity of hallucinations, delusions, psychomotor behaviour, or sleep-wake cycle disturbances in either condition; however, the significant difference in patients with delirium superimposed on dementia was in the level of disturbance in arousal and awareness (consciousness) in addition to alterations in multiple cognitive domains.

Inouye (2006) reported that delirium and dementia are highly interrelated and dementia is the leading risk factor for delirium. Cole (2004) found that 2/3 of patients with delirium have pre-existing dementia. Furthermore, the incidence of delirium increased the odds of developing dementia in patients not known to have dementia (Rahkonen et al., 2000). Moreover, dementia is a major risk factor for developing delirium and studies have shown that 59% of older patients with dementia develop delirium (Margiotta, Bianchetti, Ranieri, & Trabucchi, 2006). Since dementia causes a “convoluted course” when it co-exists with delirium (Steis & Fick, 2012, p. 32), RNs’ educational needs and clinical decision-making skills need to be supported to enhance recognition and consequently treatment of the underlying causes of delirium in patients with
dementia (Steis & Fick, 2012). Patients with dementia who develop delirium are twice as likely to die within one year (Bellelli, Speciale, Barisone, & Trabuchi, 2007).

Riekerk et al. (2009) found that the failure to recognize delirium superimposed on dementia, the atypical presentation of delirium in older adults (Voyer, Cole, McCusker & Belzile, 2006), and RNs’ philosophical perspective towards aging (McCarthy, 2003a) to be additional barriers to recognizing delirium. Furthermore, delirium and dementia have overlapping symptoms which makes it even more difficult to recognize delirium. The acute confusional state that characterizes delirium and the progressive decline in cognition in delirious patients makes differentiation difficult for nurses in acute care settings, as nurses are not always familiar with the patients’ baseline mental status (Fick, Hodo, Lawrence, & Inouye 2007).

**Degree of Connectedness between Patients and Nurses**

Munhall and Oiler (1983) affirmed that the process of early recognition of patients’ problems is best revealed through situational contexts and personal meanings. Minick (1995) argued that caring, as demonstrated by nurses’ involved and engaged stance, sharpens their perceptions, and improves their assessment skills, thus producing potential for early recognition of problems including delirium. This caring stance is assumed to make a difference in patients’ outcomes when compared to the detached relationship where nurses are missing the connections with their patients. Building on this assumption, genuine and profound involvement are an essential pre-requisites to understanding the patients’ situation so that subtle changes in behaviour and cognition can be detected. Minick and Harvey (2003) added that early recognition of patients’ problems necessitates that nurses should recognize patterns of change through knowing the patient directly or through the family. The ability to identify the pattern of change upon recognizing something different from the anticipated and having the confidence to act on it
in spite of its vagueness is a skill that requires experience and intuitive knowledge, that is the clinical grasp of ambiguous patterns of patient data (Benner et al., 1999).

McCarthy (2003b) argued that the “degree of connectedness” or the relative relationship between the patient and the RNs influences the latter’s ability to reason clinically and detect delirium. According to McCarthy (2003b), the unit/ward environment possibly affects the RNs’ rate of delirium detection because different care settings have different dynamics. McCarthy (2003) added that the process of interactions between RNs and patients is more structured in acute care settings than in the home or in long term settings. Therefore, it can be assumed that the route that nurses choose to take for clinical reasoning would be influenced to some extent by the environment in which they practice. In order to get close to the patients and build trusting relationships that enhance connectedness, it would be beneficial if nurses could spend more time with their patients. Acute care settings are known to be fast-paced settings in comparison to long term settings. Thus, the care environment has a direct effect on the degree of connectedness. Nurses who work in long term care or home care settings experience a higher degree of connectedness than nurses working in acute care settings because the former have a longer and probably more consistent relationship with their patients (McCarthy, 2003b). Minick (1995) asserted that caring for and getting to know the patients over a period of time is important in assessing subtle changes in the patients. Minick added that RNs who distanced themselves from a patient had delayed recognition of the patient’s problem. Finally it is worth noting that even though home care nurses generally described their relationships with patients as “intimately familiar” (McCarthy, 2003b, p. 208), their ability to recognize delirium, despite reporting a connectedness with patients, varied and did not demonstrate a significant difference in
comparison to nurses who were less familiar with their patients. This variation could be attributed to nurses’ personal philosophies about aging (older adults versus patients).

**Knowledge Gap**

Based on the previous discussion of the literature review, it is worth noting that most of the recent articles found and reviewed here, about delirium recognition or underrecognition were quantitative in nature, attempting to find a cause/effect relationship between variables in order to test a hypothesis. Even though most of these studies showed statistical significance in terms of what contributed to delirium underrecognition or what facilitated delirium recognition, the clinical significance remains lacking and delirium underrecognition is an ongoing and significant problem that is yet to be resolved (Cerejeira et al., 2011; Cole, 2004; Doyle, 2001; Ely et al., 2001; Fick & Foreman, 2000; Foremen, Wakefield, Culp, & Milisen 2001; Han et al., 2009; Inouye et al., 2001; Khan & Bourgeois, 2009; Lemiengre et al., 2006; Milisen, et al., 1998; Page et al., 2011; Pun & Boehm, 2001; Rapp, Mentes, & Titler, 2001; Rice et al., 2011; Ryan et al., 2013; Ryan et al. 2014; Rockwood et al., 1994; Sanders, 2002; Saxena & Lawlwey, 2009; Souder & O’Sullivan, 2000; Vermeersch, 1990). Moreover, although delirium is multidimensional and not solely a biomedical concept (Lou & Dia, 2002), it was obvious from my review that the current literature is still focusing on the biomedical nature of delirium. The previous analysis of the literature highlights the need to approach delirium from a different perspective due to the dearth of literature in relation to understanding delirium as a contextual phenomenon involving the patient, the family and the RNs. Probably with this holistic approach RNs can better recognize delirium. Another observation that is worth noting is that most of these studies ignored the contextual effect of acute care settings on the probability of developing delirium. This observation demonstrates a significant knowledge gap and an urgent need to go
beyond the statistical numbers to explore the nature of interactions and processes that nurses use to recognize delirium. While it is important for RNs to understand the pathophysiological concepts of delirium, it is equally important to understand the contextual factors to enhance RNs’ skills of delirium recognition. Belanger and Ducarme (2011) supported this position in their extensive review of the recent literature, focusing on patients’ and nurses’ perspectives of delirium. They established that only 17 research articles highlighted the subjective nature of the experience of delirium from the perspective of the patient and the nurses. They added that most of the literature “focused above all on the characteristics, pathophysiology, incidence, etiology, prognosis of delirium as well as on the prevention, detection, evaluation and management” (p. 304).

Neville (2008) argued convincingly in favor of expanding the understanding of delirium beyond the biomedical perspective, and suggested considering its personal and relational aspects. Wright (2012) contended that delirium is considered a “unique relational challenge for patients, families, and care providers” (p. 20). In his view, traditional biomedical understanding of delirium as a neuropsychiatric disorder is incomplete unless accompanied by an understanding of the contextual factors. Wright (2012) argued that while the majority of the literature in nursing and medicine discussed delirium from a biomedical perspective, significant understanding can be attained from approaching the personal experiences of delirium from the perspectives of the patients, families, and care givers. Another study, Belanger and Ducarme (2011), established that the dominant discourse regarding issues related to delirium focuses on the biomedical model and delirium is understood as an alteration in the central cholinergic system. I contend that this conventional biomedical approach to delirium is limiting, deficient, and is not congruent with the holistic nature of nursing. Furthermore, approaching the problem of delirium from the
biomedical perspective closes the door to RNs’ understanding of the contextual factors associated with the phenomenon of delirium and its recognition. Likewise, the aforementioned findings and discussion affirm Rockwood and Bhat’s (2004) position that the main predicament facing researchers and clinicians aspiring to conduct a systematic review of interventions in patients with delirium is not the lack of methodologically flawless studies, but that such studies repeatedly have difficulty in understanding what would be considered as more “fundamental obstacles” (p. 76) to the better care and eventually, recognition of patients with delirium. Thus far, I have provided a basis to establish that delirium is a complex debilitating syndrome that is common among hospitalized older adults and is often underrecognized. The conundrum of delirium underrecognition is made even more difficult by the fact that delirium etiology remains unknown and by the fact that nurses in acute care settings cope with a daily workload that does not easily foster the degree of connectedness and the duration of clinical observation necessary to promptly recognize delirium. Inouye (1999) concluded that because of the nonspecific and unclear nature of delirium, RNs are more likely to underrecognize delirium and mistake it as dementia or mistreat it as a sign of serious illness.

Canadian RNs face similar challenges, and there is limited knowledge about Canadian RNs’ clinical reasoning and judgments processes that are used while interacting with older adults in order to recognize delirium. Therefore, unearthing the clinical reasoning and judgment processes and analyzing factors that influence these processes is an imperative. Moreover, based on my review of the recent literature, I also found that globally there is a limited number of studies that have focused on how nurses reason clinical situations and reach judgments about delirium recognition.
As mentioned in chapter 1, the major premise underlying this present study is that the underrecognition of delirium among hospitalized older adults stems from flawed clinical reasoning processes. Consequently, if registered nurses have a conceptual understanding of the clinical reasoning processes utilized to recognize delirium, then potentially fewer patients will suffer from delirium and its dire short and long-term outcomes. Delirium as a syndrome has also been referred to as a “problem” (Inouye & Charpentier 1996; Flahery, 1998) and Tanner (2006) viewed effective clinical reasoning and judgment processes as a “problem solving-activity” (p. 204). Therefore, exploring the clinical reasoning and judgment processes that RNs use to recognize delirium has the potential to mitigate its incidence and lead to positive health outcomes. Aiken, Clarke, Cheung, Sloane, and Silber (2003) argued that nurses with poor clinical reasoning skills often fail to detect impending patient deterioration resulting in a “failure-to-rescue” or underrecognition in the context of delirium in acute care settings.

Underrecognition occurs because delirium does not usually present clearly and delirium symptoms fluctuate throughout the day with different trends and trajectories. These variations in trends and trajectories are often missed, leading to delirium underrecognition. According to Benner, Sutphen, Leonard, and Day (2010) “when nurses use clinical reasoning, they capture trends and trajectories (p. 85). Lauri et al. (2001) found that nursing clinical reasoning and judgment are complicated processes that involve observation of subjects, collection of data, and integration of different aspects of information, before arriving at an overall clinical judgment or decision. Hence, in this study I am proposing that the clinical dilemma of delirium underrecognition can be better rectified once the clinical reasoning processes that nurse’s use are established, dissected and properly comprehended from the perspective of the RNs in acute care settings. Gaining a better understanding of RNs’ clinical reasoning and judgment-making
processes is beneficial for patients, RNs, and the employing organizations, because better understanding of the clinical reasoning and judgment processes can assist RNs in consolidating their assessment skills and translating them into more precise and clinically sound interventions, to improve their collaboration with other health care professionals, and to positively impact patients’ health outcomes (Dowding, 2002). Good clinical reasoning and judgment can assist RNs in identifying delirium syndrome in its early stages (McCarthy, 2003a). Benner et al. defined clinical reasoning as the “the ability to reason while the clinical situation changes” (p. 85); thus, I am suggesting that the waxing and waning, or the fluctuating nature of delirium, can be better understood by using clinical reasoning “taking into account the context and concerns of the patient and family” (Benner et al., 2010 p. 85). Finding these processes has the potential to “conjure up possibilities, resources, and constraints in the patient and family situations” (p. 85). In summary, there appears to be an incomplete understanding of how nurses perceive and process the concept, context, and manifestations of delirium and more research is needed to determine such important aspects of these processes and to draw a link that connects aspects of care, with the clinical reasoning process and the patient’s contextual needs and to delineate how these links can yield to a clear and rational picture of the patient’s clinical status thus improving delirium recognition rate.

Summary

Delirium is a condition which has a high incidence in acute care settings and places a significant burden on patients, their families, and the health care system. Despite its high incidence and the presence of best practice delirium guidelines to guide nursing practice, delirium remains often underrecognized. The literature identified in this review provides insights into how nurses fail to recognize delirium and factors that delay or prevent its recognition.
Because delirium may be confused with dementia, it is important for nurses to enhance their knowledge of the differences between these two states. Education and further training on delirium recognition emerged as an immediate need to help nurses recognize delirium. Finally, this review of the recent literature demonstrated that, in spite of nursing education about delirium recognition, use of valid assessment tools, and greater understanding of delirium in general, these strategies have failed to increase the recognition and therefore the treatment of delirium.

This literature review has provided context for the current research related to scope of delirium underrecognition by RNs in acute care settings, as well as summarized key findings from studies that describe assessment techniques and tools to recognize it. It is imperative that front line clinicians and care providers are able to accurately assess, diagnose, and manage this acute confusional state in order to prevent the many negative outcomes often associated with it. The identification and utilization of valid and reliable assessment tools such as those identified in this review can help to reduce and prevent the challenges and sequelae associated with delirium.

The multiple definitions of delirium are leading to barriers in communicating assessed findings and accessing published guidelines on delirium. Most of the studies in the current literature consider delirium as a biomedical illness, while few studies look beyond the biomedical nature of delirium and attempt to expand the concept of delirium. The complex nature of delirium and its multiple presenting features adds to the complexity of its conceptualization. Further research on delirium recognition processes and constructing a theory that explains these processes is timely and will help in understanding the processes of delirium recognition that RNs use and consequently, developing evidence-based interventions. In chapter 3, I discuss the methodology employed to answer the research questions, and I include a description of the constructivist grounded theory as the ideal research method for this study.
CHAPTER THREE: THE METHOD

In this chapter I describe the methodological foundations which inspire and inform my inquiry about the clinical reasoning and judgment processes used by RNs to recognize delirium in acute care settings. Additionally, I provide an overview of Grounded Theory Method (GTM). I also discuss how the ontological and epistemological orientations of the researcher determine the selection of the GTM to be used. I conclude this chapter with a justification of the use of the constructivist grounded theory for my research project in addition to highlighting the importance of taking a reflexive position to stay engaged, and add rigor to the process of interaction with data and the participants.

Theoretical Context: Symbolic Interactionism

Symbolic Interactionism (SI) is “a dynamic theoretical perspective” (Charmaz, 2014, p. 262) used to understand human behaviours and group interaction (Blumer, 1969); as such it is an ideal lens to describe, deconstruct, and interpret complex processes in nursing such as the process of delirium recognition. The aim of SI is to view social realities in that SI consists of concepts which give researchers “a way of knowing” through adding meaning to actions and defining practical activities with which people engage. The SI perspective views individuals as “agentic actors” (Charmaz, 2014, p. 256), seeing individuals as having the power to interpret their situations and respond accordingly.

Charmaz (2014) suggested that SI is rooted in the pragmatist tradition and therefore reality is perceived as “fluid”, “indeterminate” and “open to multiple interpretations” (p. 263). The focus of the researcher using SI is to find effective practical applications to solve problems (Charmaz, 2014).
Charmaz (2014) noted that George Herbert Meade created the foundations of the Symbolic Interactionism perspective. Moreover, the Chicago school of thought, with its interpretive feature, was the predominant influence shaping the premises and concepts of SI. Herbert Blumer, “Mead’s intellectual heir” (Charmaz, 2014, p. 263), pioneered the Chicago school, and coined, in an offhand way, the term symbolic interactionsim (Blumer, 1969). Blumer (1969) posited that the SI focuses on the interpretation of human actions and activities and that language is the medium used to give meaning and provide understandings for these activities. He further ascertained that SI concentrates on the construction of meanings from human social behavior and that humans use symbols to construct mutually understood meanings from social interactions (Blumer, 1969). Blumer (1969) added that social interaction shapes “human conduct” (p. 8) and human conduct depends on symbols that can take the form of spoken or unspoken shared language and meanings. These symbols have no use unless their meaning is shared by the individual in the interaction (Blumer, 1969). Charmaz (2014) added that meaning is dynamic and interpretation of meaning is continuously “arising, changing or shifting through practice” (Charmaz, 2014, p. 266). The meanings of these symbols are analyzed, studied, and improved upon in a social context often imbued with history and culture. If parties do not agree with a shared meaning of specific symbols, challenges are likely to emerge. Blumer (1969) further argues that humans assign meaning to the actions of one another before reacting. Moreover people usually do not react to the actions of others but to the meaning they assign to those actions. As such human interaction is steered by symbols, interpretation, and the driving attempts to understand the meaning of another’s actions. The process of interpretation ultimately establishes the human response (Blumer, 1969). In Charmaz’s words: “we act in response to how we view our situation” (Charmaz, 2014, p. 262). Similarly, I contend that registered nurses’
actions are based on symbolic meanings found within a given context and are influenced by culture, social processes, and social norms of the clinical settings. SI, as a theoretical perspective, offers an “interpretive portrayal” of the world and not an exact capture of it (Charmaz, 2006, p. 10). According to Blumer, SI has 3 main premises: (1) Individuals react toward symbols and actions based upon the meanings they assign to these actions and symbols; (2) the basis for these meanings is constructed during social interactions with other individual; and (3) these meanings are reflected upon, managed, shaped, and modified through an interpretive process constructed by the individuals in an attempt to deconstruct, clarify, and decode these symbols (Blumer, 1969). RNs create and modify meanings from the symbols and language they attach to people, objects, and events during their social interactions with older adults. The use of symbols and language is how RNs interpret their experiences and understandings.

Charmaz (2014) thought that SI is a “perspective not an explanatory theory that specifies variables and predicts outcomes” (p. 262); a perspective that facilitates the construction of an explanatory theory. Stebbins, R. (personal communication, July 3, 2012), previously commented that any theory cannot, by deductive logic alone, generate new ideas. But any theory can allow its proponents to do exploratory research, on the grounds that there is possibly something new that the established theory should consider. This holds as well for SI. Stebbins, R. (personal communication, July 3, 2012), added that theory such as SI is used to contextualize exploratory data and SI in this context is used as a “sensitizing concept” to guide the inquiry, and as a research tool. The illumination of the inquiry occurred as SI projected RNs as active beings “engaged in practical activities” (Charmaz, 2014, p. 262) such as delirium recognition, thus my focus becomes how RNs accomplish these activities. According to Charmaz (2000), SI and
Grounded Theory have strong compatibilities as they both focus on studying processes, both use empirical observations to construct a theory, and both have the potential to develop conditional theories that contextualize certain realities. SI concentrates on meaning making and actions, and GT complements that by focusing on product and processes (Stebbins, 2001). Therefore GT and SI are ideal for helping me answer my research question that focuses on meanings (indicators and cues of delirium) and clinical reasoning processes utilized by RNs to recognize (product) delirium in acute care settings. GT responds to what is happening and SI gives meaning to that response. Blumer (1969) maintained that meaning is a social product made possible through social interaction with others. The meaning I am trying to elicit here is interpretation of the clinical reasoning processes that deal with the symbols (cues and indicators) required for negotiating delirium recognition.

The main claim of SI is that reality is socially constructed through communication (Blumer, 1969). Charmaz (2006) argues for the use of SI as a theoretical perspective for GT and I support her argument and will use SI as the guiding theoretical framework to construct my GT. Blumer supports Charmaz’s standpoint to using a theoretical perspective for identifying the theoretical framework before conducting the study as, in his perception, this step is critical since the entire research act is dependent on an imaginary picture of the empirical world of the participants (Blumer, 1967). Moreover, Blumer (1967) maintained that the imaginary picture of the empirical world of the participants "sets the selection and formulation of problems, the determination of what are the data, the means to be used in getting data, the kinds of relations sought between data and the forms in which propositions are cast" (p. 25). Symbolic Interactionism in this study also facilitated the construction of the interview guiding questions that aimed to explain the processes of delirium recognition. So, in addition to the main research
question, SI enabled the construction of subsidiary implied questions within the study related to
the why, how, where, when, under what conditions, and with what consequences the
phenomenon of delirium underrecognition unfolds. The sub-questions reflect the main premises
and concepts of SI. These sub-questions concentrated on the meaning of delirium, the interaction
process between the RNs and older adults and their respective contextual variables, and the
interpretive process that RNs utilize based on the meaning of delirium. Being intentional and
mindful about these questions facilitated the insertion of my ontological lens into the data
analysis. These questions also played a role as introductory guiding questions during the
interview that lead into probing and generating further questions.

Blumer (1967) asserted that meaning is a social product made possible through social
interaction with others. Moreover, socially constructed knowledge in the hospital requires an
interpretive approach to inquiry which makes SI a central canon to the constructed substantive
GT. Symbolic Interactionism is considered as one of the interpretivist perspectives in research
for the study of individuals’ social and psychological action/interaction in search of portraying
and understanding the process of meaning making (Schwandt, 1994). According Mistars et al.
(2011), it is inexplicable that delirium is underrecognized by bedside nurses in acute care
settings. The conundrum of underrecognition may be due to lack of knowledge or “it may be the
nature of the interactions between the staff and patient” (p. 129). The interpretation of the
“nature of interaction” is the focus of SI. Thus during data analysis, my awareness of this
premise of SI, produced a continuous effort to understand how RNs defined the nature of this
interaction from their own perspective. Symbolic Interactionism was instrumental in discerning
RN’s “socially based interpretations” (p. 207) of delirium rather than my scholarly
interpretations (Denzin 1971, p. 166). Blumer (1969) asserts the importance of this position by
saying that “the gravest kind of error” (p. 50) a researcher can commit is failing to see objects as participants see them and consequently interpreting meaning according to the researcher and not the participant. Furthermore, I utilized the definition of the situation, which is a “pivotal concept that guides much Symbolic interactionist research” (Charmaz, 2014, p. 272), to explore the clinical reasoning processes used by RNs in acute care settings to recognize delirium.

The “definition of the situation”, as a main tenet of SI, is informed by multiple sources of knowledge and has guided the researcher of this study in defining, understanding, and depicting the clinical reasoning processes that RNs use to recognize delirium in acute care settings. Despite being a complex and multidimensional process, clinical reasoning in nursing is a core requirement for safe practice and depends on observable social, physical and physiological cues. The dynamic context of acute care settings and its unique circumstances are saturated with sophisticated interdependencies and endless contingencies that influence the clinical reasoning process. I used the constant comparative logic of grounded theory to analyze the responses of 17 RNs in acute care settings. The definition of the situation was the overarching compass directing my analysis to capture the micro, meso and macro perspectives that influence the RN’s clinical reasoning process. I realized that the definition of the situation is the driving force of the wheels of the clinical reasoning process and is instrumental for collecting, analyzing and organizing information in a methodical manner to assist in recognizing delirium. Definition of the situation also contributed to better understanding of the clinical reasoning process. Better understating of the clinical reasoning processes have positive implications for educators, administration, practice and research.
Appropriateness of Grounded Theory for this Study

The main goal of this study is to identify the indicators and understand the clinical reasoning processes that registered nurses (RNs) utilize to recognize delirium during their interactions with older adults in acute care settings. As no theory exists to explain the nature of this interaction, this study utilized Grounded Theory (GT) as a research method to construct a theory based on participants’ experiences with older adults. This theory potentially furnishes an explanation of the indicators and clinical reasoning processes used by RNs to recognize delirium in acute care settings in older adults. The generated theory has the potential to provide a comprehensive view of the phenomenon of delirium underrecognition.

The selection of a research method is driven by the research question (Lincoln & Guba, 2000). The method should be relevant to the area of investigation, in addition to meeting the needs and skills of the investigator (Maxwell, 2005). Maxwell (2005) noted that research questions are “the heart, or hub, of the model; they connect all the other components of the design, and should inform, and be sensitive to, these components” (p. 5). As stated in Chapter 1, my research question is, “What are the indicators and the clinical reasoning processes that RNs use to recognize delirium in older adults in acute care settings?”

