Factors Affecting the Quality of Care for Older Adults in Emergency Departments

An Integrative Research Review

By

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Abstract

Although older adults are the largest growing group of emergency patients, most emergency departments are ill prepared to receive, assess, and treat the complex needs of this group (Leah & Adams, 2010; Nolan, 2009; Roethler, Adelman & Parsons, 2011). This integrative literature review critically explores seniors' emergency department experiences and proposes evidence informed guidelines to improve their care. A systematic approach and a critical social lens are used to identify three interrelated and interacting themes (seniors themselves, staff caring for seniors in the emergency department, and care and process mismatch). These themes and associated factors provide a framework for both evidenced informed clinical practice guidelines and initiatives to improve seniors care. Recommendations for improved care include consistent assessment of patients' mental status; support and empowerment of patients and families; senior – specific training for ED staff; and cultural and process change initiatives that incorporate seniors' care into emergency department systems.

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Factors Affecting the Quality of Care for Older Adults in Emergency Departments

Throughout my career as an emergency nurse, I have been required to complete and maintain certification in a number of courses. None of these courses targeted elder care, nor does elder care in the emergency setting seem to be at the forefront of care planning or delivery. As such, like many emergency nurses, I struggle with delivering quality care to seniors. Although seniors present to the emergency department (ED) in growing numbers, in my experience, minimal attention has been directed at their care. In a discussion regarding the apparent lack of significance given to seniors' care in acute settings, a fellow graduate student proposed that this phenomenon is related to a pervasive assumption that "seniors' care just isn't sexy". It is my belief that a cultural change in emergency care must occur in order to address the needs of seniors. In addition to targeting pediatric, mental health, cardiac and trauma patients, specialized care focusing on seniors must become an integral and accepted component of specialized emergency nursing care.

This project (a systematic inquiry into factors affecting geriatric emergency care) critically explores the relevant literature pertaining to seniors in the emergency department and suggests guidelines to improve older patient emergency care.

Background – Statement of the Problem

Aging In Canada: Its Influence

> "The aging population will change the way we do things. We can allow this change to happen by passively reacting to change. Or we can anticipate it and meet the challenge by design." (Special Senate Committee on Aging, 2009, p.9).

An aging population is significantly impacting all aspects of Canadian life, particularly health. Health care has already begun to feel the impact of a growing group of seniors and it is

expected that the "silver tsunami," a term coined by the Alliance for Aging Research (2006), will continue to influence how care is delivered and whether health care resources can meet growing needs (Denton & Spencer, 1983; Special Senate Committee on Aging, 2009). As people age, their health care needs change and health care use increases (Bayer, 2011; Denton & Spencer, 1983; Gillis & MacDonald, 2005; Graf, 2006; Kihlgren, Nilsson & Sorlie, 2005). Adults over age 65 account for 48% of all in-patient hospital days (Ahmed & Pearce, 2010). Those over age 85 are twice as likely to require hospitalization (Ahmed & Pearce, 2010). Older adults are more likely to have multiple co-morbidities, cognitive impairments, functional impairments, and complex social issues than younger adults (Baumbusch & Shaw, 2011; Gray-Vickery, 2010). Elderly patients who experience functional loss associated with acute disease have an increased length of stay and higher rate of mortality (Sleiman, Rozzini, Barbisoni, Morandi, Ricci, Giordano & Trabucchi, 2009). Despite a significant body of research on adverse events associated with seniors' health care (e.g. identified as a high risk patient safety population, associated with a trajectory of functional decline, known to be at greater risk of delirium due to physical illness or medication use), less attention has focused on nursing care for seniors in the emergency setting (Ackroyd-Stolarz, Guernsey, MacKinnon & Kovacs, 2011; Kelley, Parke, Jokinen, Stones & Renaud, 2011; Terrell, Hustey, Hwang, Gerson, Wenger & Miller, 2009). As seniors are the largest growing group of emergency patients (Nolan, 2009), this is an area for concern.