The choice of the GT method for this study was determined by the research question and the appropriateness of the method relative to the complex context of delirium recognition. GT is principally applicable for exploring delirium recognition due to the nature of this phenomenon/behavior and the fact that delirium recognition is deeply rooted in nursing practice. It’s also the case that recognition (or underrecognition) is a cognitive, perceptual process, subjective in nature, and therefore lending itself to participants’ explanations of their own experience as the main data set. The challenge of understanding the clinical conundrum of
‘delirium underrecognition’ stems from its non-quantifiable nature. Understanding human interaction is a complex process that is difficult to comprehend by numbers. Interactions of RNs and older adults reflect this difficulty shedding some light on the intricacies and convolutions of this social process (El Hussein, Hirst, Salyers, & Osuji, 2014b). The meaning of the social process is the essence of analysis that emerges while using grounded theory (Wilson & Hutchinson, 1991). Language, textual data, time, and settings are factored in during the process of analysis in order understand this social process (El Hussein et al., 2014b). The perspectives of RNs during the processes of interaction with older adults are described, analyzed, and conceptualized to construct a theory with potential explanatory power relative to this interaction. In the process of shaping the research question through examination of the literature, it became clear that few studies explored the clinical reasoning processes of delirium recognition from a nursing perspective to construct a theory, that is, to understand what is really going on in the work of acute care nurses while interacting with older adults with delirium. GT method reaches the roots of the problem and offers an in depth understanding to uncover why RNs are not recognizing delirium.

Lack of theory to provide conceptual explanation of the clinical reasoning and judgment processes that RNs use to recognize delirium was the primary incentive for choosing GT as a research method. In this study my goal is to construct a theory rather than describe or apply current theories, and GT is the only qualitative approach to data gathering and analysis that can meet this goal. Another reason for selecting GT is my intention is to analyze the actions and processes of clinical reasoning for delirium recognition rather than describing themes and structure. It is worth noting that delirium recognition, in my view, is a process because it consists of “unfolding temporal sequences” (Charmaz, 2014, p. 17) that have identifiable cues.
and indicators with “clear beginnings and endings and benchmarks in between” (Charmaz, 2014, p. 17). The temporal consequences of delirium recognition are linked in a process that is influenced by the temporal behaviour of the delirium, for instance the sun-downing phenomenon, or the appearance or exacerbation of behavioral disturbances associated with the afternoon and/or evening hours. Thus single events become linked as part of a larger whole that leads to recognition. Only a grounded theory approach provides the heuristic technique that codes for action and process rather than coding for topics (Charmaz, 2014). As my research question attempts to explicate the “processes” of delirium recognition, using grounded theory liberated me from becoming stuck with and hooked on my participants’ world view to the extent of accepting them without questions, thus ignoring the main concern, which is theory generation that explains the clinical reasoning processes of delirium recognition. Utilizing the grounded theory method facilitated the birth of abstract analytic categories focusing on process by acceding to the iterative process of the constant comparative logic (Glaser & Strauss, 1967). The main goal of this study was intended to produce analytical products and generate theory versus purely descriptive accounts of the participants’ interviews (Charmaz, 2014).

As demonstrated most of the studies conducted thus far on delirium recognition focused on discovering causal explanations or making predictions about the barriers or facilitators in the process of delirium recognition. I identified the limited qualitative research literature, and the lack of theory to explain the clinical reasoning processes that RNs use to recognize delirium as knowledge gaps in the literature. Likewise, I have noticed that most of the studies reviewed in Chapter 2 underplayed, and sometimes ignored, the contextual factors influencing the clinical reasoning processes of delirium recognition. Contextual variables are major players in determining the dynamics of care in hospital settings, and the ways in which RNs interact with
patients are also influenced by the environment in which they practice (MacCarthy, 2003b). Interactions of RNs with each other and with patients are highly structured in acute care settings. Additionally, previous studies have not fully explored the possible influence of the context of the clinical settings on the process of interaction between RNs and patients with delirium. The types of studies carried out were basically descriptive and never explored the phenomenon in depth. Based on the aforementioned reasons, GT is deemed an appropriate method by which to explore the clinical reasoning processes that RNs use to recognize delirium. Glaser supported this stance when he stated that "grounded theory becomes an answer where other methodologies did not work well enough, especially in the sensitive dependent variable fields within the health science and business and management" (Glaser, 1995, p. 15). Stern (1995) echoed Glaser’s position in her statement “the strongest case for the use of grounded theory is in investigations of relatively uncharted water, or to gain a fresh perspective in a familiar situation” (Stern, 1995, p. 30).

I believe that grounded theory provided the opportunity to conceptualize and develop a theory that will explain the phenomenon based on data related to the contextual factors and the participants’ responses. Moreover, using constructivist grounded theory as a method of inquiry directed my concentration to the responses of RNs who are involved in caring for older adults to understand the complicated social process of delirium recognition in the context of acute care settings.

**Grounded Theory as a Research Method**

Grounded Theory is a systematic approach to data analysis (Glaser & Strauss, 1967). The strategies used in qualitative data analysis have developed over the years largely due to the change in the way knowledge is understood and applied (El Hussein et al., 2014b). Findings are questioned and not treated as facts without being subjected to analysis and critique. Researchers
with different perspectives are generating a difference in the advancement of knowledge (El Hussein et al., 2014b). Science in general and qualitative research in particular has transformed remarkably since Glaser and Strauss wrote their book “The Discovery of Grounded Theory” in 1967. Although GT is “a member of the family of qualitative research approaches” (Glaser, 1998, p. 38), it has unique feature that makes it distinct from other qualitative research methods in that it does not only afford meaning, understanding, and description of the phenomenon under study, but it also makes possible the theory-generation (Glaser 1978). Glaser (1978) defined grounded theory as “systematic generating of theory from data that itself is systematically obtained from social research” (p. 2). Strauss and Corbin (1990) echoed this definition in their statement that grounded theory is “a qualitative research method that uses a systematized set of procedures to develop and inductively derive grounded theory about a phenomenon” (p. 24). Charmaz (2014) also concurred with Glaser, Strauss and Corbin and in her view grounded theory is a flexible qualitative method characterized by its systematic, inductive, and iterative approach for gathering and analyzing data.

This systematic approach to analyzing data is beneficial in auditing, appraising and comparing the results of grounded theory research (Strauss & Corbin, 1990). El Hussein et al. (2014b) maintained that this systematic approach to data analysis gives grounded theory rigor and demonstrates trustworthiness in the emerging theory. Stebbins (2001) supported the systematic approach to data gathering and analysis by differentiating between accidental discovery (serendipity) and systematic exploration that is based on the epistemological and ontological assumptions of the explorer. Stebbins (2001) further added that systematic exploration is sustainable because it is based on a “broad-ranging, purposive, and pre-arranged undertaking” (p. 4), during which researchers actively and purposefully place themselves in a
position to inquire about “discoveries” (p. 4) instead of continuing their standard research and passively waiting for the “aha” moments or serendipity to strike (Stebbins, 2001).

Systematic approaches such as simultaneous collection and analysis of data guided by the constant comparative logic and culminating in a theory emerging from data adds a level of conceptual validity not accounted for in other qualitative approaches (Charmaz, 2006). Additionally, the systematic approach provides the researchers with traceable evidence to support their generalizations (Myers, 2009). Glaser and Strauss (1967) recommended the researchers should check for “completed grounded theory” by evaluating the theory for its explanatory power, relevance and fitness with the data, workability (usefulness), modifiability over time, and conceptual density. Evaluating these criteria needed systematic approach and provided the novice researcher with the grounding by which to stay attracted and engaged. Charmaz (2006) noted that “by adopting grounded theory methods you can direct, manage, and streamline your data collection and construct an original analysis of your data” (p. 2).

In my research study, I developed a theory that explains the indicators and clinical reasoning processes that RNs use to recognize delirium in older adults. Charmaz (2006) maintained that GT has a distinctive advantage of being able to methodically focus on examining processes by conceptually interpreting empirical observations to construct a theory. She added that the GT method has the potential of developing conditional theories that contextualize certain realities (Charmaz, 2006). Myers (2009) contended that grounded theory is specifically useful for probing into and thoroughly examining a “regular, repeated processes” (p.111), delirium recognition processes in this context.

Grounded theory is a qualitative research method that offers a practical and flexible approach to interpret complex social phenomena (Charmaz, 2003). Grounded theory provides a strong
intellectual justification for using qualitative research to develop theoretical analysis (Goulding, 1998). Researchers using grounded theory study empirical experiences and construct “potential analytic ideas about them” (Charmaz, 2014, p. 3). The features of GT method demystified the assumptions that qualitative research is “impressionistic and unsystematic” and delineated the strong need for concomitant data collection and analysis (Charmaz, 2014, p. 8).

Grounded theory developed as a response to the uncontested acceptance that all the great theories have been discovered and that the main undertaking of research is to test these theories by using quantitative research scientific procedures (Charmaz, 1983). Charmaz (2014) emphasized that using grounded theory allows researchers to develop “tentative analytic categories” by focusing on unpeeling the layers of the processes in the data, comparing them with more data and writing memos to “define idea that best fit and interpret the data” (p. 4). Researchers using grounded theory may have various foundational assumptions about reality (ontology) and knowledge (epistemology). Grounded theorists, in general, often start with inductive logic and a reasoning approach to data. Inductive logic denotes that the researcher does not start with a hypothesis or theory and then proves it, but rather the researcher first starts by collecting data in the setting and in tandem analyzes the data and generates a hypothesis (Strauss & Corbin, 1990). In other words, grounded theory methodology does not bias emergence of new theory with a priori assumptions (Glaser, 1978). Thus, to ascertain this emergence, investigators are encouraged to avoid “preconceived theoretical data” (Myers, 2009, p. 108) and are also encouraged to check the scope of prior research in order to ensure that their study will add to the “corpus of writing” (Stebbins, 2001, p. 42). This strategy has the potential to enhance creativity and development of new knowledge (El Hussein, et al., 2014b).
Grounded theory is exceptional among other qualitative research methods in its ability to generate concepts through the utilization of the constant comparative logic and the frequent theoretical memo writing (Glaser, 1978). This specific approach to theory development is derived from the continuous interplay between data collection and data analysis (Myers, 1997). The constant comparative method furnishes a systematic approach to data analysis yielding sequentially more abstract concepts and theories. The constant comparative approach ensures the application of the inductive logic in the process of comparing data with data, data with category, category with category, and category with concepts (Charmaz, 2006, 2014). This iterative process “brings an analytic edge” to data analysis early in the process of data collection by asking what and how questions which maintains the focus on the process and links actions and events (Charmaz, 2014. p. 94).

According to Charmaz (2014), studying the data enables the researcher to uncover the “nuances” in the language and meanings of the research participants (p. 99). Theoretical memo writing is the mechanism that advances the process of studying the data because it entails documenting theoretical observations and insights to manage and track the categories, properties, dimensions, hypotheses, and empirical generalizations. It also directs and develops the interview guiding questions that are emerging and evolving from the analytic process of data (Corbin & Strauss, 2008; Strauss & Corbin, 1990).

Glaser (1978) argued that concepts have “broadening power” and are “easier to remember” as they cover a myriad of incidents, which facilitates the transferability of these concepts into unfamiliar contexts. Glaser (1978) stressed that there is “much value in the conceptualizing and conceptual ordering of research data” (p. 3). Glaser (1998) later reiterated a similar position reflected in his statement, “By far the most exciting use of grounded theory over
the last ten years is its legitimating of concept generation” (p.133). Strauss and Corbin (1994) echoed Glaser’s position in their statement that “the major difference between this methodology [Grounded Theory] and other approaches to qualitative research was its emphasis on theory development” (p.274). Stebbins (2001) also supported same position as in his perspective, the most important component of science is the “concept.” The approach taken to study data will eventually influence the generation of these concepts. The focus on the significance of concepts started with Blumer (1969) who argued that the main source of confusion and misunderstanding of a specific process to explain a phenomenon stems from an ill-defined concept which falls short in its explanatory power and does not allow for a precise, agreed-upon, and correct interpretation of subjective empirical data. Blumer (1969) added that “this condition of imprecise conceptualization lies at the heart of the scientific difficulties” (p.171-172). Blumer (1969) dwelt on the magnitude of conceptualization in the process of simplification; in his view conceptualization separates the relevant from the irrelevant. It is worth noting, that the focus on the significance of conceptualization does not give it a hierarchal status over description (El Hussein et al., 2014b). Stebbins (2001) previously established that the single most important initial step to science is description. Glaser (1978) agreed with Stebbins’s position in his earlier statement that “immaculate description is the best way to render research data” (p. 3). I believe delirium underrecognition stems from lack of clear description of this phenomenon. Twedell (2005) expressed his concerns about this situation and added that delirium has been linked with more than 25 “different terms attempting to describe its spectrum” (p. 102). Another study showed that different definitions and concepts contributed to different selections of populations and eventually yielded different results (Adamis, Sharma, Whelan, & Macdonald, 2010).
Considering that the roots of GT are in the social sciences and its accommodation and focus on studying fundamental psychosocial processes (Glaser & Strauss, 1967), it is considered an ideal approach for exploration of questions related to human conditions in general and nursing practice specifically. The grounded theory method is also influenced by Strauss’ pragmatist orientation which explains its focus on action and meaning (Charmaz, 2014). According to Glaser and Strauss (1967), a finished grounded theory explains the psychosocial processes within a certain social setting in new theoretical terms. These theoretical terms are often based on the properties of the theoretical categories. The causes, conditions, and consequences surrounding theses processes are extracted from the data and they are thus grounded in the participants’ responses (Charmaz, 2014).

Grounded theory is characterized by its tangible and structured guidelines, a feature that helps novice researchers in their investigation and is a good fit for the pragmatic approach of the practice of nursing (MacDonald, 2001). Grounded theory also “provides a frame for qualitative inquiry and guidelines for conducting it” (Charmaz, 2009, p. 127). It is imperative to note that the grounded theory method is not restricted to a specific field, discipline, or any type of data (Glaser 1992). Grounded theory has enlightened different disciplines and demonstrated a wide range of applicability (Morse, 2009). Moreover, GT has an “intuitive appeal” (Myers, 2009, p. 111) that captures neophyte investigators and help them in getting “immersed” (p. 111) intensely within the data. This immersion was made certain and resonated with me when I started practicing the logic of constant comparison and memo writing in the process of data analysis. Coding, memo writing, theoretical sampling, and the constant comparative logic were described by Charmaz (2014) as the basic strategies of grounded theory. Charmaz (2006) utilized these strategies flexibility in order to provide novice researchers with the needed principles and “heuristic devices” to “get started, stay involved, and finish your project” (p. 2).
Charmaz (2006) asserted that, while other qualitative traditions permit investigators to treat data as they please without clear directions on how to proceed, GT method gives “explicit guidelines” (p. 3) instructing researchers as to how to carry on. As I am a self-confessed pragmatic thinker, GT was useful in answering my queries, enlightening my thinking, and reassuring my hesitations. The moment I phrased the research question that triggered the selection of GTM, the path of inquiry became less vague, thanks to the structured approach of the GTM.

Using grounded theory subjects the data to “rigorous analysis” in order to “develop theoretical analysis” (Charmaz, 2006, p. 127). GT is a way of thinking about and conversing with data in order to conceptualize it (Charmaz, 2009). Data is continuously subjected to interrogation until the theory emerges (Charmaz 2006). According to Glaser (1998), GT is “enjoyable, meaningful, informative, and empowering”; hence, if it fits and works, “Just do it” (p. 19).

According to Charmaz (2014), the grounded theory method provides researchers with sharp tools for “generating, mining” and making meaning of the data (p. 26). The insight of the researcher plays a significant role in the effective use of these tools and in answering the grounded theory question: “what’s happening here” (Glaser, 1978, p. 15). The approach used by grounded theorists to collect rich data will make the “world appear anew” (Charmaz, 2006, p. 14) because the richness of the data will grant the researcher with concrete and dense fabric to construct a thorough analysis of the data. Gathering rich data enables the researcher to go beneath the surface of the participants’ social and subjective life (Charmaz, 2006). Charmaz (2006) argued that the research journey starts with “finding data” (p. 14) to excavate the context
and structure of the participants’ lives and to divulge their feelings, views, intentions, and actions (Charmaz, 2006).

In order to obtain rich data, researchers are expected to appeal for thick descriptions (Geertz, 1973) through writing “extensive field notes of observation” (Charmaz, 2006, p. 14), gathering thorough interview narratives from interviews, and “collecting respondents’ written personal accounts” (p. 14). These approaches to data collection can augment seeing but are unsuccessful in providing insight (Charmaz, 2006). Grounded theory provides the tools for “making sense of the data” (p. 15) and refining it to generate insight into the participants’ world. Rich data usually provides the researcher with enough background about the participants, processes, and settings. Moreover, rich data “reveal what lies beneath the surface” (Charmaz, 2006, p. 19) and expose any changes over time. According to Glaser (1998), gathering rich data neutralizes the impact of misleading incidents and lessens the chances of misleading empirical generalizations that are based on superficial analysis.

Researchers collecting rich data should stay attentive to collecting “multiple views of the participants’ range of actions” (p. 19). Rich data enables the researcher to build analytic categories that facilitates the comparison of data with data to percolate new ideas and “make patterns visible and understandable” (Charmaz, 2014, p. 98). Charmaz (2006) maintained that grounded theory can be constructed with different forms of data depending on the research topic and questions. In her view, the research question “should drive the method(s) of collecting data” (Charmaz, 2014, p. 79). The researchers seek is to enter the research participants’ lives to see them from inside in a concentrated effort to illuminate the “unobtainable views” (Charmaz, 2006, p. 24) that outsiders assume about the world. Utilizing the logic of GT prompts the researcher to go back to the data and forward into analysis to gather further data and to refine the
“emerging theoretical framework” (p. 23) which offers the researcher a “fresh look and creating novel categories and concepts” (p. 33).

**Appropriateness of Constructivist Grounded Theory**

The evolution of GT can be viewed as a “methodological spiral” (Mills, Bonner, & Francis, 2006, p. 25) that started with Glaser and Strauss’s text, the *Discovery of Grounded Theory* (1967), and continues today with many authors like Charmaz (2000) and Clarke (2005). Mills et al. (2006) claimed that the variability of epistemological positions that grounded theorists embrace is located at several spots on the “methodological spiral” and is guided by and reflective of its underlying ontologies. Researchers must first identify their ontological and epistemological positions, in order to be able to select a spot on the methodological spiral to indicate which GT they believe they are theoretically comfortable with and which enable them to practice and experience their beliefs during the process of inquiry (Mills et al., 2006). Ontology refers to the nature of reality, whereas epistemology is the relationship between the inquirer and the known (Denzin & Lincoln, 2005). In other words, epistemology is “the theory of knowledge embedded in the theoretical perspective and thereby in the methodology” (Crotty, 1998, p. 3). The ontology and epistemology determine the methodology or the way we know the world and gain knowledge of it (Denzin & Lincoln, 2005).

I decided to use constructivist grounded theory (Charmaz, 2006) in my research, instead of the traditional approaches of grounded theory as elucidated by Glaser and Strauss (1967) and later on by Strauss and Corbin (1990). My decision was based on several factors. Firstly, I am familiar with the concept of delirium and I am “not free from the claims of related literature” (Glaser, 1998, p. 69) or prior assumptions as recommended by Glaser (1998). Secondly, my philosophical position is closer to the relativist ontology and the subjectivist epistemology which
are not compatible with the philosophical positions of classical GT (El Hussein et al., 2014b). Thirdly, the intensive laborious model of data analysis recommended by Strauss and Corbin (1990) does not fit with the path of concatenation or longitudinal exploration (Stebbins, 2001) that will follow later on in my program of research.

The ontology of classical GT is critical realism and does not fit the ontology of constructivist GT (Denzin & Lincoln, 2005). Constructivism is a research paradigm that is skeptical about the existence of an objective reality, “asserting instead that realities are social constructions of the mind, and that there exist as many such constructions as there are individuals” (Guba & Lincoln, 1989, p. 43). The constructivist paradigm of grounded theory embraces the ontological stance of relativism that focuses on local and specific constructed realities (Lincoln & Guba, 2000). Constructivist grounded theorists are more likely to claim that “reality is always interpreted” (Strauss & Corbin, 1990, p. 22). As such, constructivist researchers embrace an ontology that minimizes and dilutes the notion of the existence of an external reality. By external reality, I am referring to one defined by Searle (1995), as exists outside and independent of our interpretations of it. In different words the only knowable world (reality) is the one we interpret and interact with and the main focus is on the participant’s own interpretations of reality.

The constructivist paradigm advocates tend to embrace internal reality, and undermines the existence of an external reality and develops understanding through multiple, creative, and contextual interpretations as the ultimate goal or product of epistemic inquiries (Lincoln & Guba, 2000). Constructivists assume multiple and dynamic realities that are context-dependent. These individual interpretations are deeply embedded in a rich contextual web that cannot be separated and generalized out to some mass population (Charmaz, 2014). The premises and assumptions of
the constructivist grounded theory depict the “flexibility of the method” and resist its “mechanical application” (Charmaz, 2014, p. 13).

Scientists and researchers today often do not conform to the ideology of “thesis-antithesis” conception of social change. Conversely, there is a strong push for “multivocality in which a myriad of voices and views are presented for consideration” (MacDonald & Schreiber, 2001, p. 41). The utilization of the constructivist grounded theory method provides a different version of knowledge based on the assumption that meaning is socially constructed, thus yielding a different understanding of the phenomenon of delirium recognition/underrecognition. Although delirium is a reflection of an underlying disease process, its manifestations are socially interpreted and constructed by RNs. Registered Nurses have different interpretations of the behaviour of patients with delirium. In adopting a constructivist approach, I am positing that there are alternative explanations of the clinical reasoning processes of delirium recognition to those identified so far in the literature.

Constructivist researchers endeavor to create a “relationship of reciprocity with the participants” (Mills, Bonner, & Francis, 2006, p. 9) in the process of co-construction of meaning and the discovery of a theory grounded in the participants’ and researcher’s experiences. The constructivist approach requires the establishment of relationships with participants that explains power imbalances and attempts to modify these imbalances (Van Maanen, 1991). Traditionally, following the objectivist epistemology creates a hierarchical relationship between the researcher and the participant, where the latter is usually subservient to the former, contrary to the constructivist’s approach where power imbalances are intentionally neutralized and diffused by the researcher (Charmaz, 2006). Therefore, researchers and participants are in equal position of power in their relationship and the power differential is minimized.
Epistemologically, the constructivist paradigm assumes and acknowledges the mutual creation of knowledge by the researcher and the research participant (Charmaz, 2000, 2006; Schwandt, 1994) emphasizing the subjective interrelationship between them and the co-construction of meaning (Hayes & Oppenheim, 1997; Pidgeon & Henwood, 1997). Researchers in their “humanness” are part of the research endeavor rather than objective observers, and their values must be acknowledged by themselves and by their readers as an inevitable part of the outcome (Appleton, 1997; Stratton, 1997). This philosophical position corresponds well with my own understanding of meaning making and knowledge development, within the context of delirium underrecognition as a complex concept and with RNs as clinicians with different backgrounds, education levels, experiences, and understandings (El Hussein et al., 2014).

Contrary to the classical GT that follows the objectivist canon of viewing truth as a single, universal, and enduring reality, constructivist grounded theorists acknowledge interpretation as the means of constructing and assigning meaning to social action and interaction (Annells, 1996). This feature offered me the opportunity to partake in the interpretation of meanings of delirium as constructed by RNs during the processes of interaction with older adults. Acting like “passionate” participants (Lincoln & Guba, 2000, p. 171), constructivist grounded theorists assist in the reconstruction of multiple voices and perspectives, accommodating the diversity of the RNs interacting with older adults. This process requires authentic engagement with research participants and a rich understanding of their worlds (Mills, Bonner, & Francis, 2006). Concerned with subjective meaning, constructivist grounded theorists tend to ask research participants open-ended questions that provide insights into the meanings of their experiences rather than mere description. The aim of constructivist grounded theory (CGT) is not to generate abstracted concepts from empirical realities. In contrast CGT should be
situated in its “social, historical, local, and interactional context” (Charmaz, 2006, p. 180) which makes it stronger and sustainable. Stebbins (1986) added that CGT has the potential of uncovering “the overall meaning of the immediate situation for each individual participating in it” (p. 134) as meaning is established through interpretation and synthesis of its related personal, social, physical, and temporal characteristics. The relevant cognitive structure that people carry with them from situation to situation is another significant determinant of the meaning generated in a specific situation (Stebbins, 1986). The meaning must be established before any behavior can happen, and this meaning is a “subjective state of the mind” (p.135).

Furthermore, situating the GT allows the researcher to make subtle comparisons; these comparisons can lead to “more abstract and paradoxically general theories” (Charmaz, 2006, p. 180). Thomas and Thomas (1928) as cited in Stebbins (1986) reflected the same idea in their belief that “if men define situation as real, they are real in their consequences” (p. 572). Thus, registered nurses working in acute care settings who have diverse and heterogeneous perspectives will therefore have different constructions of realities and definitions of situations as they interact with older adults with delirium (El Hussein et al., 2014). Charmaz (2014) supported this position in her recent iteration that grounded theory gives “tools to get varied constructions or competing definitions of the situation, as given in action” (p. 322).

The objectivist GT emphasizes developing abstract parsimonious generalizations, free from contexts of origin, but which fit, explain, and display relevance to the empirical data of the participants. The aim of the constructivist GT is to gain an “interpretive understanding of the empirical phenomenon” so that the theory constructed will be credible, original, useful, and resonates with and is relative to the “historical moment” (p. 139). The emerging theory is not separate from either the observed or the observer but rather reciprocally constructed during
interaction. The eventual product of the process is “relativistic, situational and partial” (Charmaz, 2009, p. 138-139); consequently, the emerging theory about the older adults with delirium in acute care settings should reflect the influence of those settings on the realities as perceived and interpreted by RNs. Conversely, objectivist/classical GT is based on the assumptions of positivism, where it assumes the discovery of theory by a neutral observer who is separate from the data and not loaded with preconception (Lincoln & Guba, 2000); this contradicts the contextual essence of my study.

The constructivist GT is a “contemporary revision” of the classical GT (Charmaz, 2009, p. 138). This revision was done to renew and revitalize classic GT. Integrating recent methodological approaches challenges the assumptions of generating a general abstract theory and is likely to yield to situated knowledge (Haraway, 1991). Participants’ meanings and actions are contrasted with the larger social structure in order to see “current social conventions and power relationships” (Charmaz, 2009, p. 138). The interpretation depends on the researcher’s knowledge of the participant and their situation. Hence, when knowledge is constructed and not discovered, yields are “interpretive renderings” rather than objective data. This process triggers my awareness of the relativity “not only in the empirical world with its multiple realities but also of our analyses” (Charmaz, 2009, p. 131) which alert the researcher to take a reflexive position. Being reflexive demands that the researcher recognizes the self as part of the phenomenon of study and requires the researcher to adopt and maintain a critical attitude toward his own position in the research process (Holloway & Wheeler, 2002). Reflexivity enhances the ability of the researcher to distinguish how subjective influences maneuver the research process and outcomes (Primeau, 2003). Thus, constructivists are expected to demonstrate how their standpoints, positions, and interactions have impacted their interpretation of data (El Hussein et al., 2014).
A reflexive position may surface when a researcher explores an experience that the researcher can share with the participants and which potentially creates a “tone of authenticity” in the succeeding analysis. The reflexive mode of the contemporary grounded theory keeps the researchers engaged, and interacting with data and the emerging idea rather than taking a distanced stance toward their studies (Charmaz, 2006, p. 130). Charmaz (2006) maintained that lack of reflexivity can lead to surfaced and sprouting of the researcher’s own implicit assumptions and interpretations to an extent that it may hold an “objective status” (p. 132). Charmaz (2006) asserted that, in using a constructivist approach, the researcher is able to maintain a reflexive stance that will enable meanings to be interpreted in the context of the wider cultural, social, and temporal contexts.

The constructivist paradigm is ideal for this study, as meaning is constructed and knowledge is mutually created by both the researcher and the participants. A constructivist epistemological approach “places priority on the phenomena of study and sees both data and analysis as created from shared experiences and relationships with participants” (Charmaz, 2006, p. 130). My intention is to understand the interaction process and co-construct with the participants a theory of the clinical reasoning processes utilized by RNs in order to recognize delirium in acute care settings following a constructivist approach. A constructivist approach “necessitates a relationship with respondents in which they can cast their stories in their terms. It means “listening to their stories with openness to feeling and experience” (Charmaz, 2002, p. 525).

In this study, I strove to understand how and why RNs recognize delirium in older adults or fail to do so. A constructivist epistemology “seeks to understand individual social action through interpretation or translation” (Jones, Torres, & Arminio, 2006, p. 18). Accordingly, the
role of the researcher is substantial in a constructivist approach. The investigator constructs
meaning from the data that will emerge as a result of an interactive process with participants; that
is, meaning will be mutually (and socially) constructed based on the interpretations of both the
participants and the researcher (Charmaz, 2006; Crotty, 1998). In a constructivist paradigm, the
researcher and the participants mutually generate and develop knowledge through constructing
“the realities in which they participate” (Charmaz, 2006, p. 187).

Constructivist grounded theory is the appropriate research method for this particular
investigation, as currently there is little known about the clinical reasoning processes that nurses
use to recognize delirium in acute care settings. Using the constructivist grounded theory
approach as a focus on the reality of delirium underrecognition, will over time, encourage the
emergence of new thinking and knowledge.

**Summary**

In this chapter, I answered the central question, “Why constructivist grounded theory is
the ideal qualitative research method to answer the research question for this dissertation
study?” I asserted my intent to approach grounded theory as a set of heuristic devices rather than
in uncritical adherence to prescriptive procedures. Drawing upon the major versions of grounded
theory, I provided an overview of the defining components of grounded theory. I showcased
foundational assumptions and how they shaped my decisions in selecting the grounded theory
which has an ontological and epistemological congruence with the practical complementariness.
I contended that the integrated use of Symbolic Interactionism and grounded theory for this
dissertation study promoted the co-construction of knowledge from multiple perspectives, and
allowed for diverse ways of knowing. Meaning making was incessant and non-static; that is, I
did not merely interpret meaning for a particular context and moved on. Instead, I revisited and
re-evaluated that context with specific interpretation, assessed its fittingness within my worldview, and then modified the interpreted meanings accordingly. Thus, the meanings created during data analysis were not final, a notion that corresponds well with the epistemological assumptions of the constructivist paradigm as constructivists are always avidly seeking the understanding of a certain phenomena within their unique context.
CHAPTER FOUR: DATA COLLECTION AND ANALYSIS PROCEDURES

In this chapter I provide an in-depth description of the data collection and analysis procedures. I also provide details and justification of the sampling techniques. Moreover, initial and focused coding procedures are presented, in addition to memo-writing and its role in transitioning and ascending observations and participants’ accounts from description to conceptualization. I conclude the chapter by demonstrating the stages of evolutionary process of the core-category and by sharing some of the challenges that I encountered during this process.

Research Settings, Sampling, and Data Collection Procedure

The researcher conducted seventeen semi-structured interviews to study the indicators and clinical reasoning processes that RNs use to recognize delirium in older adults in acute care settings. The researcher received ethics approval from the University of Calgary Conjoint Health Research Ethics Board (CHREB). In addition, the researcher obtained written approval for distributing information about the research project from the respective unit managers and departments’ directors in order to recruit participants. The research settings were the Foothills Medical Centre (FMC), the Rockyview General Hospital (RGH), the Peter Lougheed Centre (PLC) and the Canmore Hospital. These hospitals are part of the Calgary zone within Alberta Health Services. Inclusion criteria for RNs included a minimum of two years of experience as a licensed RN, working full-time with older adults in a hospital environment in acute care settings. Initially purposeful sampling was employed by focusing on research participants who have relevant, rich, lived experience, and who offered robust and deep levels of understanding about the phenomenon of delirium recognition.

In order to recruit RNs with experience relevant to the research study and to gain access to a diverse sample, the researcher contacted the care managers and the executive directors of the
above mentioned hospitals in Calgary. The researcher was granted permission to solicit consent for interviews of the targeted population and observations of the respective units. After ethics approval, advertisements and flyers were posted throughout the facilities on the nurses’ bulletin boards, nurses’ lounges, and in the nurses’ locker rooms and bathrooms announcing the upcoming research study and displaying contact details. Registered nurses consenting to participate in the study were contacted. To enhance recruitment of participants, the researcher asked the unit educators to send emails to the respective RNs to solicit their participation and encourage them to take part in the study. Nurse educators played a pivotal role in introducing my research and in soliciting participation during the education days assigned for the RNs on those units.

The researcher conducted interviews with 17 RNs, 10 of whom held baccalaureate degrees in nursing, 6 had a master’s degree in nursing and 1 held a PhD. The variability of the sample was attained by including RNs with different educational backgrounds and different years of experience. Although they all fit the inclusion criteria, the participants’ average years of experience was 5 years, their average age was 41 years, and the sample included 4 males and 13 females, all educated in Canada except one. Fifteen participants were Caucasians, and 2 were from visible minority ethnic backgrounds (Table 1.4).
Table 4.1 Profile of the participants

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participants</td>
<td>17</td>
</tr>
<tr>
<td>Average age</td>
<td>41 yrs</td>
</tr>
<tr>
<td>Average years of experience</td>
<td>5 yrs</td>
</tr>
<tr>
<td>Level of education</td>
<td>10 BN, 6 MN, 1 PhD</td>
</tr>
<tr>
<td>Gender</td>
<td>4 males, 13 females</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>15 Caucasians, 2 visible minority</td>
</tr>
</tbody>
</table>

One semi-structured, face to face, audio-taped interview was held with each participant. An initial interview guide was used to elicit responses from the participants. The first interview was tentative, exploratory, and semi-structured. Each interview lasted about 45 to 60 minutes. Even though all participants agreed to be contacted for a second interview if needed, a second interview was deemed unnecessary as their responses were clear and thorough.

Interviews typically started with informal conversation to build a trusting relationship with the participants, and then I obtained informed consent and reassured them of their rights as research participants. The interview started with general questions related to the context of delirium and its meaning to the participant. As a researcher, an interview guide was used to ensure that the main foci were consistently covered with all participants. The interview guide was evolving and developing after each interview, additional questions emerged based on the analyses of the previous interviews. Several questions were added and rephrased (Interview guide Appendix E). Digital interviews were transcribed verbatim by a transcriptionist employed
under a confidentiality agreement (Appendix C) for the purpose of this study. To ensure accuracy of transcription, I compared all the transcribed interviews to the digital audio recordings.

According to Charmaz (2014), initial sampling in grounded theory can serve only to get you started, whereas theoretical sampling is the compass that directs the researcher in theoretical elaboration and refinement. In order to advance the theoretical concepts developed and test out hypotheses, sampling decisions were made purposively. Charmaz (2014) added that when the researchers’ ideas are incomplete, theoretical sampling prompts them to take a new path when collecting more data in order to saturate properties of tentative categories and to sort them into “integrated theoretical statements” (Charmaz, 2014, p. 193).

In my study, theoretical sampling was initiated after the 12th interview in order to seek pertinent data for the development of the emerging theory. An additional 5 interviews were conducted that validated the sub-categories which emerged from previous interviews, but did not yield new findings. It is worth adding that, although I did theoretical sampling after 12 participants completed the interviews, its utilization as a step was considered after the first interview as I was already making steps to elaborate and eventually fine-tune the codes and emerging categories. Completing theoretical sampling assisted in refining sub-categories and the developing properties for these categories.

Data collection was stopped when the inquiry achieved theoretical saturation. As recommended by Charmaz (2006), I ensured that, at this point, the core category and all of the sub-categories were fully developed, and the data from the final 17 interviews at the conclusion of the analysis neither revealed new properties nor indicated theoretical insights about the
emerging grounded theory. The overarching concepts were developed by reviewing the sub-categories by means of mapping exercises and memo writing.

During the process of data gathering and analysis, I paid heed to Charmaz’s (2014) suggestions of writing memos while carefully observing the clinical settings, the unique interactions in those settings with the participants’ behaviour and body language. Charmaz (2014) stressed that memo-writing is an indispensible tool in helping the researcher in “catching meanings and actions” (p. 164). Thus, in staying faithful to Charmaz’s recommendations, and while writing memos, I had to stop, focus, breakdown my codes and data, and compare and draw connections between them, eventually creating a concept capturing their meaning. As such, memo writing served to advance analysis and to inform both the interview schedule and sampling decisions. Moreover, writing memos acted as the key bridge between describing participants’ accounts and conceptualizing or theory generation.

Thus, the cyclical process of interviewing, theoretical analysis, critical dialogue between the researcher and the supervisory committee on the emerging theoretical insights, and formulation of further interview questions progressively elevated codes to concepts and sub-categories, advancing the development and refinement of the theory which continued until the inquiry had achieved theoretical saturation for all sub-categories. Once no new theoretical concepts emerged, saturation was achieved. I kept a reflective diary where personal assumptions and insights were recorded and constantly compared to the emerging sub-categories. I looked at actions and experiences from many points of view and took a critical stance towards my own actions and beliefs. In addition, I noted aspects of the interview data that provided excitement and surprise but always managed to relinquish ideas not supported by recurring patterns from data in the interviews. To maintain a reflexive stance I utilized the approach of “bridling”
(Hallberg, 2006, p. 144) where I endeavored to block my preconceptions and reflected on the interpretation of the interview guide data before and after each interview in order to compare my interpretations with those of the participants and tried to find an alternative interpretation. I also compiled extensive field notes about the context of daily activities on the unit before and after each interview. I deliberately focused on observing patterns of work complexity and care management strategies. I also looked for any patterns that facilitated or hindered the clinical reasoning processes.

Early interviews were conducted in a private office agreed upon with the participants outside the hospital. However, later interviews were conducted in the hospital unit after a member on the supervisory committee suggested that I add a question to my interview guide where I asked the participants to interact with a patient with delirium and I observed the RN and recorded field notes of the interaction. I continuously shared with the supervisory committee the recurring codes and categories and asked critical questions about properties of and potential relationships among subcategories and the core category. At times, the supervisory committee suggested further testing and verification of the emerging hypothesis either in the available current data or in the future interviews. I have added an interview question to evaluate whether racially visible ethnic minorities have influenced the delirium recognition processes to ensure maximum variability of the core category as suggested by a member of the supervisory committee.

**Data analysis**

In keeping with the grounded theory methodology, analysis proceeded in tandem with sampling (Charmaz, 2006). This process of data collection and simultaneous data analysis provided an analytic lens early into my study. As such, data analysis began as soon as the first
interview was completed (Glaser & Strauss, 1967; Strauss & Corbin, 1990, 1998). During this cyclical phase of data collection and analysis, I made a strategic decision to partially separate myself from the process of literature review to limit contaminating the emerging categories with prior conceptions. Although I occasionally tapped into the literature, my main focus was on the emergence of locally contextualized theoretical insights. Following each interview, I listened to the digital recordings of the interview, reflected upon the RNs’ experience, and wrote memos.

According to Charmaz (2014), a grounded theory emerges after going through at least two phases of coding, initial and focused. Coding defines the data and explains what is happening, providing a “pivotal link” to “the nascent theory” (Charmaz, 2014, p. 113). Therefore, the first step into the corpus of my data was coding, and initially all data were coded; then codes became more focused and thematic analysis focusing on process and gerund was instigated. Charmaz (2014) emphasized that codes should show actions and reflect the participants’ perception of the progression of events. Moreover, codes should cover the description and explanation of the participants’ feelings and actions. Hence, eliciting “interpretive rendering”, as suggested by Charmaz (2014, p. 111), was the main goal of coding to better understand the clinical reasoning processes of RNs in the context of acute care settings. Investigators using grounded theory utilize coding in order to “interrogate, sort, and synthesize” the data, in an attempt to depict how participants “enact and respond” to events (Charmaz, 2014, p. 113).

Initial coding created a relationship between me, the data, and my participants. In addition, it encompassed breaking data into specific incidents or units of meaning, taking the data apart and fracturing them into parts, trying to extract relevant meanings of the clinical reasoning processes that RNs use to recognize delirium in older adults in acute care settings.
Segments and pieces of data were given names as suggested by Charmaz (2014) in order to summarize and categorize these segments and pieces.

To avoid the complexity resulting from using a vast number of names to describe similar actions, events or interactions in the data; data were coded by the constant comparison method. Constant comparison involves comparing primary statements to identify similarities and differences within the same interview and across all the interviews (Charmaz, 2014; Glaser & Strauss, 1967). Next, comparison of incidents and units of meaning in the data, both within the same interview and across the interviews, was initiated. A shortened and essential label was given to each incident in the data, and then each succeeding incident compared to the first incident and assigned either the same or a different label, depending on the similarity or dissimilarity of characteristics (Glaser & Strauss, 1967).

Afterwards, and in keeping with Charmaz’s (2014) suggestions, I used the logic of constant comparative to conceptually group similar events, actions, and interactions together to form categories and sub-categories. I constantly compared data from the different research participants in terms of their views, situations, actions, accounts, and experiences, and I compared data from the same participants at different points in their interviews and data within a category, and a category with other categories. The intent was to make analytic sense of participants’ stories and my observations of the clinical settings. Conceptually derived name codes and in-vivo name codes were used to label those parts and events (Glaser & Strauss, 1967). These two types of codes were complementary as they respectively reflected theoretical grasp and descriptive summaries of the research participants’ accounts (Green, 1998).

While trying to establish connections between codes/indicators and subcategories, I continued to search for their properties in the data to fill out any gaps. Credibility and
dependability were enhanced by requesting confirmation and clarification of interpretations by participants during interviews. As I am positioned as a registered nurse and a nurse educator, I made a conscious effort to avoid fitting data into pre-determined codes and categories, instead letting codes and categories emerge directly from the data. I fully engaged myself in an ongoing critical reflection, attempting to ensure that my accumulated knowledge and experience did not force the data to fit my preconceptions, but rather facilitated constant critical comparative analysis. I continually asked questions about theses codes and answered these questions from the data in order to ensure the emergence of a grounded theory rooted in the data. Therefore, I attempted to avoid forcing the data and applying it into an earlier frame.

As recommended by Charmaz (2014), while coding I asked many analytic questions of the data to further my understanding of the clinical reasoning processes of delirium recognition and to direct my succeeding interviews. Questions such as, “what is happening here?” or “what does it represent?” (Charmaz, 2000; Glaser & Strauss, 1967; Strauss & Corbin, 1998). These analytical questions are useful in areas where little research has been done as they provide a systematic way to generate theories that illuminate human behaviour in the social world (Chenitz & Swanson, 1986). Codes were then clumped together to form the bones of the analysis.

As analysis proceeded, codes were clustered together and collapsed into categories or the “conceptual elements of a theory” (Glaser & Strauss, 1967, p. 37), leading to greater conceptual density and eventually the development of a coding tree. At the same time, I stayed open to the emergence of new categories from the data. I also began an exploration of variations in the phenomena by comparing each subcategory and its properties with different patterns reflected in the data (Chenitz & Swanson, 1986).
In addition to initial coding, focused coding was initiated to concentrate on the most useful initial codes (Charmaz, 2014). Focused coding was essential to decide which initial codes made the “most analytic sense to categorize … data incisively and completely” (Charmaz, 2014, p. 138). It also condensed and fine-tuned my initial codes, giving my analysis a theoretical boost. Focused coding aided in excavating codes with the most analytic power with the potential to become categories. Moreover, focused coding facilitated the identification of a core category that is systematically linked to all other subcategories.

Moving from initial to focused coding was not a linear process (Charmaz, 2014); the emergence of codes was a continuous, dynamic and interactive process. Focused coding represented using specific initial codes that “had theoretical reach, direction, and centrality” and interacting with these codes as the “core” of the emerging theory (Charmaz, 2014, p. 141). During this process of interaction with the data, and as advised by Chenitz & Swanson (1986), I sorted and sifted through all the memos, discussed the data with the members of my supervisory committee, reviewed the notes I took on the unit before and after the interviews, re-read the transcripts and listened again to the audio records, then tried out different story lines in order to find one that seemed to be consistent and best explained the main concern of what was happening during the process of interaction between RNs and older adults.

Emerging from data analysis was the core category ‘Nurse–Client Situated Interaction (NCSI)’. While the core category was emerging, I was always intentional about checking the theory for its ability to “explain what happened, predict what will happen and interpret what is happening” (Glaser, 1978, p. 4) during the process of interaction between RNs and patients with delirium. The emergence of the core category passed through 4 different rounds of evolution during the process of data analysis.
According to Glaser (1978), “grounded theory is based on multi‐indicator concept, not one‐indicator concept as much conceptual theory is” (p. 65). As such, I searched the transcripts for tacit indicators of practice to develop concepts/categories which are bridging terms for recurring indicators. Stebbins, R. (personal communication, May 15, 2014) asserted that description describes a single observation whereas conceptualization describes recurring observations. Indicators are clustered to generate hypotheses and inconsistent indicators tend to be ignored. During the process of constant comparison, later emerging hypotheses became refinements or elaborations of earlier ones.

After the first round of data analysis, it was evident that most of the patterns noted in the data suggested that clinical reasoning and judgment is far more complex than anticipated. Data suggested that there are different processes of clinical reasoning used, depending on the level of RNs’ expertise and the nature of the patient situation. In addition, data also suggested that there are functional and dysfunctional approaches to clinical reasoning and judgment.

It is worth noting that, at this stage, my analytic approach was emergent rather than procedural. Initially, I proposed the core category of tri‐contextualizing delirium to the supervisory committee; however, this preliminary core category fell short in linking all the sub‐categories as well as having a limited scope, and therefore I decided to review the decisions taken about the data during the process of focused coding and “trim [med] away the excess” as recommended by Charmaz, (2014, p. 141).

Upon further comparison and analysis, I considered “contextualizing delirium”, but this core category was more descriptive than analytic and it also did not fully address the main concern that is the clinical reasoning processes of delirium recognition. This encouraged me to consult with a member of my supervisory committee who recommended grouping my
observations into types (creating a typology) as another approach to transcend from description to conceptualization, and this resulted in the emergence of another core category focusing on delirium recognition which also had rough edges that needed refining. I used the trimming technique once more to subsume or collapse subcategories into those of higher levels of abstraction.

With continuous reading of my memos and constant comparison with the transcripts, the core category of “institutionalizing clinical reasoning and judgment” emerged. However, there are two problems with this category, the first being its focus on either stable clinical reasoning process or the influential contexts which provide an incomplete picture of these processes in an institution. Secondly, this substantive theory came across as too narrow and non-transferable as not all indicators were interchangeable. According to Glaser (1978) “ interchangeability of indicators indicates theoretical saturation because it ensures maximum variations. Changing indicators and thereby generating new properties of a code can go only so far before the analyst discovers saturation of ideas through the interchangeability of indicators” (p. 64).

In order to resolve these two problems, I followed coding procedures; I discussed the emerging theory with local experienced nurses to check for relevance and feasibility, held regular discussions with the project supervisors and colleagues, maintained journal writing, and wrote memos. I also presented the emerging theory at national and international conferences to obtain validation and feedback, until a nascent substantive theory that explains the main concern started to emerge.