Emergency Departments and Emergency Care

Emergency departments provide initial treatment to a diverse group of patients with a wide variety of illnesses and injuries (Nolan, 2009). Rapid triage, assessment, treatment, and transfer to either home or another level of care form the operations of the emergency system. As

such, emergency departments are loud, fast paced, and focused on the most life-threatening cases. Arguably noisy, fast paced environments are not conducive to assessing or treating most patients; however, such environments are particularly problematic for the elderly. Despite this awareness, few emergency departments are designed to deliver care specific to older patients (Baumbusch & Shaw, 2010; Nolan, 2009; Robinson & Mercer, 2007).

The Older Adult in the Emergency Department

Consensus on the definition of the older adult does not exist. Some groups separate older adults into young old, middle old, and frail old (Special Senate Committee on Aging, 2009). As no consensus on how to identify "frail" exists (Hastings, Purser, Johnson, Sloane & Whitson, 2008), these divisions are unclear. Further, seniors are a diverse group (Mental Health Commission of Canada, 2011; Special Senate Committee on Aging, 2009) in which chronological age is a poor predictor of how well someone is aging (British Columbia Ministry of Health, 2005). In the Vancouver Island Health Authority (VIHA), seniors' health services are based on age, though clarity remains elusive, as some programmes serve age 70 years and older, while others target patients older than 75 years (VIHA Seniors and Spiritual Health). As many seniors' programs in health care seem to be moving toward serving patients older than age 75 in order to identify and target those most at risk, I used age 75 and older as my focus for this review.

Studies looking at the type and acuity of emergency visits made by seniors note the following:

Older adults utilize emergency services appropriately and frequently (Ackroyd-Stolarz et al., 2011; Nolan, 2009).

Older adults are more likely to arrive by ambulance; be more acutely ill; require more emergency resources; and be admitted to an acute in-patient bed (Ackroyd-Stolarz et al., 2011).

Older patients are more likely to present with comorbidities, baseline functional impairments, and polypharmacy (Nolan, 2009; Veillette, Demers, Dutil & McClusker, 2009).

Older adults are the largest growing emergency patient population (Nolan, 2009; Au, Puts, Fletcher, Sourial & Bergman, 2011; Baumbusch & Shaw, 2011; Nolan, 2009; Peters, 2010).

Physiological changes associated with aging alter patient presentation, making triage, assessment, diagnosis, and treatment more challenging (Baumbusch & Shaw, 2011; Nolan, 2009; Peters, 2010; Robinson & Mercer, 2007). Ackroyd-Stolarz et al. (2011) report prolonged stays in the emergency department are associated with an increase in adverse events for older adults. Further, functional decline through deconditioning is well recognized as an early complication of hospitalization in older patients (Ahmed & Pearce, 2010; Gillis & MacDonald, 2005; Graf, 2006).

Concept of Transition

The Oxford Dictionary (Soanes, 2006) defines transition as "the process or a period of changing from one state or condition to another" (p. 809). I suggest that most seniors entering the emergency department experience a minimum of two transitions – from one physical place (home or residential care to the emergency department) and from one level of health and function to another. Meleis, Sawyer, Im, Messias and Schumacher (2000) argue that "vulnerability is related to transition experiences, interactions, and environmental conditions that expose individuals to potential damage, problematic or extended recovery, or delayed or unhealthy coping" (p. 12). Coleman (2003) notes that transitions for patients with complex acute

and chronic care needs are associated with increased vulnerability. As seniors commonly present to the emergency department with one or more chronic medical conditions, polypharmacy, and impaired function, it is reasonable to expect that such visits represent a significant transition associated with potential for adverse outcomes.

Geriatric emergency and acute care services are emerging as major areas of concern. While older adults are the largest growing group of emergency patients, most departments are ill prepared to receive, assess, and treat the complex needs of this group, leading to a significant gap in care. The challenge for emergency nursing is to understand the unique health needs of seniors in the emergency department and to intervene based on best evidence.