Summary

This chapter presented an overview of the processes employed to undertake this research project. The heuristic tools of the constructivist grounded theory described by Charmaz (2006,
2014) were discussed and used to interpret data. The inductive spirit of the method was adhered to through moving back and forth between data and analysis. The utilization of preliminary analytic notes (memos) as recommended by Charmaz (2014) was essential as I engaged in the successive levels of analysis. In the next chapter, the core category of ‘Nurse Client Situated Interaction’ (NCSI) and its related subcategories and properties will be presented and discussed.
CHAPTER FIVE: GENERATION OF A SUBSTANTIVE GROUNDED THEORY

The purpose of this chapter is the presentation of data analysis and the subsequent generation of a substantive grounded theory. The objective of this study is the description of the indicators and clinical reasoning processes RNs use to recognize delirium in older adults in acute care settings. Data collection occurred through the use of semi-structured interviews and direct observation. The transcripts from the interviews and text from the observations constitute the data for analysis. Charmaz’ (2006) constructivist interpretation of grounded theory methodology was used to code and analyze the data, resulting in ‘Nurse-Client Situated Interaction’ (NCSI) as a preliminary grounded theory. Throughout this chapter, statements from the data, when appropriate, are incorporated in order to exemplify the concepts or sub-categories emerging from the data (Morse & Richards, 2002).

Characteristic of the NCSI

Nurse-Client Situated Interaction is a multi-faceted approach to delirium recognition and practice that is based on multi-indicators’ core category and has emerged as a substantive grounded theory for this research project. Being multifaceted, the NCSI leaves the door open for future inquiry (concatenation), or growth of the theory. This core category is based on three main subcategories. Each subcategory is based on several properties and a cluster of indicators (see figure 5.1). The NCSI emerged as a basic social process from the data analysis of the 17 in-depth interviews that explored RNs’ experiences and concerns with regards to the clinical reasoning process of delirium recognition. The NCSI concept explains how RNs use different lines of clinical reasoning in order to recognize delirium based on different circumstances and situations.
Figure 5.1. Emergence of NCSI

Chasing the Mirage is the first subcategory of NCSI and conceptualized based on the participants’ responses as the process of continuously trying to catch the state of delirium in older adults and a major practice challenge for RNs. The analogy of the ‘mirage’ is intended to communicate a visual image to the reader and to convey the environmental and emotional impact of acute care settings on delirium. The following statement reflects a pattern that the participants in this study articulated on several occasions during the interview to express the challenges of catching delirium, “If we could catch those a little sooner maybe we could prevent some ICU admissions”. Chasing the mirage is a subcategory based on 3 properties. These are chameleon nature, actively engaging with the situation and mapping, which I discuss in more details in the following paragraphs.
**Chameleon Nature**

Chameleon nature is one conceptual property of chasing the mirage. The unclear clinical picture that may result from delirium gives delirium an appearance of something else, like other pathologies, and thus the chameleon nature. Overall, participants verbalized the dilemma of delirium’s atypical presentations that take on the appearance of other diseases and clinical conditions. Similar to the chameleon, delirium can disguise itself and even hide in other conditions and may also change and evolve with time. The RN is left with the daunting problem of looking for “something out of the ordinary”, which is a result of the unusual manifestation of uncommon clinical processes. Delirium has non-specific symptoms (Meagher, 2001), and participants chased specific manifestations continuously trying to follow a pattern that could potentially assist with delirium recognition. In the statement below, one of the participants elaborated on the need to look for multiple sources of information in order to recognize delirium. The participant was trying to identify the elements in the situation that were salient and figure out a causal relationship between them.

I kind of go through the practice of that assessment and looking at risk factors of delirium. I think probably one of the more helpful things, too, is the collateral information that comes from family. You’re wanting baseline information, right? If you’re only seeing a snippet in time of what’s going on for a person; we need more information.

Some participants reflected on how delirium takes longer to clear and as such it may be construed as the normal baseline of the patient. One participant reflected on this notion and said “I feel that I see it lasting longer in our older adults”. Thus, delirium can be mistakenly thought of as the normal patient baseline and consequently ignored. The aforementioned description
gives delirium the image of stealth with properties of covertness, hiding, and camouflaging; therefore, it is sometimes, inaccurately interpreted as the patients’ baseline. It is not unheard of that some older adults are discharged from the hospital with delirium. Moreover, after thorough investigation, a vast number of unusual clinical syndromes are usually attributed to delirium.

Participants chased windows of opportunities when patients were least agitated in order to deliver nursing care. Thus participants not only chased the plethora of non-specific symptoms that feature in delirium but additionally the windows of opportunities in which patients were open to care. This highlights some participants’ focus on the patients’ behaviour that would allow them to accomplish the tasks. The RNs’ need to perform a task is voiced in the following statement “Is it something that I really need to get done? Or is it something that I can wait and come back again and try again? That would be the approach that I would take.” This approach possibly reflects the fast pace of acute care settings and the boundaries created in the process of nurse-client interaction. The context of acute care settings shapes the elements and intricacies of clinical practice. These institutional factors appear to be limiting to the nurse-client interaction and could undermine good nursing practice.

Some participants’ understanding of recovery from illness was linked to the number of tubes and catheters attached to the patient, and as such they chased the orders of insertion or discontinuation of tubes and catheters which in turn masked attempts to catch delirium. Catheters are usually inserted to reflect a certain pressure or physiologic function. Since there is no catheter or tube that can give quantitative figures for delirium, participants struggled with understanding the seriousness of delirium. The severity of the disease is the major determinant of engagement; however, severity of delirium is not precisely or directly reflected by elevated blood biomarkers of diseases. One of the participants articulated this view when she perceived that “healing is
associated with fewer tubes” and removing the tube moved the patient one “step closer to the door”. This perception negatively influenced the participants’ “index of suspicion” for delirium. It also revealed how the participants’ actions and reasoning are impacted by the meaning they assign to the environment in acute care settings. Overall, participants agreed that delirium is difficult to chase and catch because of its unconventional manifestations. Participants offered that the process of recognizing delirium needs intentional effort to catch this syndrome. As such, delirium’s unorthodox features stand behind its chameleon nature.

Participants also described delirium recognition as a “challenging” process. This sentiment is reflected in some of the participants’ discussion of delirium’s fluctuating nature. The covert or stealth like quality of delirium is derived from the participants’ description of behaviors associated with hypoactive delirium which is often followed by hyperactive delirium. This produces a state of patient exhaustion resulting in hypoactivity and decreased responsiveness to environmental stimuli. While the latter manifestations can be interpreted as a remission or recovery from the hyperactive episode of delirium, these manifestations enabled some participants to realize that patients were now in hypoactive delirium as they were too tired and energy depleted to show manifestations of hyperactive delirium. This closed cycle opens the door wide for a myriad of clinical reasoning possibilities that can influence the RNs’ ability to chase and catch delirium.

Another empirical generalization that is attributed to the challenge of chasing delirium is the lack of consensus with regards to the precise terminology used by RNs to describe delirium. Most of the participants reflected a feeling of being “not at ease” in using the term or label delirium, but were comfortable using “confused” as the term of choice. Some of the participants in my study seemed more acquainted with the concept of dementia than with the concept of
delirium leading to the underuse of the latter. Overall, participants used the terms confused and disoriented interchangeably, as illustrated by one participant stating: “We’ll use confused all the time... yeah. But no we don’t use delirium as a...I think that people aren’t comfortable with the terminology maybe”. Confused or confusion were terms commonly used, though imprecisely, to indicate that a patient’s behaviour is not matching the expected baseline. Overall, participants in my study tended to use the term confusion/confused as an umbrella term to describe a wide range of cognitive disorders, such as dementia and delirium tremens.

**Actively Engaging with the Situation**

Actively engaging with the situation is another property of the subcategory of chasing the mirage. During the process of clinical reasoning, some participants engaged by either “trying to figure out” what is “wrong” with patients in order to intervene by using the best available evidence, or in trying alternative interventions and weighing them against the available evidence, choosing the best practice intervention appropriate to the context. Surprisingly, RNs resorted to the ‘quick fix’ evidence/intervention in order to extend time to attend to tasks required for other patients. The following statement is a compelling evidence of this notion: “100% of Nurses use physical restraints and chemical restraints 9 times out of 10 before resorting to anything like comfort rounds or toileting or... Participants mostly identified signs and symptoms during their assessments and matched them against preset, agreed upon and well-defined indicators of specific medical conditions. The process of logically linking these indicators culminated in delirium recognition.

It was noteworthy that participants were actively seeking validation for actions in an attempt to find comfort zones to justify actions. The importance of validation is highlighted in the following excerpt: “you would do the gold standard of tests: you would get a chest x-ray, a
urinalysis, you know some blood work, just to see if they have any type of infection anywhere that could be spurring this delirium”. Similar to the previous statement regarding the search for validation, this participant linked age-related physiologic changes in older adults to delirium in the following statement: “with an older person, every little thing can cause a delirium. Like literally, anything can cause a delirium with an older person, like emotional stress, infection, to stress related to heart issues”.

A clinical reasoning process that emerged with some participants focused on how patients with hypoactive delirium were engaged from within and with their own realities without showing explicit manifestation. Thus, the mechanism in which delirium manifests set the rules of engagement. Participants who focused on engaging with the explicit manifestations were less likely to recognize hypoactive delirium. One participant added that RNs needed to reach out to the patient’s inner world in order understand the patient’s outer world/reality and recognize delirium. In her view the RNs’ attempts to recognize delirium was situated in a one-sided approach of interaction, so that if RNs didn’t initiate the interaction they were destined to miss delirium. On the other hand, some participants extended their reasoning and realized that patients were engaged implicitly with their inside reality even though they looked calm and less reactive. This observation indicated that some participants needed a visual trigger to act as a catalyst for their clinical reasoning process. This illustrates that moving beyond the explicit manifestation is necessary to overcome this challenge of not recognizing hypoactive delirium. The next statement sheds some light on this challenge:

It is especially difficult to pick up delirium in the hypoactive deliriums so you get the patients admitted with a failure to thrive and you’re so happy that they don’t ring their
call bell all day, because they’re quiet and they sleep, and really they’re in a delirium as well, so those are the ones that are very difficult.

Therefore, participants focused their reasoning on the ability of the patients to be attentive, that is whether patients are hyperactively engaged in their delirium and not really cognitively engaged in the moment or not. In the following statement one participant captured this notion:

I don’t know, they’re not engaged with nurses as much. Nurses aren’t as engaged with them. Because I think confusion in older adults is often portrayed in what they are able to do for themselves. If they know how to feed themselves.

Since RNs were engaged with the visible manifestations, and since hypoactive delirium is invisible, one participant suggested that RNs should “screen everybody that’s 70 and older”, regardless of the reason for their admission. Overall, participants indicated concern that hypoactive delirium is usually underrecognized. Often patients with this form of delirium are able to respond to a simple greeting or brief questions and are often overlooked in a busy acute care setting. The latter notion is clearly illustrated in the following statement: “So I find that the quieter deliriums are the ones that we kind of just run with and don’t do much about versus the ones that are more aggressive and agitated”. The previous statement depicts participants who were reactive rather than proactive in the situation, so they intervened in response to unmet needs that had escalated into manifested problems.

Some participants reported that delirium was an embarrassment to the patients and their families, as indicated by their avoiding direct reference to the condition. Delirium was linked to pejorative terms such as “confused, crazy”. These participants were more comfortable in using the term “dementia” which seemed to have less profound effects as it was understood as part of
normal aging process. The following statement by one of the participants demonstrates the emotional impact of experiencing delirium on the patient and the family:

We were trying to keep her safe, and she was getting up and, you know how it goes, and just trying to keep her safe. And she said, “You bitch!” and she spit at me. When she cleared, she was walking down the hallway, just by herself, with her walker and stuff and she looked at me and she said, “I don’t know what I did to you, but I know I hurt you and I really apologize.” Oh my gosh you remembered that. I would never tell her what had happened. People always apologize for family members. You know this is not them right now; this is a bug and this is what’s happening. You’ve got to educate the family.

Because the patient is fine, they’re scared and whatever, but they’re being treated. It’s the family who sees their lovely mother who’s freaking out, so they’re worried you know.

Several participants stressed the significance of knowing the difference between delirium and dementia and the effect of this knowledge on the strategy of engagement:

One of the main differences between acute and chronically confused is that we would reorient an acutely confused patient, whereas a patient with dementia, we would probably just let them stay in the world that they’re in. But the delirious patient, we would want to reorient them, to try to get them back out of the delirium. Also, with the acutely confused patient, we would want to be treating the cause of that delirium – so, infection or whatever else would be causing that delirium. So that would be the main difference that I would see.

Upon further analysis of the above statement, it seems that nursing interventions are determined by whether confusion is acute or chronic. For example in case of delirium, reorienting the patients back to reality is the ideal approach whereas in dementia it would be
prudent to get into their reality. These interventions are polar such that, if reversed, they can potentially compound dementia with delirium; trying to re-orientate a patient with dementia can scare them and stress them out whereas agreeing with a patient with delirium can lead to dire consequences because RNs will stop looking for causes of confusion assuming it to be the norm. This conceptual understanding partially influences the rules of engagement with delirium. The temporal feature and historical features of delirium played a key role in engaging participants.

Some participants reacted quickly, implemented several interventions, and alerted the health care team about the acute manifestations; however, when these manifestations persisted participants became less concerned and less reactive. The next statement captured this attitude “acute confusion would make us move quickly; whereas the chronic, we’re expecting it, right? And so you’re not as rapid in trying to figure out why”. Reactions of some participants depended on the manifested behaviors. Thus if patients do not exhibit behavioral alterations, participants were less likely to react or intervene. Similarly, excessive manifestations that progress to become unmanageable and are associated with agitation and possible aggression were treated with medications that lead to further deterioration of delirium. As one of the participants described, “Another patient I can think of that was very, very confused, was sitting in a cardiac chair and had actually punched a nurse and I think they broke her jaw”. Some participants added that hyperactive delirium created a situation of frustration and a feeling of cognitive overwhelmingness as they were obligated to simultaneously think of multiple variables, as they needed to protect themselves from dire physical, legal, and professional consequences, protect their patients from self-harm or harming other patients, and engage with the patients’ families to provide support and reassurance.
It was also noted that some participants in this study were not proactive in engaging with patients with delirium, and needed either physicians’ or NPs’ orders, or peer consensus regarding a patient’s condition and affirmation of their clinical reasoning process. The tendency to avoid taking responsibility for certain observations was reflected in the following statement:

I think they [RNs] tend to push a lot of things onto the charge nurse, and hope that the charge nurse recognizes things as well, and kind of hope that the charge nurse will be able to recognize that. I also think that nurses aren’t very comfortable making recommendations to physicians; they think they are still hierarchal; they see the physicians as above them. So they are afraid to say, ‘I think my patient is in a delirium. I think we need to do x, y, and z to correct this.’

Upon delving deeper into interpreting the above statement, I questioned if there was self-protection in not reporting delirium manifestations. As one participant highlighted, RNs who suspect delirium with patients should get a physician’s order for delirium workup, entailing extensive diagnostic investigation to rule out infections or alterations conditions. It can also require preparing patients for radiologic procedures such as a chest X-rays or abdominal ultrasound. These diagnostic studies, preparation for and time involved in the execution may increase RN work complexity. When an RN is caring for several patients, the alterations in workflow puts the RN at risk of falling behind in accomplishing overall daily tasks.

Participants also shared a common observation with regards to the extent RNs take ownership for recognizing delirium. They believed that it is the job of the physician to recognize delirium because delirium is a diagnosis. This reluctant approach to patients with delirium uncovers a pervasive systemic dilemma related to the need of RNs to be proactive in identifying clinical conditions rather than hiding behind a diagnostic cloak and avoidance of outcome.
Patient care in the hospital is structured around the medical diagnosis. This medical diagnosis seems to be restrictive and limiting to the RNs’ abilities to function to the full scope of practice. Everything in the hospital is structured and organized around diagnosis and there seems to be a collective perception that the RNs’ scope of practice falls short of allowing RNs to uncover medical conditions; that is trespassing on the physician’s job.

These restraints seem to be due to the influence of the biomedical model and the quest by the biomedical body to stay in control, so that RNs will have constraints over their ability to be autonomous and agentic. This critical observation is illustrated in the following statement:

I think it’s just hierarchal, a power feeling, they feel that the physicians are above them. 90% of the staff on my unit would be uncomfortable giving a recommendation to a physician. I don’t know if you can ever really change the relationship with the physician, because I think that’s something that was taught.

Another group of participants were concerned about the ‘ripple effect’ of inter shift reports, which they have seen during several occasions on the unit. One of the participants said that RNs on her unit tend to take the inter shift report at face value and as a road map to direct their engagement with their patients. This effect is illustrated in the following statement:

During shift report they often repeat things that they’ve heard or perceive. If I was told this morning that it was a dementia patient, and I was given a report to you, I might say, ‘Oh, this patient’s got dementia and is very agitated. Don’t worry about him; just leave him alone.’ So I think it gets transferred in shift report. And your get three days worth of shift report where everyone thinks this patient has dementia and nobody actually investigates why they are confused. So, I think nurses rely so much on other person’s reporting.
The above statement shows how one RN reported to her colleague that the patient under her care had dementia, and thus her colleague in turn reported the same in the following shift. Therefore the patient was dealt with as a dementia patient until another RN inquired further and discovered that the patient had been admitted with an acute infection leading to his altered cognition. This information added to the entire picture and assisted the RN in interrupting a potential cycle of faulty reasoning.

The presence of the family also impacted the degree of interaction and engagement with the patient. For some RNs, the presence of the family meant less direct nursing care as the family was feeding and bathing the patient. But less direct nursing care created an obstacle to knowing that patient’s acute changes as RNs came to depend on the family to report issues about patients. Moreover, on other occasions, the family’s role aided in early recognition of delirium as they were aware of the patient’s baseline cognitive status and promptly reported the acute changes to the RNs. Participants acknowledged that while collaborating with the family may bring about therapeutic outcomes, there is still a critical need for the RNs to engage in the direct care of patients. Nevertheless, some participants reiterated how the context of acute care settings impinges on and deters this process of engagement.

Participants unanimously asserted that a well-defined clinical reasoning process required experience. Overall, participants believed that clinical reasoning is situated in the “lived experience” of caring for patients with delirium. One participant went so far as to argue that the only way to learn about delirium is by seeing a patient with it, and this participant recommended that delirium case studies should be integrated into nursing curriculum and into simulation labs. The significance of experience is captured in the following statement: “I don’t know if it’s the context of the unit, or the context of me. I have a lot of experience with delirium”. However,
participants were divided with regards to how the years of experience can enrich the clinical reasoning process. While they all agreed that the best way to learn about delirium recognition was by living the experience of caring for a delirious patient, some participants voiced a concern that RNs with many years of experience may also feel indifferent or burnt out. This sentiment is captured in the following statement, “Maybe it’s like caregiver burnout. Maybe after years of being keen you kind of think ‘what’s the point anymore?’” Less experienced RNs appeared willing to dig deeper and chase the pattern of delirium in comparison to more experienced RNs who were less alarmed by the acute cognitive changes and less likely to explore the situation unless ordered by the physician.

Participants shared a common understanding related to older adults’ physiological decline. They unanimously agreed that in younger patients dementia is excluded on the spot, which makes delirium an easier call to make, whereas in older adults dementia is usually the culprit causing the confusion. In other words, aging was a unique compass that directed the reasoning process. Participants who were able to recognize delirium in older patients did not treat those patients as “dim witted individuals, because they were old, but that there was a chemical change, there was an environmental change that changed chemistry”. They all agreed that overcoming some “personal beliefs that older people are inherently inclined to lose their wits” was the main factor that helped them recognize delirium. One participant added

Probably in an older person I would seek out a lot more collateral information from the family to determine how they were before. If you are a younger patient, I would probably assume they were independent and self sufficient before they came in.

On the other hand, some participants still adhered to the stereotype that it is normal for an older adult to be confused; despite the contrary evidence in the literature that cognitive decline is
not an inevitable consequence of ageing. This stereotyping influenced the clinical reasoning process by sensitizing some participants against recognizing delirium; and this is clearly illustrated in the following statement:

…because of the stigma attached to the elderly, of ‘Oh, they’re just tired today,’ maybe they have a hypoactive delirium. Or, ‘Oh, she’s just frustrated today,’ or ‘She’s just having an off day.’ You know people tend to make excuses more for elderly than they do for younger people.

Based on the above statements and discussion, it appears that the clinical reasoning process is influenced by the age of the patient, and age was the lens through which most participants viewed patients with delirium. Thus age acted as a catalyst/blocker of clinical reasoning and when RNs rejected the appropriate medical explanation for the patients’ pattern of behavior, their readiest explanation was age. This default reasoning appeared common among some participants as they regarded delirium/dementia as a frequent and somewhat regular expectation among older adults.

**Mapping**

Mapping is the process of using delirium recognition tools such as the Confusion Assessment Method (CAM) and Intensive Care Delirium Screening Checklist (ICDSC) worksheet to rule out delirium. Overall, participants were aware of the presence of CAM, though some acknowledged their lack of understanding of how to use this tool and interpret its outcome. Moreover only a few of them articulated all the diagnostic criteria of CAM that lead to the recognition of delirium. Even though these participants were aware of CAM, their attention was on the patient’s orientation to time, place, and person. The following statement summarizes this sentiment: “our standard tool that we use is the Confusion Assessment Method. Just going
through that with patients. So, just going through that with every patient that we assess”. This gives the impression that patients are defined according to tools. Since one of the major features of CAM is looking for acute fluctuation in cognition, when a patient’s baseline is unknown, using CAM provides a faulty outcome. Providing the tool in acute care settings is not enough, as some participants showed lack of conceptual understanding of delirium recognition tools. This gap in the system, where the tool was provided without training RNs on how to effectively use it, is an organizational challenge that needs to be met. The organizational context of interaction is flawed which leads to flawed clinical reasoning processes.

The situation in the process of delirium recognition was defined by CAM, and reasoning with older adults revolves around using an optional delirium recognition tool (CAM or ICDSC) which classified patients as either CAM (Positive) or CAM (negative). This classification directed the participants to cognitively perceive each patient in a particular way, that being how these patients are going to add to the RNs’ workload according to the type of delirium they are experiencing. This tool and similar tools that are used to detect delirium seem to structure, organize, and frame clinical reasoning according to the biomedical check box. The ‘tool’ approach to assessments reduces patients to categories and attaches labels to them. Every CAM assessment by RNs reinforces the limitation of the biomedical checkbox through the RNs’ assessments and documentation. The identity of the patients became, to a large extent, a product of delirium assessment tools which categorized patients.

The CAM tool excluded patients in delirium from benefiting from the Hospital Elder Life Program (HELP) program as delirium positive patients were classified as cognitively incompetent to be included in the program. This program is meant to support patients so that they can stay involved and active during their stay in the hospital. The institutional influence on
RNPs’ clinical reasoning was evident in this exclusion from the HELP program, and a mechanism of power revealed itself in the CAM scoring. Based on this information, it may be inferred that more criteria should be added to the initial delirium assessment to make clinical reasoning more inclusive of all the determinants of health, such as patients’ unique life circumstances, and ability to manage their health. These criteria would support the promotion of health, and may even reduce the patients’ future need to be admitted to acute care settings.

Based on the responses of the participants, I concluded that there was a lack of consistency and a lack of unanimous or collective knowledge of delirium. Participants reflected various conceptual and operational understandings of delirium; as such their approach to individual assessment was based on a subjective interpretation of the situation. Even though the participants worked in the same health region, they used different tools to recognize delirium. Most of the participants had difficulty interpreting and applying these tools to patients. It was unknown to me or to the participants on what basis tools were selected. Based on the aforementioned discussion, clinical reasoning seems to be rooted in the results of a biomedical tool that determine further actions and interactions.

Another property of mapping is trying to determine the baseline. Few participants concentrated on “baseline” and compared it to new observations or changes in the patient’s status. Participants had different definitions of baseline, with some seeing it as the normal standard of being, which is being alert, oriented, and attentive. For others, baseline was determined by different sources of data to determine the patients’ baseline such as family, file, and long term care staff. For these participants the baseline has evolved to become the determinant of care, and the compass of clinical reasoning process. It is worth noting that this
group of participants acknowledged the presence and value of CAM yet their concentration was centred on “baseline”

“Again, when it’s not a patient’s baseline and it’s something unusual, or a change, especially if the family tells you that it’s different”.

To further extend the interpretation and clinical significance of the above statement, I inquired about methods of communication as to how the patients’ baseline is communicated between units and facilities. I was surprised to discover that on occasion there was a gap in communication. For example if the patient’s cognitive status changed because of delirium and the patient was transferred to another unit before delirium was cleared, the new unit might misperceive this new cognitive change as the normal patient baseline, ignoring his baseline before sustaining delirium. Thus the axis of interaction with these patients becomes situated around baseline.

Absolutely, because I think if you treat delirium early, you can basically treat it, right?

Eliminate the problem, clear the patient, get them back to their normal baseline. If you leave them unrecognized they might be placed in a nursing home thinking that that is their normal baseline when perhaps it’s not.

**Tracking the Footsteps**

Tracking the footsteps is the second conceptual subcategory of NCSI. In this context it is the process of interpreting the behaviour and the manifestations of the patient in an attempt to match it with a known condition. This subcategory has two main properties which are *anchoring clinical reasoning* and *medicalizing nursing*. 
Anchoring Clinical Reasoning

Anchoring clinical reasoning is the continuous attempt by the participants to define cues and indicators and logically tie them to a pathological process. Cues are manifestations that participants were not able to interpret, whereas indicators are manifestations that were recognized by the participants as indicating a specific disease process. Participants in this study strove to frame what they do in order to situate it in familiar context and relied on indicators and continuously tried to connect the indicators to initiate their clinical reasoning process. Participants usually use one or more than one indicator to initiate the reasoning process. Indicators were two of types: behavioral and physiologic. Few participants were comfortable with integrating both the behavioral and the physiologic indicators in their reasoning process, as most participants were primarily focusing on physiologic indicators.

It is understandable that physiologic indicators are accessible in detection relative to behavioural indicators. The former can be measured quantitatively, whereas the latter require critical analysis and clinical reasoning for its rationalization. Physiological indicators can be measured by numbers such as temperature, pulse, blood pressure, and diagnostic blood tests, whereas behavioral indicators need further interpretation and critical analysis. Interpreting numbers related to laboratory values was straightforward, as participants tethered the patients’ numbers to the normal values in order to draw their conclusion. Participants who were comfortable in recognizing delirium needed fewer indicators than participants who were not. Even though the participants saw behavioural cues, they often were unable to gain insight into properly interpreting them. Although delirium is usually caused by alterations in physiologic function, its manifestations are almost always behavioural, affective, or perceptual, which makes
its recognition difficult because these cues don’t usually trigger the appropriate clinical reasoning process.

Participants in this study did not have a uniform approach to assessing delirium. Lack of consistency was a pattern among the 17 participants. Different participants were chasing different diagnostic tests and were all convinced that these tests can unmask delirium. As one participant articulated “I wish there was a blood test... I wish there was, but there isn’t”. The lack of a directly related blood test emerged as an indicator that participants needed to factor in, in order to recognize delirium.

Participants’ catching of delirium was facilitated by anchoring it to experience; an empirical generalization that characterized the clinical reasoning process of some participants is associating current patient presentations of delirium with prior experiences of delirium. These participants were influenced by the cultural norm of the population of patients on the unit. Moreover, these participants attempted to be pragmatic in their engagement with the clinical reasoning process where they relied on their intuitive clinical grasp, that is clinical reasoning and judgment that is based on experience and unit norms rather than evidence. The following statement explicitly demonstrates how experience influences the clinical reasoning process, “Is it because the population on the unit where you work is mostly delirious patients? Is this why you would think right away of delirium?”

Participants who were anchoring their clinical reasoning to their patients’ determinants of health such as family support, medical morbidities, social/ work life, lifestyle habits and preferences, and the patients’ subjective experiences of illness were more likely to notice the subtle cognitive changes in the patients and do what was needed to help these patients. Thus, these participants’ clinical reasoning processes were situated within the patient’s subjective context. According to
these participants, patients’ assessment and diagnosis are not limited to finding a diagnostic label, but instead centered on the problem within the patient’s context so as to understand the patient’s main concern. In other words these participants went further into looking for patterns of manifestations which did not only matched those of previous patient but also identified a delirium defining cue (indicator) that is unique to the respective patient. The aforementioned observations were eloquently captured by two of the participants in the following two statements: “Because I think confusion in older adults is often portrayed in what they are able to do for themselves. If they know how to feed themselves, or they need cuing to do things”.

…if I feel adamant about it enough I will talk to the doctor. ‘Have you noticed this? They’re not really confused.’ Especially when it comes to discharge planning. That’s usually when it comes to a head: when your patient is being discharged and you go talk to the doctor. ‘They’re really not quite right. They can’t even put their own clothes on.’ And from their perspective, the physician, they think they’re fine. They can talk to me, have a conversation. So certain subtle things like that, I think it’s up to us…

**Medicalizing Nursing**

Medicalizing nursing is the second property of tracking the footsteps that emerged from the participants’ interview and observations. Medicalizing nursing care restrained the nursing perspective by focusing only on biomedical causal conditions. Even though the exact cause of delirium is unknown, some participants positioned delirium within the pathological medical paradigm, and this positioning can be attributed to the nature of the knowledge and practice resources available for RNs in acute care settings. The fact that the nursing literature is greatly influenced by biomedical knowledge may have limited the participants’ contextual understanding of delirium recognition and consequently provided little room for the emergence
of personal dimensions associated with the process of delirium recognition. One of the participants ascertained this notion in the manner she saw delirium: “I began to see this as a medical condition. And like every other medical condition [it] has signs and symptoms. But in the acute condition, you’ve got to reverse the medical abnormality”.

The biomedical understanding of delirium and medical determination of care surfaced as a prerequisite by the participants to treat delirious patients. Participants felt more in control when their thinking was framed and structured. Uncertainty was an uncomfortable feeling and exposed some of the participants’ vulnerabilities which justify their continuous search for a label or a symbol (medical diagnosis) to perform their job. Participants were easily able to report a urinary tract infection as it can easily be confirmed by a laboratory test in comparison to delirium which required increased skills, experience, and assessment tools. Some participants were reluctant and attempted to avoid this feeling of uncertainty by framing themselves into a well defined situation that is less likely to be contested. These participants’ clinical reasoning processes tended to be extrapolated from knowledge gained from the medical literature. Their clinical reasoning process was directed towards digging out an underlying pathophysiology as the cause of delirium.

Seeking physiologically based explanations and placing the patient in a category reassured and provided them with the medical and legal cover. One participant’s main concern was “paying attention to hydration status, to histories of UTIs and respiratory tract infections and cellulitis, all that might contribute to that”. When RNs fit the patient into a certain category it became easier for them to find interventions that fit the category. All participants, regardless of their background, implicated Urinary Tract Infection (UTI) as the immediate cause of delirium. Some participants gave me the impression that UTI and delirium were synonymous.
The influence of medicalizing nursing was extended to the acute care setting itself; for example, cardiology nurses were inclined to relate all ailments to the heart in comparison to nurses who work on respiratory units where their focus was patients’ effective breathing and ventilation. This way of thinking that is organ focused and disease oriented was demonstrated in the following statement:

It isn’t. If it’s not the heart it doesn’t matter. Right? We will discharge people when they’re physiologically stable. . . If I have a confused patient, or someone who is delirious, and a stable heart, I’m more comfortable with that patient... do you know what I mean? We have such a physiological system approach.

Policy Making and Implementation

Policy making and implementation is the process of integrating and reflecting the hospital policy and the unit norms into RNs’ everyday practice. It emerged as the third conceptual subcategory of NCSI. This subcategory has one main property which is institutionalizing clinical reasoning.

Institutionalizing Clinical Reasoning

Institutionalizing clinical reasoning was strung out through the interviews and observations, and colored how participants conceptualized their practice and their subsequent reactions to that understanding. The institutional contextual factors were felt through the pressure acute care units exerted on the participants’ clinical reasoning processes and actions.

The evolving nature of delirium was not a good fit for the structured organization of acute care settings. The race to getting the tasks done reflected the organizational power structure that shaped the care of patients in acute care settings. Efficiency of nursing care in acute care settings is measured, valued, and evaluated according to the number of tasks accomplished.
Some participants’ main concern was getting the tasks done and the speed with which they can get them done. Participants were held liable for not accomplishing the tasks but were not questioned if they missed delirium. RNs who were performing tasks on time and in a speedy manner often received commendations from physicians. These RNs appreciated more positive feedback from physicians than from peer nurses which indirectly reflected the hierarchy of power in acute care settings.

The organizational structure of acute care settings also added another barrier to RNs’ familiarity with patients. This barrier is represented in RNs who work casual shifts on different units. Working one shift per week on a unit where delirium is common does not give the RN the time needed to know the patient well enough to recognize subtle changes, nor does it give the RN the orientation needed to use the resources available on that unit, such as CAM. The depth and accuracy of clinical reasoning was influenced by the consistency of assignments; as such, continuously changing RNs’ assignments was a deterring factor for effective clinical reasoning. The frequent rotations of RNs decreased the time needed to gather enough cues and eventually understand the patterns of behaviour in their patients, leading to additional uncertainty.

Participants in this study concurred that assigning them to the same patient will give them the opportunity to know the patient well enough to recognize even subtle changes in behaviour and cognition. The quest for familiarity echoed through the interviews, and was captured in the following statement: “Especially on days, our assignments get moved a lot because, depending on how many staff... One day we might have 4 and then 5, and they keep shifting our load”.

Another participant expressed a similar view:

Because if you work with a patient... let’s say you work with a patient daily, there is a higher chance to be recognizing a delirium. If you work with a patient consistently. If you
come on shift you work with a patient one day, you’ve never seen this person in your life, and he’s old so you think ‘OK, he’s probably a bit senile, confused, blah, blah,

Redundancy of delirium recognition tools with existing screening tools and the different operational terms that these tools use to assess consciousness blurred the clinical reasoning process. These tools are integrated into the hospital policies and procedures and guide interventions, in addition to attaching personality to older adults and eventually determining the clinical reasoning process. The lack of consistency in using delirium recognition tools was captured in the following statement:

From what I understand, they’re specific to different units and to different programs. And so for example if we go here we have a set that we use, which is nursing care for the older adult. Or if you were to maybe go to the Orthopedic Unit, might be an example, and the physicians would have an order set for delirium with hip fracture. Is there a lot of overlapping information between those? From what I’ve seen, yes. But they were all created in isolation.

Another organizational gap that emerged from the participants’ responses was that they did not formally assess for cognition while interacting with at risk older adults, despite the fact that delirium is an alteration in cognition. Often cognition was formally assessed by Occupational Therapists (OTs) with cognitive tests not performed by RNs. Documentation of cognitive status was another organizational gap due to lack of consistency, not only between hospital and facilities but also between units and among individual RNs which lead to conceptual blurring of delirium. The following statement is a compelling evidence of this observation: “I’ve worked in long term care. Charting by exception is what we used to do. In the hospital? They do it every shift. If there’s a change in status”.
Documentation was primarily completed for protection relative to potential legal action. The intent of documentation was not solely for the purpose of follow up. There was an atmosphere of intimidation, of being held liable, or getting implicated, and documentation was the shield against that. In this way documentation lost its main essence and was recruited to work in favor of the RNs, ignoring the patient. Hence, the clinical reasoning in this context is situated in the context of self-protection.

Another self-protection orientation that emerged from the data is the observation of some participants that some RNs were not alarmed by delirium and were inclined to address the situation only under circumstances which forced them to act to avoid liabilities and to get the unit back under control. Thus, clinical reasoning became situated in the legal context. According to some participants, newer RNs are usually more worried about being sued or potentially losing their practicing license than experienced RNs. This anxiety may lead to a situation where RNs in those circumstances think primarily about their physical and professional safety. The following statement is an ideal example of this perspective.

When people are extremely delirious and in an agitated state there is a huge safety risk that they’re going to climb out of their bed or fall. They can’t be left alone, and yeah, that’s the so you’re trying to make sure they’re safe.

The organizational definitions of physical restraints also helped participants to avoid the legal consequences and aided them to reason in such a way to go around the system to protect themselves. For example, using physical restraints is prohibited without a physician’s order and must be used as a last resort in agitated delirious patients. However, some RNs were using a form of physical restraint which the organization chose to call “geri-chair”. This labeling raised serious concerns to some participants because according to them the “geri-chair” is a form of
restraint even if it is not labeled as such. Changing the label changed the legal consequences of the intervention and steered the clinical reasoning process into self-protection. This organizational tension is demonstrated in the following statement:

Well, then if that chart had ever gone to court, then that nurse would be very liable for not getting an order for the restraints and for doing proper restraint monitoring. Hopefully that nurse would have proper restraint monitoring on that patient. But interestingly enough, a nurse doesn’t consider a geri-chair, one of those geriatric chairs, a restraint, and so she will not get an order if she sticks her patient into a chair restraint, with a table.

Another common definition that guided the clinical reasoning process in acute care setting is the conceptual definition of ‘stable’. RNs felt obligated to attend to “unstable” patients, such as patients with acute bleeding, stroke, or heart attack, rather than to a patient who is shouting or agitated. The RNs’ definition of “stability” excluded behavioral manifestations and focused on vital signs, numbers, figures and tracings. One participant’s response accurately captured this notion with the following statement “once they’re stable they’re gone... whether they’re delirious or not”.

Participants ascertained that acute care settings where patient management is disease oriented and efficiency driven lacked the flexibility and freedom to allow them to effectively reason about and judge delirium. Consequently, any changes in patients’ cognitive status were not promptly noticed, until they interrupted the organizational flow on the unit and/or disturb other patients thereby putting safety at risk. Patients with hypoactive delirium were disadvantaged as they did not interfere with the implementation of the daily routine and were sometimes perceived as being “lighter load” and preferred by some RNs. Participants felt obligated to organize their care according to the unit routine rather than the subjective needs of
the patients at risk of experiencing delirium or suffering with active delirium. This manner of engaging with patients with delirium is illustrated by the way one of the participants described the hypoactive delirium patients. According to her, “they tend to be the easier patients that get ignored, right? Versus the ones that are really active and really draw your attention.”

Overwhelming workload in acute care settings was the most likely culprit for failure to recognize delirium. Some RNs dealt with delirium in terms of work-related consequences rather than patient-related outcomes. In other words, RNs regarded the hyperactive form of delirium to be challenging because it interfered with their work or disrupted the order of the unit. This view runs contrary to their perception of patients with hypoactive delirium who were deemed “pleasantly confused,” as these patients neither posed a potential safety threat to themselves nor to the staff members, nor disrupted the norm of the unit. In this situation, RNs did not feel obligated to do any further assessment; hence the clinical reasoning process was halted because old age provided these nurses with sufficient explanation. Participants felt like they were divided between providing patient centered care and the need to accomplish the tasks. A sample of participant narratives featured brief but compelling comments that attest the focus on performing tasks.

But if you had an acutely confused patient in your group, you would want to be checking on that patient more often. A lot of your other things might be sacrificed because you might continually be checking for false prevention, keeping an eye on that patient. I think because nurses are so busy that when you have those days that your patient never rings the bell or you only have to check on them every hour or every two hours and they’re fine, you just get that sense of relief.
Some participants perceived workload in terms of tasks accomplished and actions needed for follow up, while further evaluation of cognition ranked low on some participants’ scale of priorities. These participants were focusing on the tasks, because quantifying nursing is easy, in comparison to assessing the quality of care that is not immediately measurable and takes time to evaluate. The following statement by one of the participants captures this perception of workload: “But I think that generally nurses miss those hypoactive patients because they just think, ‘Great, I have more time to do x, y, and z’. Or, they’re too busy to even notice.”

The influence of society on the institution was evident in the participants’ beliefs and values. Society plays a key role in shaping the citizens’ understanding and image of the older adults. Unfortunately the way older adults are positioned in an efficiency-driven society, where value of the individual is measured by the income, positions and jobs, influenced some of the participants’ clinical reasoning and sometimes hindered it. Some participants blamed society for the impression that older adults have less value than younger adults. Government policies were also to blame as older adults are always discussed there as a burden on healthcare system due to their excessive use of it. There seems to be more value to attending to younger adults with confusion than to older ones, as the likelihood of recovery is often better in younger adults. Furthermore older adults maybe are less likely to sue, and fight for themselves. Finally, to some RNs, ageing is perceived to be associated with death or increase mortality and thus, when delirium occurs in older adults over the age of 65 years, death is not an odd or peculiar outcome. In other words death in older adults is not noisy, like the death of a child. The following statement sheds some light on this perspective:

I would say that society, whether it be from watching movies as you’re growing up and the older people are sitting in their chairs and drinking tea, but not necessarily kicking a
ball, you know. Maybe their grandparents were tired when they were older. But I think that that’s more human nature to think, you know, ‘Oh, when I’m older I’m going to slow down a bit.’ Maybe as a nurse on the floor I think, ‘When I’m older maybe I’ll work on a less busy place.

The clinical reasoning process has been fenced in by the cultural worlds of the registered nurse, older adult, health care system and greater social context. In other words, the clinical reasoning process is the product of interaction between societal and contextual factors and the perspective that each participant brings to the situation.

For some participants, the acute care setting’s daily schedule for breakfast, lunch, dinner, bedding change, and the like was the litmus test that triggered their clinical reasoning process. One participant nicely captured this notion in the following statement:

So, number 1 is report, number 2 is walk in the room and looking at the room. If it looks like this ----- ok well, what’s going on, he’s moving around, life is busy, right. If things don’t look touched.... like us, on our unit we give water twice a day on my shift. If the water is not touched or something looks like what’s going on.

Another factor substantially integrated in the nursing activities in acute care settings is the use of computer-based software which organizes nursing care. In this study, the software used is Sunrise Clinical Manager (SCM). On closer examination of this computer software, it was apparent that this software produces a focus on accomplishing tasks and checking boxes to the extent that one of the icons was named “task manager”. Some participants felt that their role was reduced to checking boxes and that clinical reasoning became a choice but not a requirement. The statement that follows explicitly captures this notion, “get my 9 o’clock meds done, my 10 o’clock procedures done, my 11 o’clock referrals done”. Using delirium recognition tools was
not compulsory and the tools were computerized and also integrated into SCM. Once the
diagnosis of delirium is confirmed, it is written into SCM and an order set will appear.
Unfortunately, the SCM has more than five sets of interventions that are related to delirium and
this creates confusion to the RNs as they try to follow certain guidelines. This approach to care
hinders the RNs’ creativity and blocks clinical reasoning.

**Nurse-Client Situated Interaction: The Theory**

The theory emerged from the data obtained during interviews with seventeen RNs about
their experiences caring for older adults with delirium. The theory is comprised of the core
category of *Nurse-Client Situated Interaction*, and its three subcategories, *Chasing the Mirage,*
*Tracking the Footsteps,* and *Policy Making and Implementation* (See figure 5.2). These
subcategories are intertwined to represent non-linear, simultaneous, and overlapping phases of
assessment, interpretation, analysis and application that RNs mentally and intuitively recruit
while interacting with older adults in order to recognize delirium. Each subcategory was
supported by several properties that emerged from the data.

Chasing the mirage is the first subcategory that is conceptually linking the three
properties of chameleon nature, actively engaging with the situation (patient and context) and
mapping to the substantive theory of NCSI. This category alone is not enough to complete the
reasoning process, as at this stage RNs are still trying to figure out the situation to get a handle
on what is happening. Thus, this disequilibrium puts the RNs in a vulnerable position and
creates a need for immediate action to retain the balance and stay in control of the situation.
Hence, the second subcategory of tracking the footsteps emerges as a compass to guide the
clinical reasoning process and is grounded in the data in the following two properties: anchoring
the observations and medicalizing nursing. Institutionalizing clinical reasoning emerged as the
main property of the third subcategory of policy making and implementation. It shed light on the institutional hierarchy of power and its deep integration into the other two subcategories. The substantive theory of NCSI provided an expanded understanding of the clinical reasoning processes that is different from the traditional route of reasoning as it considered variables relating to the patient context, delirium manifestations and the organizational context. NCSI conceptualizes clinical reasoning as a process of profound interaction influenced by how RNs defined the related situations in the setting where reasoning took place. Further theoretical development (concatenation) is needed so that NCSI is refined and modified through the process of further theoretical sampling, by recruiting participants from other areas of clinical practice within nursing and from other healthcare professions.

*Figure 5.2 Nurse-Client Situated Interaction*
Summary

In this chapter, I have described the findings that aided in the construction of the theory of Nurse-Client Situated Interaction (NCSI), a substantive theory that explains the indicators and processes that RNs use to recognize delirium in older adults in acute care settings. Empirical indicators acted as the dimensions and properties of the emerging theory. The NCSI as core category emerged and was deemed a good fit as it is systematically related to subcategories that emerged from the data during the process of the initial and focused coding. I have used diagrams to show the subcategories and to show how they link together to provide an overview of the theory. I have also identified and obtained additional data to fill in the gaps in those subcategories to ensure their conceptual density or theoretical saturation, which was in turn responsible for the descriptive and explanatory power of the emerging theory. Additionally, conceptual transcending where indicators, properties, and subcategories from data are thought about at a higher level and are clustered into fewer concepts was continued until the core category of NCSI emerged. Finally, properties and subcategories related to the phenomenon of delirium recognition were identified and related back to the central phenomenon of NCSI. Developed subcategories were charted and relationships between subcategories, clinical reasoning processes, RNs and older adults in acute care settings were captured in a conceptual framework (see figure 5.2).
CHAPTER SIX: DISCUSSION AND RECOMMENDATIONS

In this chapter, I discuss the findings of this study and their contribution to the state of nursing science with respect to the indicators and clinical reasoning processes that RNs use to recognize delirium in acute care settings. The findings in this grounded theory study compare previous research findings and theoretical work in the area of clinical reasoning and delirium recognition relationally to the experience of RNs during interactions with older adults. I also discuss the recommendations and limitations of the study, and elaborate on the position of the emerged substantive grounded theory in the field of qualitative research and its potential contributions to future explorations.

The core category is conceptualized as Nurse-Client Situated Interaction (NCSI), and it provides an overarching explanation of the clinical reasoning processes that RNs as research participants used to recognize delirium. The core category explains how participants described their individual clinical reasoning processes and the influence over time of acute care settings on the clinical reasoning process. The core of NCSI is anchored in the situated interaction between registered nurses and older adults and is influenced by 3 psychosocial processes emerging from sub-categories lending an explanation to how RNs reason clinically to recognize delirium. The sub-categories identified are chasing the mirage, tracking the footsteps, and policy making and implementation. Hence, the interaction feature of the NCSI provides a multidimensional view of the clinical reasoning process for delirium recognition.

Chasing the mirage emerged from 3 properties that conceptually reflected the participants’ responses. These properties include the chameleon nature of delirium, actively engaging with the situation, and mapping the clinical reasoning process. Tracking the footsteps overlapped with chasing the mirage and originated from the conceptual transcending of 2
properties, namely anchoring the clinical reasoning process and medicalizing nursing. The third subcategory of policy making and implementation abstracted from the property of institutionalizing clinical reasoning. The aforementioned subcategories continuously interact and overlap. The interaction process in NCSI is situated within the context of acute care settings and therefore the entire relationship between RNs and older adults is embedded in the social context of the clinical setting. Explanation of this complex relationship is necessary in order to resolve the study’s main concern of delirium recognition.

**Situated Interaction**

The term “situated” has been used in the nursing literature and is defined as the conditions and circumstances that surround an issue in a certain context (Jarrin, 2012). Stebbins (1969) defined situation as the mental construction of elements which have been taken from a larger whole (situated). Stebbins, R. (personal communication, September 13, 2014) argues that the definition of the situation is the container of the clinical reasoning process that RNs need be mindful about during their interaction with older adults. Therefore, the definition of the situation and clinical reasoning are interdependent to the extent of being conceptually interchangeable in the context of this study. Thus, clinical reasoning is also a mental construct influenced by direct contexts and linked to the larger context of the institution. Based on this discussion, it can be inferred that the symbolic interactionism perspective of understanding reality is central to NCSI as it links the clinical reasoning process to the wider context through the respective worlds and the knowledge of the RN and the older adult.