Purpose and Objectives of the Project

The purpose of this project is to critically explore the relevant literature pertaining to seniors in the emergency department and to develop guidelines for older patient emergency care. My goal is to develop a better understanding of the needs of seniors in the emergency setting through an integrative review that examines the contextual factors that influence ED care delivery for seniors. In order to accomplish this, I have drawn upon a critical social perspective as described by Yacopetti (2000). Yacopetti posits that a critical social theory's goal "include[s] emancipating marginalized groups by exposing and rectifying power imbalances" (p. 54). I contend that seniors form a vulnerable group of patients in the emergency setting. Ageism, finite resources, and the current focus and physical structure of emergency departments all combine to disadvantage seniors. By articulating the how and why of seniors' emergency care, I intend to identify improvements to their care; and thus reduce or in some cases eliminate the disadvantages this group experiences.

Objectives

The objectives for this project are:

1. Explore, critically appraise, and synthesize existing literature on emergency seniors' care.
2. Identify factors that influence emergency care for seniors in the Emergency Department.
3. Develop evidence informed guidelines for seniors' emergency care.
4. Identify gaps in existing literature and propose areas for future research to support seniors' emergency care.

Some authors suggest that elderly patients in the emergency department represent a disadvantaged group (Ackroyd-Stolarz et al., 2011; Baumbusch & Shaw, 2011; Hodgins, Moore & Legere, 2011; Kelley et al., 2011; Kihlgren et al., 2005; Nolan, 2009; Robinson & Mercer, 2007; Roethler et al., 2011; Shah, Heppard, Medina-Walpole, Clark & McCann, 2005). Increasing nursing knowledge related to seniors' emergency care can help improve care for seniors; thus, decreasing the disparity between emergency care for seniors and emergency care for other patient populations.

Significance of the Project

Despite frequent and appropriate use of emergency departments by older adults, evidence indicates that emergency departments do not meet the health needs of seniors (Leah & Adams, 2010; Nolan, 2009; Roethler et al., 2011). The traditional model of emergency care (rapid triage, treatment, and discharge or referral) is not well suited to address their complex needs. As health administrators, nurses, and emergency physicians attempt to ameliorate the problem through the introduction of limited specialized geriatric services, seniors remain vulnerable and at the mercy of the fast paced, disease and injury focused emergency setting. Further, resource constraints limit the addition of geriatric specialists in all emergencies (Roethler et al., 2011). Thus, the

issue of how to provide evidenced informed emergency care to seniors remains a growing challenge.

Emergency stretchers are higher and firmer than beds. Toileting, hydration, nutrition, and skin care are important issues associated with older adult care; yet, they are not a priority in the emergency setting. Additionally, seniors may present with cognitive impairments impacting communication; functional impairments affecting mobility; and altered symptomatology associated with physiological aging affecting assessment (Au et al., 2011; Baumbusch & Shaw, 2011; Nolan, 2009; Peters, 2010; Terrell et al., 2009). Superimposed on these challenges for seniors, is the influence of emergency department overcrowding, leading to prolonged emergency stays and increased adverse outcomes (Ackroyd-Stolarz et al., 2011). For example, after an emergency department visit, seniors may experience up to a 45% increase in functional decline and a 10% increase in mortality rate (Roethler et al., 2011). As population aging accelerates in future years, it is imperative that issues in providing emergency services to older adults be explored and recommendations for improved outcomes be identified.

Research Questions

I developed the following research questions to support my inquiry into factors affecting geriatric emergency care: What is known about the healthcare needs of seniors in the emergency department? What factors affect the type and quality of emergency care for seniors? What is known about the perceptions and knowledge of emergency nurses who care for seniors? These questions were the result of reflections on my past experiences with seniors, my time as an emergency nurse, and my desire to improve seniors' care.

Methodological Approach

Definition and Rationale

I chose an integrative literature review to answer my research questions and to develop evidence informed guidelines. Integrative reviews have the potential to present varied perspectives on a phenomenon without using traditionally accepted hierarchies of evidence (Whittemore, 2005; Whittemore & Knafl, 2005). A well-executed integrative review will comprehensively present the state of science; contribute more fully to nursing knowledge; and may directly influence practice and policy development (Whittemore & Knafl, 2005).

Although an integrative review can be challenging and time consuming (Beyea & Nicoll, 1998; Cronin, Ryan & Coughlin, 2008; Ganong, 1987), it has the potential to present the literature on seniors in the emergency department in a more holistic and meaningful fashion than other forms of literature reviews (Beyea & Nicoll, 1998; Whittemore & Knafl, 2005). Like a systematic review, an integrative review is held to the same standards as primary research (Beyea & Nicoll; Cooper, 1998; Ganong; Whittemore & Knafl). If done correctly, the reader is able to both replicate the results and follow the logic and inferences of the reviewer (Whittemore).

Method

This integrative review drew on Cooper's (1998) literature review framework with modifications as outlined by Whittemore and Knafl (2005). Cooper outlines five steps to an integrative review: *1) problem formulation; 2) data collection; 3) data evaluation; 4) analysis and interpretation; and, 5) presentation of results*. Each stage serves a similar function to that of primary research; thus, within each stage, my choice of methodology can produce threats to validity of conclusions (Cooper). In a later piece of work on integrative research review,

Whittemore and Knafl suggest that the complexity of combining diverse methodologies can lead to a lack of rigour, inaccuracy, and bias; therefore, they recommend that Cooper's *analysis and interpretation* stage be further divided into *1) data reduction; 2) data display; 3) data comparison; and, 4) conclusion drawing and verification.*

The first stage, *problem formulation*, is critical to the remainder of the review, thus, initial attention to detail and clarity will significantly improve the overall review (Whittemore & Knafl, 2005). During this stage the reviewer outlines the problem, describes the purpose, and articulates a clear, objective, and manageable research question (Cooper, 1998; Whittemore & Knafl). This question becomes the catalyst for the remainder of the review. To achieve this I developed three clearly worded research questions and outlined key search terms to reflect the topic of emergency seniors care (seniors or elderly or older adult, emergency, emergency nursing, acute care or hospitalization, transitions, characteristics or factors, knowledge, attitude(s) or perception(s), and ageism). After determining the problem, the purpose, and the research question, the variables associated with the topic are defined. Cooper (1998) cautions that narrowly scripted definitions may filter important evidence. He recommends that reviewers use broad definitions in order to achieve "more definitive and robust conclusions" (p.294). Prior to my search, I identified the following variables:

1. Seniors, elders, older adults: As many of the articles I found in my preliminary search did not apply a specific age or frailty level, I chose to omit a descriptive. However, in order to manage the literature I identified age 75 years and older as my target group.

2. Emergency Departments: Specialized hospital units which focus on the emergency treatment of illness and injury.

3. Acute health care or acute hospital care: Much of my preliminary research indicated that seniors are at risk of decline in the initial phases of acute health care. As many emergency departments care for seniors in their initial stages of acute hospitalization, I chose to include this variable in my search.

4. Emergency nurse: This variable refers to professional nurses who care for patients in emergency departments.

5. Ageism: Discrimination on the basis of age (Special Senate Committee on Aging, 2009).

6. Transitions: The patient's transition from home or residential care to the emergency department and from one level of health or function to another.

Cooper (1998) notes that as the review progresses, other variables and or definitions may emerge. As my search unfolded, I discovered that my variables were too broad and, in order to focus on emergency geriatric care, I needed to narrow my focus to the Emergency Department setting; thus, exclude articles focusing on acute care. Additionally, I needed to be flexible with my age definition as authors used a variety of age groups (greater than 65 years, greater than 75 years, and greater than 80 years). As such, my literature data set was vetted from sixty-four articles to twenty-three, a considerably more manageable data set. Each selected article was summarized using coding sheets as recommended by Cooper (see appendix A).