Stebbins (1969) added that mental constructs are partly realized through the process of selective perception. Selective perception means sensitization to those elements of the environment which are of direct interest to the individual. This understanding was echoed by
Gillespie (2010) who asserted that the clinical reasoning processes are constructed from selected observations (indicators) and interpretations grounded in a multi-layered context.

As a consequence, clinical reasoning processes are contextually shaped according to shared and often tacit rules, values and beliefs. For some participants selective perception was apparent when aging was viewed as an acceptable explanation for delirium. This finding agrees with that of McCarthy (2003a), who established that RNs’ clinical reasoning with its corresponding perspective directs nursing practice. McCarthy (2003a) found that nurses who believed in the decline perspective were almost always associating aging with the progressive normal failure of body systems resulting in vulnerable older adults. Some of the participants in this study shared this belief structure, creating a conceptual state of normalcy when delirium manifestations are seen in older adults.

Neville (2005) discussed the concept of normalizing delirium maintaining that, the categorization of delirium as a syndrome (diagnosis) associated with aging and amenable to recovery influenced the feelings and behaviour of RNs to the extent of changing their institutional practices. Using symbolic interactionism perspective, this influence evolved RNs’ understanding and redefined the situation through the lens of normal aging process, and therefore redefined the clinical reasoning process. The resultant categorization has influenced the family members on some level and society on a greater scale. Normalizing in this context is an unconscious attempt to present delirium as a disease that behaves like other diseases, and as such has a well-defined pathology, manifestations, and treatment.

In North American culture, as others, the biomedical viewpoint occupies a privileged and dominant position. Gullette (1997) notes that, people are aged by a culture that is saturated with concepts about the declining nature of age and aging. This culture also continuously
promotes youthfulness as the ideal. Gullette (1997) attempted to resist this stereotyping in her book *Declining to Decline* and by leading a cultural combat against ageism. Gullette (1997) argued that aging is a culturally constructed condition and rallied in opposition with an understanding of physiology being the sole explanation of declining health. Stebbins (1969) established that the cultural context exerts a powerful influence on the definition of the situation that is the reasoning process. Stebbins (1969) added that the cultural context influences or determines a situation and its analysis by the agent. In his view, in a given situation, there is not a single context but a great number of different, possibly overlapping contexts. In another study, Jarrin (2012) established that culture affects values, beliefs, and assumptions about older adults in general and health in particular.

Gullette (1997) maintained that culture pressures individuals to create age identity where they associate aging with a decline in productivity and functionality. This argument exposes the influence of the economical macro perspective on the political understanding of aging (planning, allocating resources, and laws and regulations), where aging is always linked to social structural variables such as retirement, pensions, and economical burden. Hence, older adults become the subject of negativity and pervasive attitudes that depict them as frail, economically disadvantaged, putting at risk the growth and viability of the health care system due to their increased usage of resources (Cruikshank, 2003).

Negative attitudes towards aging also surfaced in another study and were pervasive to the extent that RNs who worked with older adults were described as the “Cinderella of nursing” (Neville, 2005, p. 177). The influence of this labeling was observed in some of my participants who were initially reluctant to work with older adults and preferred working on cardiac or respiratory units to practice “real nursing” with the intent to gain credibility as a nurse.
Gillespie (2010) who developed a clinical decision-making framework to guide analysis of nurses’ clinical decision-making supports and validates this observation as she viewed RNs as actors in a situation, involved in a complex interplay between older adults and the micro-meso-macro systems. The micro context is the process of interaction between the RNs and the older adults, the meso context represents the acute care setting, and the macro context is represented by the society and the government (Gillespie, 2010).

The interaction between RNs and older adults is situated and controlled by the institutional context at large and the acute care setting context specifically. This is supported by Jarrin (2012) who maintained that caring is dependent on time and place and is different between units and organizations. Jarrin (2012) added that situated caring focuses on interaction and the context of acute care settings and how they relate to the clinical reasoning process. These aspects of caring are often viewed as non-harmonious and difficult to integrate into practice. An appreciation of cultural contexts of the patient and the RN is integral to understanding the dynamics between RNs and older adults (Jarrin, 2012).

The antecedent for effective clinical interaction is engagement because it determines the quality of the evidence gathered during patients’ assessment (Cortis, 2003, Groenhout, Hotz, & Joldersma, 2005; McBrien, 2006, & Viele, 2003). In other words, efficient clinical reasoning is a form of interaction that requires active engagement which is based on mutual understanding to steer deliberate practice. Moreover, the kind of interaction determines the degree of engagement. According to Merriam-Webster's online dictionary (n.d.), interaction is a “mutual or reciprocal action or influence”. In other words, interaction is a two way process that covers actions and reactions; however some participants in this study overly interacted with tasks and activities related to and around the patient rather than interacting with the patient. Although interaction is a
two-way process to achieve a certain activity, some RNs’ focus was on accomplishing a task, which is a single-sided intervention.

A complete clinical reasoning process cannot evolve without interaction with patients (Timpka, 1995). As such, the clinical reasoning process is a social process that is viewed through the lens of symbolic interactionism as an internalized conversation involving the self and the older adults in the context of acute care settings. Hence, NCSI is shaped by interior and exterior environments. Simply stated, the structure of acute care settings is embedded within the clinical reasoning process of the RNs. In the symbolic interactionism literature, theorists such as Turner (1998) emphasized that human beings adjust their behaviour based on the particular context at a particular point in time. This notion of the definition of the situation is similar in many ways to the participants’ clinical reasoning process (R. Stebbins, personal communication, September 13, 2014).

The definition of the situation was used as the lens to illustrate the participants’ clinical reasoning process. In using this lens, it is assumed that the participants’ clinical reasoning process initiated with the assessment phase, gathering pertinent information to define the situation which in turn eventually defines the clinical reasoning process. The precision of the clinical reasoning process depends in part on an accurate analysis of the situation. As delirium tends to fluctuate and be dynamic in nature, it is counter-intuitive to use a consistent and static reasoning process for recognition of delirium. Thus, the clinical reasoning process used to recognize delirium often requires a series of decisions that are interdependent. Therefore, instead of relying on static information, participants constantly monitor the changing definition of the situation to inform the clinical reasoning process.
Chasing the Mirage

Chasing the mirage is the first subcategory of NCSI branching out of three main properties. These properties are discussed in relation to their use in the nursing literature and applicability in the context of this study. The chameleon nature is the first property of the subcategory chasing the mirage emerging from the analysis of the participants’ interviews. The chameleon nature of an illness is a term used to describe diseases which are difficult to recognize and diagnose. Delirium has been described as “a chameleon-like illness with a myriad of possible presenting symptoms” (Fann, 2000 p. 64). Therefore, the chameleon nature requires the existence of a concept which encompasses the process of delirium detection. The concept of recognition has been cited in the literature (Steis, Penrod, Adkins, & Hupcey, 2009) to fulfill the aforementioned objective. Steis et al. (2009) established that “recognition is process-oriented and culminates in an opening for some response by the nurse” (p. 1967). Steis et al. (2009) added that recognition is the ideal concept that describes processes useful for understanding phenomena germane to nursing. Moreover, recognition is utilized to describe and explain complex aspects within nurse–client interactions across multiple contexts (Broedsgaard & Wagner, 2005; Cederfjall & Wredling, 1999; Criddle, 2003; Day & Batten, 2006; Karhila et al., 2003; Macdonald & Woods, 2005; MacKay et al., 2005; Porr, 2005; Vargas & Luis, 2008). Previous research is consistent with the findings of this study, as participants often described delirium recognition as a challenging and complex process due to the fluctuating nature of its course.

The plethora of evidence supporting the use of the term ‘recognition’ in multiple care delivery systems and for different diseases and conditions provides additional justification for relating the chameleon nature of delirium to the concept of ‘recognition’. Recognition adds a conceptual label to identify a pattern (Steis et al., 2009) and act accordingly; this
conceptualization by Steis et al. (2009) surfaced as an empirical generalization among the participants in this study, who felt obligated, in order to direct interventions, to have a label to name the conditions of their patients. This finding is consistent with several other findings where labeling a condition was the key determining factor in triggering a response and the prerogative to act or not to act (Bailey et al., 2004; Broedsgaard & Wagner, 2005, Beebe & Humphreys, 2006; Edwards & Donner, 2007; French, 2006; Richardson & Williams, 2007). The symbolic interactionism (SI) perspective yields an additional broader explanation of the ‘need to label’ a process, as SI’s main premise revolves around individuals’ interpretation of their environment based on symbols and the meanings they assign to these symbols which eventually determines their respective reaction.

Recognition takes place in the context of nurse–client interactions. Oliver and Redfern (1991) defined interaction as the observable behaviour during communication between the sender and the receiver. Symbolic Interactionism is the most commonly used perspective to explain the interaction process (Anderson, 1979; Carlson, 1972; Shattell, 2004; Spiers, 2002). Flaskerud (1986) defined interaction as a mutual process of interpretation and construction of meaning. Looking at interaction through SI’s perspective uncovered a gap based on two factors related to the process of interaction between older adults and some of the participants; the first one being engaging with the hyperactive manifestation of their patients, and the second one is that their evaluation of their care was based on the quantity or number of tasks accomplished. These two single sided approaches strip interaction of its mutual core.

**Actively Engaging with the Situation**

Actively engaging with the situation is the second property of chasing the mirage that was derived from the participants’ responses. Based on the discussion above, it can be
extrapolated that recognition depends on engagement. Moreover, understanding of, and mutual interaction with older adults and the situation are the antecedent for engagement. Gottlieb (2013) supported this stance, and in her view “some relationships require many interactions to engage” (p. 289). According to Freeney and Tiernan (2009), the antidote for engagement is burnout where the latter leads to the erosion of the former. These two concepts are opposite; while engagement is associated with a positive and fulfilling attitude towards work characterized by dedication and absorption, burnout can have drastic consequences on individuals and organizations. Work engagement also yields to less hospital mortality rates and significantly higher financial profitability of organizations (Bargagliotti, 2011).

Burnout is directly proportional to workload (Maslach & Leiter, 1997), which validates the findings for this study, where participants attributed the high workload and rapid pace of acute care settings to their feeling of exhaustion. In addition, participants cited the shortage of experienced RNs, the rapid turnover of RNs, and the overreliance on casual RNs as the main reasons for burnout on their units. The numbers of hours worked per week was another reason for RNs’ burnout which is similar to findings by Landsbergis (1988) who collected data by distributing surveys to hospital and nursing home employees in New Jersey. Landsbergis (1988) concluded that reported job dissatisfaction and burnout is considerably higher in jobs that mix high workload demands with low decision opportunities.

The focus on accomplishing tasks was another common empirical generalization among my participants. While study participants argued that the reason for the focus on fulfilling tasks is related to the intensity of workload, the literature provided another interpretation which highlighted that RNs’ concerns are not with the volume of work but rather with how this work is assessed, acknowledged, and valued by the organization. For example, tasks are usually easily
assessable and quantifiable contrary to listening or providing education or emotional support to the patient, which are not quantifiable (Maslach & Leiter, 1997).

According to Cordes and Dougherty (1993), conflicting demands and values play a significant role in the development of burnout and have a negative impact on positive patient engagement. Registered Nurses are usually educated to provide professional nursing care where listening, caring, true presence, and collaboration are antecedents to practice, yet they often find themselves in institutions that push for accomplishing tasks and race to discharge current patients to admit new ones. The institutional demand and influence on the process of interaction and clinical reasoning was an explicit factor that participants in this study articulated. Maslach and Leiter (1997) addressed this factor and stressed that employees are more likely to accomplish excellence when they believe in what they are doing. Leiter and Maslach (1999) added that this orientation of the institution is at the core of employees’ relationships with their work and “encompass the ideals and motivations that originally attracted them to the organization” (p. 482).

Another finding related to engagement that emerged in my study was the variations and difference in the degree of engagement between RNs with longer years of experience and RNs with shorter years of experience, where the longer the experience the less likely participants were to engage. This finding matches the outcome of a study conducted by Maslach and Leiter (1997). In their study, Maslach and Leiter (1997) maintained that individuals do not start an occupation feeling burnt out, but are typically fully engaged, energetic, and willing to commit in order to perform and excel. As times passes some employees lose motivation, become frustrated, and burnout, eventually disengaging.
Various context and factors contribute to the decline in engagement for individual professionals. Participants in this study inferred that some RNs were burnt out because monetary incentives were based on the numbers of years of experience and not on excellence in performance. This observation coincides with Harter et al. (2003), who found that receiving feedback and recognition on an ongoing basis is fundamental in maintaining levels of engagement, thus preventing burnout and devaluation of the employee and the work.

Another subgroup of my participants cited the lack of decision making abilities as the reason for the indifference that some RNs develop over the years. These participants were calling for an extension to their scope of practice to the extent of becoming able to diagnose delirium rather than evading its name to avoid being held liable. This observation is consistent with Clark and Vaccaro (1987) who found that burnout is more likely to develop when responsibility is accompanied by a lack of authority and decision making.

Finally, because of the variation in the psychomotor manifestations of delirium, some participants in this study actively strove to engage from a patient centered perspective inclusive of family rather than with the explicit manifestations of delirium. This urge to engage was discussed previously by Demerouti et al. (2001), who established that engagement creates a sense of well-being for both the organization and for the employee. Salanova et al. (2005) further linked engagement to superior performance, thus improving efficiency and quality of care within the health care system.

The presence of the family emerged as a factor that was usually attributed to enhancing the recognition process, though at times a few participants begged to differ as too much family involvement led some RNs to withdraw themselves from the direct care of the patient, eventually leading to less interaction. Upon reviewing the current state of research with regards to delirium
prevention, identification, or treatment with family involvement, the review of the literature did not provide deliberate direction in determining if the involvement of families in delirium management improved patient outcomes. This finding is reported by Holloway (2014), who conducted a comprehensive search of original articles in six major databases. Holloway (2014) acknowledged that his review was based on 11 studies that had several limitations related to sample, randomization, and the prescription of the intervention. He found while doing his review a literature gap with regards to the lack of research about delirium recognition that fully utilizes the expertise that family members can offer clinicians.

Mapping

Mapping is the process of using delirium recognition tools such as the Confusion Assessment Method (CAM) and the Intensive Care Delirium Screening Checklist (ICDSC) worksheet to rule out delirium. Mapping emerged as the third property of the first subcategory chasing the mirage. In other words, mapping is the effective use of the clinical tools provided by the institution to assist and facilitate the clinical reasoning process. As such, effective mapping can be perceived as a catalyst to the clinical reasoning process. Concept mapping has been utilized in nursing in the form of concept maps which are defined as a nonlinear approach to examine, identify and solve clients’ problems (Schuster, 2000).

Effective utilization of concept mapping means elimination of compartmentalization and a mental grasp of the situation (King & Shell, 2002). Novak (1991) established that a concept map is a schematic tool depicting a set of concepts embedded in a framework of propositions. In other words, a concept map is a diagram that represents multiple relationships among concepts. Concept maps are thought to help organize individual thoughts and reveal critical relationships in complex situations (Gerdeman, Lux, & Jacko, 2013). Concepts are represented in circles or
boxes and are connected by words or phrases that explain the connection between the ideas (Gerdeman et al., 2013). The schematic representation in the context of this study is represented in the RNs’ use of delirium recognition tools. As discussed in chapter 5, most participants were aware of the presence of CAM, and while CAM is the most commonly used delirium recognition tool in hospitals in Calgary, participants reported the presence of other tools that were less familiar to them, and thus they were unable to utilize them. This finding is consistent with the published literature which cited more than 24 delirium recognition instruments (Inouye, Westendorp, Saczynski, 2014). Despite the fact that CAM has been used in more than 4000 published studies, translated to 12 languages, and validated in high-quality studies which included more than 1000 patients (Inouye et al., 2014), the inventor of CAM recommended prior cognitive testing for its optimal use (Inouye et al., 2014). In chapter 5, the participants affirmed that formal cognitive testing is not part of the RNs’ job description and it is often the role of the Occupational Therapists (OT) to perform formal cognitive assessments. As such, RNs were using the CAM recognition tool without prior cognitive assessment. This finding uncovers a gap in the effective utilization of the CAM and maybe a new contribution to the current state of science and that should be picked up by policy makers and stakeholders.

**Tracking the Footsteps**

Tracking the footsteps is the second subcategory of the substantive grounded theory (NCSI). This subcategory has two properties, anchoring the clinical reasoning and medicalizing nursing. These two properties are discussed in comparison to the existing literature and their contributions to the current knowledge.
Anchoring the Clinical Reasoning Process

Levett-Jones et al. (2010) defined anchoring as “the tendency to lock onto salient features in the patient’s presentation too early in the clinical reasoning process, and failing to adjust this initial impression in the light of later information” (p.16), as such anchoring can be perceived as a form of cognitive shortcut (Kahneman, Slovic, & Tversky, 1982). Levett-Jones et al. (2010) classified anchoring as an error or bias in the reasoning process. However, contrary to the literature, some participants in this study describe anchoring clinical reasoning as the process of continuous attempts by the participants to define cues and indicators and logically tie them to a well-known pathological process. In other words, anchoring is tethering the reasoning process to previous knowledge in the process of analysis. This anchoring seemed to provide participants with reassurance and some kind of control over the situation.

Participants in this study seemed to use either experience or their biomedical knowledge to anchor their reasoning process. Some participants claimed that most of their knowledge about delirium came from courses taken in the hospital or from their undergraduate education which had a direct effect on their clinical reasoning skills. However, when comparing the aforementioned statements with responses to questions related to participants’ ability to reason clinically in recognizing delirium, most participants indicated that clinical experience was the main knowledge source guiding their clinical reasoning process. This finding matches evidence reported by Dahlke and Phinney (2008), who concurred that nurses learn to work with older adults with delirium by observing how peers interact with delirium clients, as preparatory nursing education did not provide them with the required base of knowledge. This finding validates the findings of my study and zeroes in on the immediate need for educational programs
about delirium for RNs and the need to integrate delirium and its related topics into nursing curricula.

The advantages of previous experiences were expounded upon by Klein and Hoffman (1993), who argued that people with experience utilize their knowledge in order to gain perceptual advantage of the situation. They added that “expertise is a function of the knowledge base itself, and that as people develop richer knowledge bases they are able to represent problems in more powerful ways” (p. 208). George et al. (1996) advocated that experience provides situation awareness where individuals develop a skill to prioritize information. Essentially, situation awareness is “the perception of the elements in the environment in a volume of time and space, the comprehension of their meaning and the projection of their status in the near future” (Endsley 1995, p. 36). Moreover, situated awareness helps RNs to quickly sift through relevant information and pertinent environmental data under stressful situations to effectively manage complex scenarios (Stubbings, Chaboyer, & McMurray, 2012). Practically speaking, situated awareness assisted the participants in this study to prioritize relevant indicators and filtering out the irrelevant cues. As such, experienced individuals are faster in processing information and avoiding the cognitive overload versus less experienced individuals (Elliott, 2005). Elliott (2005) added that experience helps individuals to “see what is invisible to novices” (p. 22).

Banning (2008) used a different perspective by describing the mechanism by which the brain operates to benefit from experience. She (2008) established that experience provides the observer with the advantage of matching prototypes from initial observations and putting information together to form concrete patterns accessed again when encountering a similar situation. As such, when experiencing a patient with delirium, information about the event
becomes part of the RNs’ experiential knowledge and later it can be utilized and compared to new events of delirium in a process of feature/pattern matching strategy (Banning, 2008). At a later stage of caring for older adults with delirium, RNs probe into their experiential knowledge searching for information that can help with the current situation to find the appropriate course of action. Stored actions and plans usually need slight modifications to be executed successfully. This process allows RNs to know which cues could be utilized as relevant indicators to help in recognizing delirium. Thus, the clinical reasoning process is the link between cues, indicators and the delirium recognition.

Based on the participants’ responses, it was apparent that most participants drew on previous experience to make sense of current situations. These participants relied on cues and indicators in order to recognize delirium. This study adds another level of conceptual understanding that delineates the blurring lines between cues and indicators, cues being interpretable observations and indicators are known observations (see chapter 5 for definition of each). In the current study I posit that with experience, cues undergo evolution to become indicators. Therefore, it is expected that a broader range of experience provides more indicators upon which RNs may draw while interacting with older adults. RNs with more indicators will likely gain perceptual advantage over the situation, thus facilitating the delirium recognition process.

Based on the aforementioned discussion, it can be supposed that RNs’ clinical reasoning processes oscillated between gathering cues and defining indicators in the process of recognizing delirium. Further cues were collected to support the reasoning process to reach an outcome. This approach provided a systematic analytical process for delirium recognition. The collected cues are usually associated with a cluster of indicators that define a disease. When the cues fit the
definition of a disease, they become indicators and the generated reasoning process is true. When the cues do not fit a specific definition, because they are atypical or fall outside the norm of the disease, delirium tend to be missed and the process of reasoning is modified or discarded.

The foregoing description demonstrates that nurses were engaged in a process of interplay between deductive and inductive reasoning to recognize delirium. Deduction involves reasoning from the general to the particular while induction involves reasoning from the particular to the general. Inductive reasoning promotes creativity and generation of new ideas, unlike deductive reasoning that “can never uncover new ideas and observations” (Stebbins, 2001, p. 8).

Deductive reasoning in this study was elicited when RNs searched for measurable indicators and related them to a theory, usually biomedical, in order to recognize delirium. Other nurses used inductive reasoning in following cues and intuition often facing challenges as these nurses lacked explicit scientific evidence to support their judgment. Thus, in extrapolating I am stating that the utilization of both deductive and inductive reasoning potentially leads to effective clinical reasoning and judgment. This inference is consistent with Rice, Bennett, Clesi, & Linville (2014), who established that in the process of clinical reasoning nurses need to use previous knowledge (both tacit and evidence based) in addition to clinical experience, and factor in the patient’s medical, mental and psychosocial variables to comb through the cues that help them in making the best practice decision. Moreover, the participants’ clinical reasoning started with an individual observation (cue), to which they attached meaning (indicator), and reacted based on how they interpreted this meaning. I am conjecturing that RNs who made relevant observations were better at recognizing delirium than those nurses who did not. Relevant observations triggered appropriate clinical reasoning and led to the recognition of delirium.
RNs’ experience in the context of this study was a double-edged sword; while experience has several advantages, it can also be a reason for exhaustion and burnout. Findings from participants in this study demonstrate that experience alone is not enough to help in the process of delirium recognition and engagement or mutual understanding in the process of interaction is the key step for delirium recognition.

Most participants in my study graduated from nursing programs in Canada. The role transition from student at the university/college to registration as an RN seems to be a significant chasm, as nursing programs, in my view, tend to focus on the importance of a holistic and psychosocial approach with patients and families. However, apparent task orientation in the workplace seems far more the experiential norm as described by the participants. This enculturation process is described in the literature as cognitive dissonance where individuals adopt two thoughts that are contradictory or incompatible (Festinger, 1957; Meyer & Xu, 2005). Participants in the literature continuously strove to reduce dissonance in order to change their behaviour to fit their beliefs or their education or they change roles entirely and leave the profession in part or whole.