In the second stage, *literature search,* the reviewer should outline and use at least two to three well-defined literature search strategies (Whittemore & Knafl, 2005). I used computer based searches, ancestry searches, and networking searches (using my contacts in VIHA Seniors

and Spiritual Health and my committee member, Dr. D. Sheets). My search used the following search engines: CINHAL, Medline, PsycINFO, Google Scholar, the Joanna Briggs Institute, and Cochrane Database of Systematic Reviews, and targeted key words and phrases (*elderly, seniors, or older adult and emergency and emergency nursing and acute care or hospitalization*). Further, I added the key words *ageism and health care or nursing* in order to elicit work done on the effects of ageism on nursing perceptions that may impact seniors' care in the emergency. My search included peer reviewed English articles from 2001-2011, with a focus on the past 5 years. Ancestry searches involved reading through the reference lists associated with pertinent articles and selecting references that fit my research questions. Networking involved informal article recommendations from experts in the field. As indicated previously, I discovered that my initial search was too broad; thus, I narrowed my article selection to articles that specifically addressed seniors' care in the emergency setting. My initial list consisted of sixty-four articles (seventeen expert opinion, fifteen qualitative research, twenty-eight quantitative research, and three mixed design). In order to focus my review on emergency geriatric care, I selected twenty-three articles (eight expert opinion, five qualitative research design, seven quantitative research design, and three mixed research design) from the initial set of sixty-four articles. In my final list, I identified nineteen (83%) articles by computer search, one article through networking (4%), and 3 articles by archiving (13%).

The third stage, *data evaluation,* involved critical appraisal of my primary sources. Whittemore and Knafl (2005) caution the diversity of primary sources in an integrative review complicates this stage and if not done well, will lead to invalid conclusions. It is important to note that there is no gold standard for evaluating and interpreting quality in research (Whittemore

& Knafl); thus, it is important that I am transparent with my decisions about quality. As such, each selected article was evaluated using specific criteria.

As my research review involved diverse methodologies (quantitative research, qualitative research, mixed design research, and expert opinion), I evaluated the literature using the following frameworks.

1. I evaluated primary quantitative sources using the critiquing criteria outlined by Whittemore, Grey, Kirton and Singh (2009, p.363) (see Appendix B).

2. I appraised primary qualitative sources using the critiquing criteria outlined by Cameron (2009, p.332) (see Appendix C).

3. I appraised expert opinion through a subjective assessment of author and article's credibility, authenticity and reliability. Price (2009) recommends assessing experiential literature using one of two approaches.

    a. Compare the published accounts with local experience to identify differences or similarities.

    b. Compare the published accounts against best practice guidelines.

I assessed the experts' opinions using both approaches.

In the fourth stage, *analysis and interpretation,* Whittemore and Knafl (2005) recommend using a constant comparison method through the processes of *data reduction, data display*, *data comparison*, and *conclusion drawing and verification.* They argue that the use of these processes enhance review rigour, hence improve conclusion validity. With each article, I identified themes through extraction and coding (*data reduction*), began to visualize patterns and

relationships (*data display*), used an iterative process to note patterns and relationships (*data comparison*), and developed a more comprehensive understanding though verification and synthesis of concepts (*conclusion drawing and verification*).

This paper is the result of the final and fifth stage, *presentation of results.*

Findings

Study Dimensions

Study design. I selected a total of twenty-three articles for analysis: seven used a quantitative research design; five used a qualitative research design; three used a mixed research design; and eight articles were expert opinions (Table 1).

Table 1

Articles Included in This Review by Type

Quantitative Research Design	Ackroyd-Stolarz, et al. (2011)
	Desy & Prohaska (2008)
	Hare, Wynaden, McGowan & Speed (2008)
	Hustey, Meldon, Smith & Lex (2003)
	Press, Margulin, Grinshpun, Kagan, Snir, Berzak & Clarfield (2009)
	Roethler, Adelman & Parsons (2011)
	Rutschmann, Chevalley, Zumwald, Luthy, Vermeulen& Sarasin (2005)
Qualitative Research Design	Bridges (2008)
	Considine, Smith, Hill, Weiland, Gannon, Behn, Wellington &

	McCarthy (2010)
	Dunnion & Kelly (2005)
	Kelley, Lou, Parke, Jokinen, Stones & Renaud (2011)
	Kihlgren, Nilsson & Sørlie (2005)
Mixed Research Design	Bentley & Meyer (2004)
	Richardson, Casey & Hider (2007)
	Robinson & Mercer, 2007
Expert Opinions	Carpenter, Heard, Wilber, Ginde, Stiffler, Gerson, Wenger & Miller (2011)
	Coleman (2003)
	Hwang & Morrison (2007)
	Nolan (2009)
	Peters (2010)
	Shanley, Sutherland, Stott, Tumeth & Whitmore (2008)
	Terrell, Hustey, Hwang, Gerson, Wenger & Miller (2009)
	Voyer & Sync-Norrena (2003)

The quantitative studies used various methods. Ackroyd-Stolarz, et al. (2011) collected data through electronic information systems to determine whether a prolonged emergency department length of stay is associated with an increased risk for an adverse event for older patients admitted to hospital. Desy & Prohaska (2008) evaluated the effect of an emergency nursing geriatric course using a repeated measures design with testing prior, immediately after,

and three months after nurses took a nationally developed geriatric emergency course. Hustey et al. (2003) assessed cognitive screening on elderly emergency patients using a prospective cross-sectional design. Press et al. (2009) collected data from patient records; Roethler et al. (2011) collected quantitative data from a survey; whilst Rutschmann et al. (2005) observed and measured consecutive patients older than sixty-five for triage level, mode of admission, and discharge data. None of the quantitative designs used randomized control studies, an accepted gold standard in research design. All quantitative studies were assessed using critiquing criteria outlined by Whittemore, Grey, Kirton and Singh (2009) (Appendix B) and are summarized in Appendix D.

Although most of the qualitative studies used interviews to collect data, they differed in how those interviews were conducted. Kihlgren et al. (2005) collected data through interviews with focus groups. Bridges & Nugus (2008), Considine et al. (2010), and Kelley et al. (2011) used one to one interviews to collect data. Many supplemented interview data with descriptive statistics and observation. In order to collect data over a large geographical area, Dunnion & Kelly (2005) used a survey to explore ED and community based perceptions of the quality of communication related to senior's transfers in and out of the ED. As with the quantitative data, I used critiquing criteria to evaluate these qualitative studies using criteria proposed by Cameron (2009) (Appendix C). The qualitative methods used by these studies are summarized in Appendix D.

Three studies used a mixed method design. Bentley and Meyer (2004) collected quantitative data from health records and qualitative data from interviews. Robinson & Mercer (2007) used a survey design incorporating quantitative and qualitative responses; whilst, Richardson et al. (2007) outlined patient demographics and measured process data using

quantitative methods. They supplemented their quantitative data with qualitative data from face to face and telephone interviews. As the mixed methods studies combine both quantitative and qualitative methods, I evaluated their results using both Whittemore et al. (2009)'s and Cameron (2009)'s criteria.

Experts included geriatric and emergency physician members with the Society for Academic Emergency Medicine (SAEM) Geriatric Task Force (Carpenter et al., 2011; Terrell et al., 2009); physicians specializing in seniors care in the ED (Hwang & Morrison, 2007); university nursing professors specializing in geriatric care (Voyer & Sync-Norrena, 2003); geriatric specialty nurses (Nolan, 2009: Peters, 2010); nurse researchers (Shanley et al., 2008); and a physician specializing in complex care transitions (Coleman, 2003). All experts were assessed for ideas concurrent with my own geriatric emergency experience and for known best practice in geriatric care. Expert opinions are summarized in Appendix F.