The findings in this study highlight the need to further investigate the variables and causes of cognitive dissonance as attributes to delirium underrecognition in an attempt to create alternative solutions to bridge the chasm. These solutions can potentially be integrated into the nursing curricula and followed up in the clinical settings after graduation. A new finding that this study highlighted from the participants’ transcripts was the concept of ‘stability’. This concept played a role in framing and guiding the clinical reasoning process, and represented a binary between which patients are either described as stable, where no immediate intervention is necessary or described as unstable where immediate intervention is a must to save the patient’s
life. Thus, patient’s stability as perceived and measured by the vital signs acted as an indicator for some participants’ clinical reasoning process. According to Merriam-Webster's online dictionary (n.d.), stability is defined as “not changing or fluctuating”. Even though delirium is a medical emergency (Kostas, Zimmerman, & Rudolph, 2012), and considered as a state of acute brain failure (Inouye et al., 2014), some RNs assume delirium is a stable condition in comparison to myocardial infarction, stroke, or heart failure. This assumption created hierarchical classification in the reasoning process, where delirium was considered less severe, thus it was given lower priority, eventually contributing to delayed intervention. Although delirium is associated with high mortality (Inouye et al., 2014), some participants perceived it as a non-life threatening situation. This perception meant that they did not need to be aware of immediate actions and “informing the physician” was identified as their default clinical reasoning and priority intervention. This was in contrast to other acute conditions, such as myocardial infarction or cerebrovascular accident, where RNs were aware of protocols and algorithms they needed to initiate when encountering these patients.

Congruent with other studies where RNs in acute care settings are usually trying to figure out the morass of the clinical setting and quickly identify work complexity patterns (Ebright, Patterson, Chalko, & Render, 2003), RNs in this study were continuously addressing emerging tasks and on more than one occasion interrupted their care or interaction with one patient to attend to an urgent need by another patient. This resulted in disjointed interaction which did not help RNs to assess and analyze the patients’ behaviour to determine if they had delirium. As such their main concern was identified as their ability to stay afloat so as not to sink and lose credibility among their peers. It was observed that the RN on the unit was the “go to” person and consequently patients, physicians, families, social workers, pharmacist, occupational therapists,
respiratory therapists, lab technicians, diagnostic imaging, and housekeeping and any department which needed to connect with the patient for any reason viewed the RN as the gate keeper. This overwhelming responsibility is another factor that can deter the clinical reasoning process.

Competency and efficiency were perceived as doing the tasks on time and not getting behind in work. This observation matches the core category of the grounded theory study conducted by Nilsson, Rasmussen, and Edvardsson (2013), where “falling behind” (p.1682) was the substantive grounded theory that facilitated/hindered care in older adults with cognitive impairment. Also consistent with the literature (Ebright et al., 2003) the pace in acute care settings in this study did not provide the opportunity of waiting to access resources or finish one process, then move to another. RNs were often engaged with several activities simultaneously, and down time was not even an option. Other studies have validated these observations where the rapid pace of activities, the competing tasks, orientating new staff members, acquainting oneself with new policies and procedures, and mastering newly introduced equipment added layers of distraction to the RNs’ clinical reasoning process (Ebright et al., 2003; Potter et al., 2005). As such, the culture of acute care settings directed and governed the clinical reasoning process through constructing realities which focused on diagnosis and tasks accomplishment consequently, diminishing time available for attention to the patient.

One of the major issues that participants identified as limiting their ability to act was the use of the terms ‘confusion’ and ‘delirium’ interchangeably, eventually leading to confusion in their attempts to structure their roles. This lack of categorical fit appears to trigger a feeling of uncertainty, where nurses ran in circles trying to rationalize “what is happening”. This study uncovers an area for future research to investigate whether delirium, dementia, and confusion should be explored in future research as separate concepts.
Anchoring clinical reasoning to clinical misconception emerged when some of the participants assessed cognition based on the patients’ ability to iterate the right time, place, and person that is assessing for orientation and omitting the factor that orientation is the least sensitive indicator for delirium (Morency, Levkoff, & Dick, 1994; Fick & Foreman, 2000; Rogers & Gibson, 2002). This finding indicates the immediate need for faculty members to educate students on cognition assessment and evaluation.

**Medicalizing Nursing**

Medicalizing nursing is the second property of tracking the footsteps that emerged from the participants’ interviews and observations. As mentioned in chapter 5, some participants in this study thought about delirium as a medical pathology primarily because the literature minimized and occasionally devalued the benefits of nursing interventions for delirious patients, by underestimating the association between delirium and environmental factors. The undermining of this association started with the American Psychiatric Association (APA, 1999), which asserted that while “there is no empirical evidence that the environment by itself causes delirium, certain environmental conditions may exacerbate delirium” (p. 9). This position was reiterated in 2013 by Canadian researchers who stressed that environmental factors alone are less likely to lead to delirium (McCusker et al., 2013). McCusker et al. (2013) added that environmental factors must interact with predisposing factors and even then this interaction is only “more likely to lead to delirium in individuals with greater baseline vulnerability” (McCusker et al., 2013, p. 502). McCusker et al. (2013) recommended that the role of these risk factors needs to be investigated in patients with different levels of vulnerability. The use of the term “risk factors” diffused or neutralized their significance in the course of delirium. McCusker
et al. (2013) call for further investigation of these risk factors but in a less emphatic tone relative to their value which adds an element of doubt to their argument.

As 2015 is approaching, the emerging literature (Ahmed, Leurent, Sampson, 2014; Inouye, Westendorp, & Saczynski, 2014; Kostas, Zimmerman, & Rudolph, 2013; McCusker et al., 2013; Rice et al., 2014) is still addressing delirium from a medical point of view and attributing its incidence to an underlying physiological etiology. These studies also imply that delirium is a common illness that is almost always associated with the hospitalization of older adults, a generalization which normalizes its presence.

According to Mason and Mercer (1999), medicalization is “when a specific aspect of the body becomes the focus of medical attention, there is a process by which it is claimed, controlled, and brought into medical ideology” (p. 57). Moreover, most of the literature on delirium uses the classification of the Diagnostic and Statistical Manual for Mental Disorders (DSM-IV) to describe and fit delirium into a medical category. The DSM is essentially a biomedical reference, and is influenced by the biomedical conceptualization of illness that seeks to diagnose and explain ill health in terms of a malfunction of one of the body’s internal biological mechanisms. The body is looked upon as if it were a machine made up of individual parts that fit together and function like clockwork, all of them interdependent. The biomedical approach of most medical services focuses on the internal workings of the body, and generally precludes consideration of ‘outside’ (social, economic and environmental factors (Knight, 1998, p. 139).

This influence remains active today, and viewed in a recent study by Inouye et al. (2014), who concurred that delirium is “acute brain failure” (p. 911) which is common in older adults due to “diminished reserve capacity” (p. 911). Thus, using the DSM to classify delirium
reinforces and validates that older adults are subjected to a ‘normal’ process of progressive physiological decline associated with deterioration in the different body systems including the brain. The focus on the biomedical perspective provided a partial and narrow knowledge of older adults with delirium. As such, the “medicalization of social and personal problems diverts attention and resources away from social, political and spiritual understandings of distress” (Moncrieff et al., 2005, p. 84). Moreover, in spite of the evidence that delirium has “no pathognomonic features” (Cerejeira & Mukaetova-Ladinska, 2011, p. 4), it can be inferred that the medicalization of delirium and the treatment which follows is a form of social control (Szasz, 2007) that has shaped the nurses’ clinical reasoning process. Szasz (2007) added that the medical labeling of manifestations serves the needs and sustainability of medical power by justifying the need for actions to be taken in the name of medicine and treatment.

As discussed in chapter 5, some participants in this study favoured the pure scientific biomedical approach to nursing their patients, thus focusing on physical assessment, diagnosis, and therapy while not using the same approach to the psychosocial complexities of delirium in older adults. Gottlieb (2013) established that nursing suffers from “identity crises” that lead to “role confusion”. Her explanation of this confusion is related to the challenges nurses face in describing what is so unique about what nurses do “apart from medicine” (p. 49). Moreover, nurses often tend to downplay or underestimate the benefits of their activities to the patients’ well-being (Gottleib, 2013). This lack of appreciation for the professional activity of nursing negatively impacts nurses' relationships with patients (Weinberg, Aranda, & Brown, 2006). Additionally, nurses have a tendency to embrace the work of medicine (Gottleib, 2013). Nelson and Gordon (2006) added that this inclination is due to the continuous search for credibility,
with the impression that physicians usually doubt and undervalue nursing knowledge leading nurses to underestimate their contributions to the patients’ health outcomes.

As mentioned in chapter 5, some participants searched for physiological cues, notwithstanding that the main manifestation of delirium is a change in cognition (Cerejeira & Mukaetova-Ladinska, 2011; Inouye et al., 2014). Chasing physiological cues (lab tests, vital signs), even though delirium is a “clinical diagnosis” (Kostas, Zimmerman, & Rudolph, 2013, p. 195) where diagnosis is dependent on the knowledge and skills of physicians and nurses, highlighted the presence of a knowledge gap that needs immediate bridging.

**Policy Making and Implementation**

**Institutionalizing clinical reasoning** is the property of the third subcategory of the substantive grounded theory (NCSI). Institutionalization is a multi-stage process that “involves the development of some degree of social consensus among organizational decision-makers concerning the value of a structure, and the increasing adoption by organizations on the basis of that consensus” (Tolbert & Zucker, 1995, p. 182).

Previous studies assume that RNs’ failed to recognize delirium solely as a consequence of faulty clinical reasoning. In this study I contend that the error is not solely related to a breakdown in the clinical reasoning process, but is also attributed to a structural flaw of the institutional policies in which the RNs are immersed. As discussed in chapter 5, participants unanimously agreed that clinical reasoning is context dependent. This finding is in disagreement with McCarthy (2003b), who indicated that the nurses’ ability to recognize delirium was independent of the clinical setting and totally dependent on the nurses’ philosophical perspective on aging. Although the perception of ageism may have influenced the clinical reasoning process for some participants in this study, it was not the overarching theme.
McCarthy (2003b) established that the “practice environment emerged as a less salient condition” (p. 209) with limited effect on the clinical reasoning process. McCarthy (2003b) further underestimated the influence of the care environment on clinical reasoning processes by describing attempts to analyze its dimensions as “imprudent” (p. 210). While this current study encompasses several contextual variables related to delirium recognition, McCarthy’s findings in contrast focused on one variable, aging, and diluted the influence of other factors on the clinical reasoning process.

McCarthy (2003b) placed nurses into categories where clinical reasoning had a starting point and an expected conclusion. However starting points are sometimes either false, or limit us from finding a more salient answer. She never assessed the outcome of this categorization on patient outcomes to evaluate whether nurses’ perspective on aging actually impacted the general health outcome of the older adult. Contrary to the recommendations of this study, which focus on system wide changes, McCarthy’s study sole recommendation was behaviour modification programs for nurses.

In the process of data analysis, an emerging generalization from the interviews which captured my attention was the focus of some participants on performing a task, these participants are often labeled as ‘task oriented’. Stebbins (2013) examined the focus on performing a role through the lens of SI, highlighting the differences between ‘performing a role’ and ‘engaging with an activity’. The former can be equated with being ‘task oriented’ where deep thinking and reasoning are not prerequisites. On the other hand, engaging with an activity is a mental and physical process triggered by its primary objective of achieving an outcome. In addition, activity as a concept is more inclusive than the role (Stebbins, 2009). Stebbins (2013) added that roles are static whereas activities are dynamic. Roles are relatively dormant expectations for
behaviour, whereas in activities, people are “actually behaving mentally and physically thinking (p. 128) to achieve a specific goal. This dynamic quality provides a powerful explanatory link between an activity and a person’s motivation to participate in it (Stebbins, 2013). Participants in this study were divided between those who were actively interacting with an activity and those who were just performing a role around their patients.

Another layer adding complexity to the above discussion is that hospitals and regulatory bodies tend to focus on nurses' roles and job descriptions which I believe is limiting to the clinical reasoning processes nurses adopt to recognize delirium. I posit that activities are more open-ended and provide space to undertake necessary initiatives versus institutionalized roles that are restrictive cutting short the reasoning process. Moreover, some RNs occasionally treat their roles as activities by improvising their behavior within the constraints of the former (Stebbins, R. personal communication, 13, September, 2014).

Stetler, Ritchie, Rycroft-Malone, Schultz, and Charns, (2009), defined institutionalization of a certain perspective as the integration and adoption of this perspective into the very fabric or structure of a clinical organization until it becomes the organizational norm. In this study, the structural organization of acute care settings where budget, expenses, cost, legal liabilities, and bed occupancy staffing are the main concern of managers, which was transferred to RNs influencing their practice and strangulating their clinical reasoning process. As a result RNs, particularly in managerial positions, became preoccupied with managing the medical problems and the associated costs of delirium. This disease oriented approach leans towards ignoring the person in the patient which causes major disruptions to the lives of these individuals and their significant others (Neville, 2008). The structure of the nursing unit mediated the knowledge
necessary to perform the job according to the institutional role as outlined in the job description. Performing a role is prescriptive, limiting the room for creativity and does not reward it.

Some participants were chasing credibility in their focus on biomedical knowledge. The participants’ focus on biomedical knowledge comes as no surprise as most of the participants were drenched with biomedical knowledge. This influence was discussed by Wright (2012) who advocated that most of the literature on delirium is based on biomedical scientific quantitative methodologies influencing clinical reasoning. Organizations strive to construct stable and structured guidelines to diseases by adopting algorithms and guidelines to avoid discrepancies (Nelson & Gordon, 2006). While one can argue in favour of consistency of therapeutic interventions, the idea of viewing patients as different individuals with different values, beliefs, and backgrounds has a better potential for therapeutic clinical reasoning and judgment.

The biomedical model has been adopted by hospital managers and chief executive officers to solve problems and run the units and the organization. This adoption seems to shape the understandings and interactions with older adults, thus framing clinical reasoning and restricting it. The influence is not limited to the nurse-client interaction but a pervasive and dominant influence on the public and the policy makers. The infiltration of this understanding of older adults seems to neglect the personal experiences and silence the patients’ perspective, consequently losing the centrality of the person within the organization (Neville, 2008).
Recommendations

This section discusses recommendations relevant to the practices of RNs in the domain of acute care settings, education, research, and administration. The implications are based on the empirical generalizations that were conceptualized in this study derived from the analysis of participants’ interview.

Recommendations for Bedside RNs

- In settings with older adults the variable of time needs to be recognized. Rather than privileging a task orientation RN’s in these settings need to be skilled in working with the communication needs of older adults and the integration of family theory and communication in a more sophisticated manner. The RN should be deliberate and engaged during their interaction and should communicate calmly and slowly.

- The RN should work to redefine perspectives on aging. Just as nurses work to educate young mothers about childrearing, nurse specialists can work to educate individuals, family and society about emerging perspectives on aging that fight cultural stereotypes.

- RNs should be influencers in a paradigm shift that views age in a different way. RNs should not allow the value of the interaction with patients to be determined by age. That is to say that the value of interaction should not decline with age. RNs can work to change the viewpoint of age as inevitable decline.

- While delirium will continue to exist, RN’s should reflect on and redefine their situatedness in any particular interaction and work to develop more acute assessment skills across the range of ages.
- RNs should perform formal cognitive assessment for all patients admitted to acute care settings over the age of 65 to determine the baseline cognitive status.

- When a cognitive assessment demonstrates a variance from normal outcomes, delirium should be explored by the RN using standardized and validated delirium recognition tools. When confirmed, the term delirium should be used when describing manifestations of acute cognitive alterations. Umbrella terms, such as confusion, should not be used.

- Perform cognitive assessment on all older adults postoperatively, especially those with hip fracture immediately after surgery for the first 24 hours and as needed thereafter.

- Unit managers should ensure that older adults at risk of delirium are cared for by RNs who are familiar to them. Unit managers should also ensure that, when feasible, minimal changes occur in the patient load of RNs working more than one shift per week, as this would help them develop familiarity and rapport with the patient.

- RNs should know that the following pharmacological agents are risk factors for delirium: benzodiazepines, antipsychotics, anticholinergics, H2-receptor antagonists, mood stabilizing drugs, non-steroidal anti-inflammatory drugs, opioids, anaesthesia/analgesia, benzodiazepines and opioids.

- RNs should perform a medication review for older adults taking multiple medications, taking into account the indications, side effects, interactions between, and number of medications. RNs should also liaise with the clinical pharmacist to minimize unwarranted side effects due to drug incompatibilities.

- RNs should consider delirium when acute cognitive changes are associated with any added or withdrawn medications.
• RNs should avoid moving older adults who are at risk of developing delirium within and between wards or rooms, unless it is necessary.

• When caring for an older adult, RNs should consider delirium first as the possible cause of any acute cognitive changes. The RN’s motto should be “delirium until proven otherwise”.

• RNs should ensure that environmental factors are adjusted to meet the needs of the older adults at risk of delirium, such as providing appropriate lighting and clear signage, and making sure that a clock and a calendar are available and easily visible by the patient.

• RNs should assign time to walk with the patient around the unit and should encourage early mobilization after surgery.

• RNs should assess for pain and should ensure that the patients get pain killers when needed. An exaggerated reaction to touch or to none painful procedure should alert the RN to suspect delirium.

• RNs should be aware about the patients’ need to use hearing or visual aids and should encourage patients to use these aids.

• RNs should monitor patients’ sleeping patterns and should encourage normal sleeping habits. RNs should avoid disturbing patients’ sleep to perform procedures or give a medication. Familiarity with the patients’ sleeping patterns can help RNs in designing their care plans.

• RNs should think outside the box of DSM and instead trace the patients’ unique pattern of behaviour and the associated manifestations. As an example, if a patient has a history of insomnia and all of a sudden sleeps all night, this change in behavior should alert the nurse for possible delirium.
- RN should ensure the patients are eating their meals. Any rejection of food by the patient should be explored to make sure it is not caused by delirium.
- RNs should assess for unmet needs (hunger, fatigue, sleep deprivation, pain, need to urinate or defecate, infection, obstruction, fear, or hallucinations) as a reason for the patients’ abnormal behavior.
- RNs should share information with the interdisciplinary team. Effective collaboration with providers, physicians, occupational and physical therapists, and geriatric pharmacists can help identify changes in patients’ cognitive and physical function and determine potential causes for delirium.

**Recommendations for Nurse Educators**

The following recommendations would allow nurse educators to help RNs to better recognize delirium:

- RNs should receive the necessary education to conduct formal cognitive assessments.
- Delirium guidelines including those outlined in the Registered Nurses’ Association of Ontario (RNAO) and the Canadian Coalition for Seniors’ Mental Health (CCSMH, 2006) should be readily accessible for RNs in acute care settings. Best practice guidelines, such as the one issued by RNAO, titled “Screening for Delirium Dementia and Depression in Older Adults” (RNAO, 2010), must be made available as hard copies on the unit.
- Health education to families of the older adults should be reinforced to become part of the discharge agenda. Canadian Coalition for Seniors’ Mental Health (CCSMH, 2006) suggests that health care teams include families in the care of a person with delirium and that they form an alliance with the family to improve the care of older adults with delirium.
• Provide RNs with special hands-on training to facilitate the development of competencies in using CAM and other mental status assessment instruments. Integrate technology and simulation labs into learning experiences to improve delirium recognition. Provide visual training materials to aid with remembering such as visual cards. Provide RNs with operational and practical understanding of delirium recognition tools.

• Provide education and training on the indications and use of physical restraints. Ensure that RNs are aware of the hospital policy regarding the use of physical restraints.

• Educate RNs about the difference between delirium and dementia to eliminate the confusion between them.

• Education of RNs about delirium needs to be more integrated into their education at the undergraduate level in multiple areas of the curriculum. Equal emphasis across the curriculum should be placed on the importance on health promotion and early recognition of delirium in the older adult.

• Universities and colleges should ensure that nursing students are provided with clinical rotations and experiences in the geriatric acute care units and geriatric psychiatric units.

• Provide educational sessions on reporting and documentation of cognitive manifestations, and encourage RNs to use available resources for the definition of common terms that are used to describe acute confusion.

• RNs are usually taught how to communicate with children and mental health clients and there is less emphasis on the intricacies of communicating with older adults. Communication with older adults as a separate communication course should be integrated into the nursing curriculum.
- In an advanced communications management course, the effect of labels needs to be discussed culturally and conditionally. While therapeutically useful to a degree, labels are therapeutically negative when they define the margins.

- Concepts maps as an advanced skill that map out the situations and the variables that are related to a client. They must be an evolving assessment process.

- Burnout is universally recognized, but not as discussed in the setting in which older adults reside. Debriefing of critical incidents occurs in acute care, but what is the parallel in elder care?

- The College and Association of Registered Nurses (CARNA) should propose recommendations to the Nursing Education Program Approval Board (NEPAB) requesting that nursing programs include courses in gerontology in general and delirium particularly in their curricula. Encourage NEPAB to consider this suggestion as the minimum nursing education standard and criterion required to obtain and maintain the designation of ‘approved nursing education program’.

- A meeting should be held between educators and representative from the College and Association of Registered Nurses (CARNA) to ascertain that knowledge about delirium becomes a prerequisite competency for entry to practice.

- Liaise with the National Council Licensure Examination for Registered Nurses (NCLEX-RN) to ensure that concepts on delirium are tested prior to licensure.

- Engagement and understanding are talked about but seldom taught at a deep level. These concepts should be integrated into a communication course taught at an expert level. It might actually be efficient and save money by catching various changes early. It would also increase patient and family satisfaction.
Recommendations for Administrators

- The Nursing directors should write letters to the unit nurse educators asking them to implement educational programs focusing on delirium prevention and recognition for all RNs. These programs should become a prerequisite for RNs working on geriatric units, and should stress the significance of involving the family in the care of delirious patients. Courses and relevant certification should become the standard prerequisite for RNs working with older adults, similar to Advanced Cardiac Life Support for RNs working in critical care areas. Once certified, the nurse must have accountability and commensurate decision making responsibility related to this. They must be as expert as physicians in this area and as accountable.

- The nursing directors should write to the nurse educators in acute care settings asking them to ensure the incorporation of evidence informed practices and knowledge into the respective units and create knowledge translation strategies that are practical and applicable to be effectively utilized by RNs. Nurse educators should provide different educational methods and tools that are appropriate to the level of the RNs.

- The unit manager should pair experienced RNs with novice RNs to encourage and facilitate knowledge sharing.

Recommendations for Policy Makers

The following recommendations for administrators and policy makers are based on participants’ feedback and needs reported during the interview.

- Policy makers in the provincial government should allocate more funds to establish clinics serving older adults, home health, and adult day care centers in an effort to change the focus of healthcare delivery systems from treating illness to preventing it.
• Health authorities should allocate funds to open specialized nursing positions for Gerontological Clinical Nurse Specialist (GCNS) and Gerontological Nurse Practitioner (GNP).
• Policy makers should provide funding for future research studies to explore clinical reasoning processes with special focus on the older adult population.
• A center for excellence specialized in dementia and delirium should be funded and established by the government.
• Provincial policy makers should communicate with the nursing directors to ensure consistency in the clinical tools across the different health care facilities in the region. Ensure consistency in nursing documentation across the health care facility. Knowledge gained from the educational programs on delirium should be tested based on adult learning principles. Successful candidates should receive points that can add up to monetary incentives and promotion.
• Implement Hospital Elder Life Program (HELP) on all units where older adults are admitted. Hospital Elder Life Program entails reorientation, reduced use and doses of psychoactive drugs, early mobilization, promotion of sleep, maintenance of adequate hydration and nutrition, and provision of vision and hearing adaptations (Inouye et al., 2014). This program is now implemented in more than 200 hospitals worldwide with proven effectiveness in the prevention of delirium (Inouye et al., 2014). In the Calgary health region, it is only implemented on some units due to resource constraints.
• Policy makers should ensure the availability of resources to extend the applicability of the HELP program to the rural areas.
• The geriatrics team and the HELP team should work together as one team to facilitate collaboration and sharing of information. Currently, the policy in practice is that patients with delirium are not eligible to benefit from the HELP program and are seen only by the geriatric team. I recommend a change to this policy as the HELP program can help these patients recover from delirium.