Thus the quantitative, qualitative, mixed, and expert informed data that I used to support this review are diverse in design. With this range of material I believe I am able to present a holistic approach to geriatric emergency care; to propose topics for future study; and to outline care practices to better meet the needs of this patient population.

Study objectives. Each research article clearly stated its aim. Most studies sought to describe or measure the hazards of the emergency setting for seniors; the attitudes of nurses or physicians caring for seniors in the emergency department; or the level of geriatric knowledge that most emergency nurses or physicians possess. Overall, the experts described the health needs of the older adult in the emergency setting; the risks to older adults in the emergency setting; the mismatch between the needs of older adults and current emergency practice; and, the need for better geriatric education for health care professionals. Experts warned of gaps in care

and geriatric knowledge; the need for cultural and process changes; and made recommendations for improving geriatric emergency care. Appendix E outlines article objectives.

Study aims targeted the micro level (patient and nurse/physician factors affecting geriatric care) and the meso level (care services provided in emergency settings). Expert opinion targeted micro, meso, and macro (policy direction and culture) levels of care focusing on overall system gaps in care or mismatch between seniors' emergency care needs and provision of emergency care. I was unable to locate either a researcher or an expert to explore or discuss the existence or effect of ageism in the emergency setting; however, it is unlikely that ageism in the ED is different from ageism in other health care settings.

Country of origin. The selected studies and expert opinions reflect literature from developed countries. As I did not exclude lesser developed countries in my search, this finding may indicate that the issue of seniors' care in emergency settings is primarily one of developed societies. The breakdown of articles by country of origin is as follows: five Canada; eight United States; one Switzerland; three United Kingdom; one Sweden; three Australia; and one New Zealand. Appendix G outlines country of origin for each article. Although the number of studies in this review is limited, it is interesting to note that the US research articles primarily target the influence of education, knowledge, and attitudes on seniors' emergency care (Desy & Prohaska; Hustey et al; Roethler et al); whereas, in Canada, the research articles focused on understanding the current state of seniors in the emergency setting (Ackroyd-Stolarz et al.; Kelley et al; Robinson & Mercer). Given that different health care systems may have different research agendas and may be at different stages in understanding this issue, differences amongst countries are not surprising.

Sample size and selection. Many factors affect choice of sample size. In general, researchers should choose the largest sample possible; however, the choice of sample size is significantly affected by study design, relative frequency of the research phenomenon, and projected cost (Haber & Singh, 2009).

Sample size for the quantitative studies in this review ranged from 28 to 982. Hare et al. (2008) was the smallest sample and self-identified as an audit, rather than research. Further, Roethler et al. (2011)'s sample size (n=32) is relatively small and needs to be considered when evaluating results. Ackroyd-Stolarz et al. (2011) had the largest sample size (n = 982) in this review. With the exception of Hare et al. and Roethler et al., the quantitative studies had relatively large samples (102-982).

As qualitative research is primarily used to describe experiences rather than to test relationships among variables, smaller sample size is appropriate (LoBiondo-Wood, Haber, Cameron & Singh, 2009). Haber and Singh (2009) argue that "[in qualitative studies] sample size is determined by the purpose and type of the sampling and research method to be used" (p.271). Further, they note that "the fittingness of the data is more important than the representativeness of the subject" (p.271). Thus, qualitative studies usually present with much smaller samples than quantitative ones. For example, Kihlgren et al. (2005) explored ED nurses' perceptions and attitudes on geriatric care through in-depth focus group interviews (n=10); whereas, Ackroyd-Stolarz et al. (2011) used electronic information systems to measure and test relationships between ED length of stay, presence of adverse events, and in-hospital length of stay (n=982). Sample size for each research study included in this review is outlined in Appendix D.