• Hospital Elder Life Program (HELP) program is part of the unit budget and it is up to the unit to release funds to hire RNs into this program. Some RNs are hired into this program through funds allocated to geriatricians who buy into the HELP program. Funds for programs such as HELP should be part of the hospital obligation to recruit enough RNs to cover respective units around the clock.

• Screening for delirium should become an expectation and requirement for all older adults admitted to all units. Moreover, the RNs should alert the HELP team the moment an older adult arrives on the unit or to the emergency department. The HELP team should follow the patients during their stay in the hospital from admission until discharge.

• A policy should be established by the directors of nursing with regards to workload of RNs caring for delirious patients. In other words, RNs caring to delirious patients should be assigned fewer patients than the other RNs, as delirious patients are considered a heavy load.

• Policy makers should promote inter-professional practice, for example inter-professional collaboration between RNs and OTs to perform CAM.

• The provincial government should make funding available to build delirium friendly units. These would be units where noise is minimal and environmental factors are controlled, such as lighting, orientation, and sensory overload.
Limitations

This study reflects the constructivist epistemology of multiple realities and the analysis of the participants’ responses represents one construction of the clinical reasoning processes shaped by multiple contexts that RNs use while interacting with older adults in acute care settings. The substantive grounded theory NCSI is one perspective that is premised on the RNs’ respective reasoning processes and limited to the context it is derived from. The following is a list of limitations of this study:

• It is important to note that NCSI is a social psychological process based on meaning that was co-constructed as a result of my interactions with participants; thus variations in participants’ experiences or another researchers experiences are to be expected. In an effort to assure that my interpretations represented the experiences and interpretations of the participants, I employed thick descriptions, member checks, and peer debriefing, as recommended by Charmaz (2006).

• Although the emergent theory was based on the experiences of the participants, it is worth noting that the theory was ultimately constructed as a result of my interpretations of the participants’ responses to the interview questions. Therefore, my interpretation might differ from other readers’ interpretations or the interpretation of other potential researchers attempting to recreate the study. As such, this study is modifiable in that additional data, collected and analyzed by another researcher, could result in new interpretations and processes.

• My personal experiences and assumptions as an RN and an educator may be seen as limitations. Throughout the stages of writing my dissertation, I took several steps to protect against and limit the effects of my own experiences on my interpretation of
participants’ responses. Through memo writing, I explored my personal reactions and assumptions to the data and discussed my assumptions with my supervisory committee. I was also able to discuss the possible effects of my experiences on the study, although there was no measurable way to determine how my experience might have affected this study. I believe that I have experiences and biases that are unknown to me and may have affected the results of this study. I also acknowledge that, in staying faithful to the constructivist view of grounded theory research, readers are left to construct their own meanings and interpretations out of the information presented in this research study.

- Another limitation is that some RNs who consented to be interviewed also worked in the capacity of nurse educators and, as such, their perspectives may have evolved over time. Participants at times adopted the perspective of the RNs working on the unit to the extent that it dulled their own perspective. As a novice researcher, I was unaware of this aspect, so I think that more training on interviewing would provide me with the skills needed to avoid similar issues in future projects.

- Some of my participants were experienced RNs and highly educated; this level of education may have influenced their perception about delirium and their articulation of thoughts.

- Although participants were reassured that their responses would be confidential, some of them were still reluctant and hesitant about disclosing gaps or flaws in the health care system.

- Although the participants were recruited from different units, the study was done in one site, the Calgary health region. Working in the same health care system that has the same
policies, procedures, vision, and mission may have played a role in decreasing the variation of the sample.

- The period of time between interviews was not consistent, as I had to wait to be contacted by the respective candidate to arrange for the interview. At times I had to wait 2 months to be contacted, and on one occasion I had to do two interviews which were 3 days apart. However, during the interview I seized the opportunity to collect a thick and rich description of the participants’ views.

- Conducting interviews on the unit was not always optimal, as finding a private room on a busy unit is often challenging. In addition, spending an hour interviewing the participants on the unit added load on the other RNs who needed to cover the participants during their absence. On 2 different occasions, and while conducting an interview on the unit, we were interrupted several times because participants needed to answer questions related to their patients. The participants’ preoccupation with their work may have influenced their responses.

- Only one participant was educated outside Canada which limited possible recurring generalizations related to education.

- Another possible limitation to this study could be the lack of racial or ethnic diversity among the participants. Sixteen of the 17 participants in this study were Caucasian.

- Focusing only on the RNs’ perspective, without exploring the context of the patient, gave a contracted view of the clinical reasoning process.
Future Research

Concatenation

This study followed the path of “exploration for discovery”, as described by Stebbins (2001, p. 3). Stebbins (2001) explained that to explore is to become familiar with the phenomenon/basic social process to be discovered by testing and experimenting within the process. He added that this approach does not end until all the essential conditions, processes, and variables for understanding are discovered, stressing that to explore is to “travel over or through a particular space for the purpose of discovery” (p. 2). Moreover, Stebbins espoused that exploration is the preferred methodological approach for situations where the process, activity, or situation in a certain group has received little systematic inquiry or has been tested using prediction and control rather than flexibility and open-mindedness. Therefore, my recommendation for future research would be to initiate the process of “concatenated exploration” (Stebbins, 2001, p. 12) on the topic of this research to enhance its level of validity (concept validity as opposed to the validity of measurements in quantitative research).

Concatenated exploration is an expression coined by Stebbins in 1992 and “refers at once to research process and the resulting set of field studies that are linked together, as it were in a chain leading to cumulative grounded, or inductively generated, theory” (p. 435). Therefore, it is a process that links a set of field studies together. The link is “chain leading” to “cumulative grounded or inductively grounded theory” (p. 12). Early studies at the beginning of the chain are mostly exploratory. Each study acts as a link in the chain that examines a specific social process.

Although my aim was not to generalize the NCSI, I echo what Stebbins argued that frequent concatenation will expand the range of applicability and the level of validity of the accumulated findings. It will also broaden the conceptual and empirical base of the NCSI.
Stebbins (2001) added that “as data accumulate across the chain of exploratory studies, the grounded theory emerging from them [NCSI] grows in details, breadth and validity” (p. 14). The NCSI theory reinforced the “chain leading” by developing new knowledge with regards to delirium recognition, and by becoming a benchmark that other researchers can use to compare or validate their studies. Stebbins (2001) supported this position in his argument that qualitative researchers usually have a head start in understanding the social life of one setting that was previously studied in analogous settings. He contends that “those who concatenate their exploratory studies need not start from scratch with each new project, as would be necessary for someone unfamiliar with the research area” (p. 16).

Stebbins (2001) presented another argument related to a major flaw in qualitative research, which is the fact that qualitative research tends to focus on individuals and neglects historical processes and structural relationships. Stebbins further espoused that concatenation or “longitudinal exploration” (p. 16) can correct this flaw by motivating researchers to take into account these two fundamental sociological factors in human life. These factors can only be recognized with repeated and prolonged exploration through multiple studies exploring the same process. Stebbins (personal communication, June 9, 2012) argued that the best validation of any research project is more research, and this notion is supported in his previous publication (Stebbins, 2001), where he affirmed that “exploratory researchers recognize that the most authoritative statement about validity and reliability can only be made down the road in the wake of several open-ended investigations.” (p. 26). Theorists use the same research question or idea and modify it over time according to the findings of the previous studies. I agree with Stebbins, as more research on a specific social process will use this framework of inquiry on a new
population or in a new setting under different circumstances and consequently new data will emerge which validates or disagrees with the previous data.

Therefore, frequent concatenation is an imperative step in reaching a mature grounded theory, as it creates an opportunity for researchers to “push the study of sets of related groups, activities or social processes toward increased methodological and theoretical rigor to the extent allowed by the development of their grounded theories” (Stebbins, 2001, p. 16). Stebbins (2001) added that “research is completed only when all essential concepts for describing and understanding the research area have been discovered or constructed” (p. 3).

Considering the small sample size of this study and the nature of qualitative research, external validity or generalizability can be considered a limitation. According to Polit and Beck (2010, p. 1451), “generalization” is an act of reasoning that involves drawing broad conclusions from particular instances that is making inference about the unobserved based on the observed”. The issue of generalization is less frequently discussed in qualitative research, and is considered complicated and controversial, as the main goal of qualitative research is to provide a rich and contextualized understanding of the human experience. However, qualitative traditions that are based on exploration (Grounded Theory) have a unique feature of potentially being able to extrapolate its qualitative findings. This feature is due to the nature of exploration and its ability to reveal high-level concepts and theories that are not specific to a particular participant or setting (Glaser, 2002). Ayres, Kavanagh, and Knafl (2003) went beyond being specific to a particular qualitative tradition and argued that “just as with statistical analysis, the end product of qualitative analysis is generalization, regardless of the language used to describe it”(p. 881). Polit and Beck (2010) espoused that knowledge is not simply generated by testing new theory
but rather knowledge grows through confirmation. They added that confirmations come with systematic replication which leads to confirmatory evidence.

Stebbins (2001) stressed that the “main goal of exploratory research is the production of inductively derived generalizations about the group, process, activity, or situation under study” (p. 6). Afterwards, it is expected that the researcher weave these generalizations into grounded theory. Stebbins (2001) contends that the main advantage of such a process is to “refute the charge that qualitative research consists chiefly of ungeneralizable case studies” (p. 15). He added that when a competent exploration is performed, it is very unlikely that generalizations emerging from it will be falsified especially if the subsequent trials to verify them are done on the same population and processes, which eventually leads to broadening and extending the scope of the emerging grounded theory. Charmaz (2006) contended that “a contextualized grounded theory can start with sensitizing concepts and end with inductive analysis that theorizes connections between local worlds and larger social structures” (p. 133). Charmaz further elaborated by saying that some empirical generalizations from certain studies do actually become “generic statements” about larger realities (p. 134). Glaser (1998) echoed this idea by stating that “when it comes to generalizing the theory to other substantive areas it does not get shut down, it just gets modified by constant comparisons with new data for a new substantive area which generalizes it” (p. 237).

**Agenda for Concatenation**

- Further research should investigate the clinical reasoning processes that RNs use to recognize delirium through replication of this study with a different population of nurses, or different clinical settings. Subsequent studies would provide an opportunity for comparing and contrasting of the clinical reasoning processes.
Future research should explore the meaning of confusion from the RNs’ perspective, and confusion should be investigated as an analytic concept and not merely a descriptive manifestation of delirium or dementia.

Future research should compare the clinical reasoning process of RNs with less than 2 years of experience with the clinical reasoning process of more experienced RNs. Future research should recruit participants from different health care regions, as this may generate rich data with regards to the influence of the systems where participants are working on the clinical reasoning process.

Future research should recruit internationally educated nurses to explore their clinical reasoning process and then compare it with the clinical reasoning process of Canadian graduates.

Future research recruiting participants with more ethnic diversity may enrich the data with regards to how ethnicity plays a role in shaping the clinical reasoning process of RNs while interacting with older adults.

Further research should explore and define delirium cues. The more delirium cues are discovered, the more indicators will be available for RNs to utilize which would facilitate their clinical reasoning process.

Future research taking into consideration the condition of the patient has the potential to uncover gaps in the clinical reasoning process and suggest possible solutions for these gaps.

Future research should explore the influence of RNs’ age and gender on the clinical reasoning process.
• Future research is necessary to test hypotheses suggested by NCSI such as the effect of clinical settings on clinical reasoning process.

• Future research should be undertaken to determine whether including formal cognitive assessment as part of the RNs’ job descriptions would positively impact the rate of delirium recognition.

• Future research could determine the effect of educational interventions on the RNs’ rates of delirium recognition.

• Future studies should compare between the clinical reasoning processes of nurse educators with the clinical reasoning process of bedside RNs.

• Future research might determine the effect of the level of education on the RNs’ abilities to recognize delirium.

**Unique Contributions of this Study**

• This is the first Canadian study that addresses RNs’ clinical reasoning processes and delirium recognition in acute care settings.

• This study is unique in utilizing the constructivist grounded theory approach to data collection and analysis. Thus, this study is the first one to generate a substantive theory focusing on clinical reasoning in older adults with delirium.

• The study provided unique differentiation between cues and indicators.

• The study highlighted concept-based reasoning, where concepts such as patients’ stability played a significant role in shaping the clinical reasoning process.

• The theory generated in this study is original in its concepts and its approach in the context of delirium recognition.
• The theory generated will enable RNs to broaden their understanding of the complexity of the clinical reasoning processes used to recognize delirium.

• The theory generated will provide insights into understanding the necessary variations in clinical reasoning to recognize delirium.

• The utilization of NCSI can potentially be extended to provide richer understanding of medical phenomena that are reasonably vague.

• NSCI organizes thought and works as a sensitizing concepts for future research.

• The NCSI expanded the knowledge on clinical reasoning while interacting with older adults with delirium. NCSI is also beneficial in demonstrating the complexity of clinical reasoning in general and validates that clinical reasoning is not a linear process.

Conclusion

I would like to conclude my dissertation with a storyline that emerged from unpacking the participants’ responses. The storyline formalized the RNs’ basic processes and made the clinical reasoning process of delirium recognition a visible process. The storyline related the three subcategories that emerged from the data analysis to the core category and provided an understanding of the relationships between the subcategories and their properties. The following is the storyline that evolved from conceptualizing participants’ responses: Nurse Client Situated Interaction (NCSI) in conceptual terms is a convoluted process which involves chasing the mirage to catch the chameleon through engaging with the situation and the utilization of mapping to illuminate the clinical reasoning process. Tracking the footsteps of the chameleon is achieved by anchoring clinical reasoning and framing (medicalizing nursing) its path. These processes are a series of linked and ongoing clinical encounters that overlap with the decision
making and implementation process. The latter is woven into the fabric of acute care settings, ultimately institutionalizing clinical reasoning.
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APPENDIX A: INFORMATION LETTER FOR RNS

My name is Mohamed El Hussein. I am a Registered Nurse (RN) doing my doctoral thesis at the University of Calgary on the experiences of RNs while interacting with older adults with delirium in acute care settings. I am interested in having an interview with RNs who have two years of recent experience with older adults in acute care settings. It is hoped that this study will help guide the development of prevention programs that will aid in early recognition and treatment of delirium. The study also has the potential to generate a framework that will guide RNs during their interaction with older adults with delirium. The data collection in this study will be used for my doctoral thesis as a requirement for my degree. Dr. Sandra P. Hirst Associate Professor at Faculty of Nursing, University of Calgary, and director, of Brenda Strafford Centre for Excellence in Gerontological Nursing is my thesis supervisor.

I will conduct an interview with you, about your experience while caring for older adults with delirium. If only one interview is held, it will take approximately 40-60 minutes. Alternatively, if more than one interview is conducted, each interview can likely be completed in 30 minutes. Depending on your choice, the interviews may be at a place and time of your convenience and choosing. The interviews will be tape recorded, then transcribed, and then stored in a locked filing cabinet in the researcher’s office for the required period.

Your participation in this study is voluntary and you may refuse to answer any question during the interview or withdraw from the study at any time. Furthermore, a range of measures are in place to ensure that you as a participant will remain completely anonymous. All participant interviewed will be asked to review the transcripts of their interview(s) and to provide comments on whether the contents are accurate. These comments can be done verbally, or submitted to the researcher or in written form, whatever the participants choose.

Thank you for taking the time to read this information sheet. I look forward to talking with you in the very near future.

If you would like more information, please do not hesitate to contact me.

Sincerely,

Mohamed Toufic El Hussein RN, (Doctoral candidate) (Co-Investigator)
Faculty of Nursing,
University of Calgary, PF2238
Phone: 403.440.8633
Fax 403.284.4803
melhusse@ucalgary.ca
TITILE: THE PROCESSES AND INDICATORS THAT REGISTERED NURSES (RNS) UTILIZE TO RECOGNIZE DELIRIUM IN OLDER ADULTS IN ACUTE CARE SETTINGS.

INVESTIGATORS:
Principal Investigator: Sandra P. Hirst RN, PhD, GNC(C)
Associate Professor Director, Brenda Strafford Centre for Excellence in Gerontological Nursing, Faculty of Nursing University of Calgary, 2500 University Dr. NW, Calgary, AB, Canada T2N 1N4, Phone 403.220.6270, Fax 403.284.4803, shirst@ucalgary.ca
Co-Investigator: Mohamed Toufic El Hussein RN, (Doctoral candidate) Faculty of Nursing, University of Calgary, PF2238
Phone: 403. 440.8633
Fax 403.284.4803
melhusse@ucalgary.ca

This consent form is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, please ask. Take the time to read this carefully and to understand any accompanying information. You will receive a copy of this form.

BACKGROUND:

According to Human Resources and Skills Development Canada, the Canadian population is “graying,” as older adults constitute an increasing proportion of the population. In 2010, approximately 4.8 million Canadians were 65 years old or older. It is expected that one in four Canadians will be 65 or older by 2051. The most important factor for the development of delirium is age, and more Canadians are expected to experience delirium as they grow older. In spite of consistent evidence that older adults admitted to acute care setting are experiencing delirium at various rates ranging from 11% to 87%, Registered Nurses (RNs) still do not readily recognize delirium in their patients regardless of the severity of their patients’ illnesses.

WHAT IS THE PURPOSE OF THE STUDY?

The purpose of my study is to understand the experiences of RNs while caring for older adults (age > 65 years) with delirium

WHAT WOULD I HAVE TO DO?
If you agree to participate in this study, the main thing that you will be asked to do is to be interviewed by the researcher. During the interview(s), the researcher will ask you open-ended
questions regarding delirium recognition. The interview will be held at a time and place of your convenience and choosing. The interview will last 40 to 60 minutes. If the interview cannot be done in one session, it may occur in two or more 30 minute sessions, or as your schedule of duties permits. These interviews will be tape-recorded and transcribed. The researcher will also collect additional data about the unit/environment through observation and field notes.

WHAT ARE THE RISKS?
The researcher does not know of any risks or side effects that might arise as the result of your participation in the study. However, if there is anything that comes up during the study project that you would like to talk about privately with someone, the researcher will refer you to someone who is experienced with doing this task, such as your unit manager or occupational health and safety. As for risk about privacy, such as your name becoming known by people who are not conducting this study, or information you provide becoming known by people outside the study, special arrangements have been made. These arrangements will be discussed under the section, “will my records be kept private”.

WILL I BENEFIT IF I TAKE PART?
If you participate in this study there may be or may not be a direct medical benefit to you. You may develop additional knowledge about delirium recognition during the study but there is no guarantee that this research will help you. The information of this study may help to develop delirium recognition programs suited for Registered nurses who work with older adults in acute care settings.

DO I HAVE TO PARTICIPATE?
You do not have to participate in this study if you do not want to. Your participation is entirely voluntary and up to you. If you choose to participate, or not participate, it will have no affect on any other programs or services in which might be currently involved or hope to be involved in the future. You can withdraw from the study at any time simply and without any penalty; just inform the researcher that you will no longer be participating. If information becomes available to the researcher that might affect the research study and your willingness to continue participating, you will be notified as soon as possible about what the possible impacts to you might be.

WHAT ELSE DOES MY PARTICIPATION INVOLVE?
Your permission is needed to tape record each interview. These recordings are being done in order to not miss any data. All participants interviewed will be asked to review the transcripts of their interview(s) with the researcher to ensure that the contents are accurate. You have your choice about how to submit your comments: it can be done verbally, or submitted to the researcher in written form.

WILL I BE PAID FOR PARTICIPATING, OR DO I HAVE TO PAY FOR ANYTHING?
You will not be paid for participating in the study. You also are not responsible to pay for anything. There will be no costs associated with your participation in this study other than the volunteering of your time.
WILL MY RECORDS BE KEPT PRIVATE?
A number of steps will be taken to keep both your name and all the information you provide as private as possible. Any information collected as a result of this study, including the audiotapes, will be kept strictly in a locked filing cabinet which is accessible only by the researcher. Any information that can be used on a computer will be protected by a password that is only known to the researcher and his doctoral thesis supervisory committee. The interview transcript will be stored in a locked filing cabinet at the Faculty of Nursing, University of Calgary. This transcript will not contain any information that links the interview with you. Your name and the names of any people or organizations you mention will be replaced with fake names. Any information used for the thesis and for published research articles or presentations at education meetings or professional conferences will only use group information or information that makes it impossible to identify anyone or determine from which individual any information came. All these research notes and tapes will be destroyed once the University of Calgary’s required period to keep this material has ended.

IF I SUFFER A RESEARCH-RELATED INJURY, WILL I BE COMPENSATED?
In the event that you suffer injury as a result of participating in this research, no compensation will be provided to you by the researcher, the University of Calgary, the Alberta Health Services. You still have all your legal rights. Nothing said in this consent form alters your right to seek damages.

SIGNATURES
Your signature on this form indicates that you have understood to your satisfaction the information regarding your participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the investigators, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time without jeopardizing your health care. If you have further questions concerning matters related to this research, please contact:
Dr Sandra P. Hirst, Phone 403.220.6270, shirst@ucalgary.ca OR
Mohamed Toufic El Hussein RN Phone [redacted] melhusse@ucalgary.ca

If you have any questions concerning your rights as a possible participant in this research, or research in general, please contact the Chair of the Conjoint Health Research Ethics Board, University of Calgary at (403) 220-7990.

____________________  ______________________
Participant’s Name     Signature and Date

____________________  ______________________
Investigator’s Name    Signature and Date
A signed copy of this consent form has been given to you to keep for your records and references.
APPENDIX: C

CONFIDENTIALITY AGREEMENT

This agreement is made effective the 21st day of August, 2013.

BETWEEN
Mohamed El Hussein
Address
713 Harris Place NW, T3B 2V4
And
Address
Mount Royal, School of Nursing

In consideration for my being granted access to confidential information in form of interview responses of research participants only for the purposes of transcription. I agree that I will not use or disclose this information for any purposes other than for transcription purposes. I further agree not to disclose the confidential information to any third party under no circumstances. My signature on this agreement represents my understanding and acceptance of this confidentiality responsibility.

Signature-----------------------------

Transcriptionist’s Name— ------

Date—August 21, 2013------

Signature-----------------------------

Co-investigators name—Mohamed El Hussein ------

Date—August 21, 2013------
APPENDIX D: DEMOGRAPHIC INFORMATION

<table>
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<tbody>
<tr>
<td>Gender</td>
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<tr>
<td>Basic nursing degree</td>
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<tr>
<td>Highest Educational Degree</td>
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<tr>
<td>Years of experience in acute care</td>
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<tr>
<td>Current Nursing Unit</td>
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I’d like you to think about a patient who you recently cared for and had delirium. Picture that patient; put that patient in your mind. Think about the day. Think about the things that were happening. Let’s talk about the day you cared for Mr. X, who had delirium. Tell me about how you recognized that the patient was delirious?

How did you reach that conclusion?
How do you describe the process of delirium recognition?
What indicators did you consider when you made the decision that the patient was delirious?
How does the process of recognizing delirium change between different age groups?
What factors facilitated/hindered this process?
What was your day like on the unit? Tell me about the activities on the unit that day? What was your routine like?
What was your patient assignment like?
How do you usually interpret confusion on your unit?
Have you ever heard the term ‘pleasantly confused’? What images does the term ‘pleasantly confused’ evoke?
What additional information, resources would you like to have to help you assess confusion states?
Where did you learn about delirium? How useful was that?
What should or could be done to improve delirium recognition?
What is so special about RNs who recognize delirium versus RNs who do not?
Do you mind if I observe the process of interaction between you and one of your patients with delirium?
How would the reaction of the patient be different if the RN was racially obviously different?
• What I really want to understand is, during your interaction with the patient, what is so important in the interaction that would lead you into thinking about delirium, or not delirium?
• What kind of an order set? Can you tell me more about a typical order set for a patient with delirium?
• How do you see the RN’ role in the context of delirium?
• What about your colleagues on the unit, when somebody is confused what do they attribute it to?
• How would your process of thinking be different between younger and older patients with delirium?

• What are the terms that nurses use to describe confusion?