In addition to considering sample size, sample selection is significant when assessing research (Haber & Singh, 2009). Convenience sampling was the most common form of sample selection occurring in nine of the fourteen studies (64%) in this review. As convenience sampling can lend itself to bias thus may not be representative of the population under study, researchers should compare a convenience sample with the known population demographics (Haber & Singh). Most of the studies in this review using convenience sampling explicitly assessed whether the sample was reflective of the population. More robust sampling techniques were used in the selection of health records. For example, Press et al. (2009) used simple random sampling of health records to determine the rate of mental status assessment in older ED patients; whereas, Robinson and Mercer (2007) chose every seventh chart (stratified random sampling) for a sample of records from which to obtain a profile of seniors in the ED. Purposive sampling was used in the studies done by Roethler et al (2011) and Richardson et al. (2007) to target specific sample characteristics.

With the exception of those studies using health record data, all of the studies examining seniors in the emergency setting excluded seniors who refused to partake, or were considered too ill or incapable of participating. Although excluding this group is understandable, when interpreting results it is important to note that the most vulnerable group of seniors is excluded from the majority of data.

Method of data analysis. Studies chosen for this review differed in methodology; thus, they differed in data analysis.

Data from quantitative studies was analyzed statistically using several well accepted methods. For example, Ackroyd-Stolarz et al. (2011) used Chi squared tests to assess differences between groups with categorical data, unpaired t tests for normally distributed

continuous data, and the Mann-Whitney U test for data not normally distributed. In the Bentley and Meyer (2004) study, researchers entered key aspects of health record data into a database for analysis. Desy and Prohaska (2008) also used data base software. Hare et al. (2008), Hustey et al. (2003), and Press et al. (2009) did not explicitly state their analysis tools; however, from their results it would appear that they, as in the other studies, utilized some form of statistical software. Richardson et al. (2007) analyzed data through descriptive statistical analysis. Robinson and Mercer (2007) assessed their survey tool using factor analysis and alpha coefficients; and evaluated their health record data through descriptive statistical analysis.

In general, the qualitative studies in this review used some form of thematic analysis. Only one qualitative study stated which software system they used (Bridges & Nugus, 2008). All used an inductive form of analysis which is consistent with qualitative design (Liehr, LoBiondo-Wood & Cameron, 2009).

Expert opinion. As I believe that evidence is informed by quantitative data, qualitative data, and opinions and experience of experts, I decided to include articles written by gerontological experts focusing on opinions relating to the ED. I chose the eight articles based on the following criteria:

1. The authors are recognized experts in their field.
2. The subject matter is pertinent to seniors' care in the ED.

The articles by Carpenter et al. (2011) and Terrell et al. (2009) reflect medical opinion on future directions for research to support quality indicators for senior's emergency care. They are written by physicians active in the Society for Academic Emergency Medicine (SAEM) Geriatric Task Force. Coleman (2003) is a physician recognized as an expert in transitional care, particularly care for seniors with complex needs and is the leader for the *Care Transitional*

Program in the US. Hwang and Morrison (2007) are both physicians who have written extensively about the geriatric patient in the emergency setting. Nolan (2009) is a Geriatric Nurse Practitioner working in the US; Peters (2010) is a Quick Response Program nurse and a graduate student focusing on ED seniors care; Shanley et al. (2008) are a group of nurse researchers in Australia concerned with seniors in the ED, and Voyer and Sync-Norrena are nursing professors at Laval University in Quebec.

Four expert opinion articles reflect a medical lens; while four expert opinion articles reflect a nursing lens. All articles directly relate to care for seniors in the ED.

Study limitations. I identified several study limitations, many of which had already been recognized by the researchers themselves. Ackroyd-Stolarz et al. (2009) noted that the screening criteria used in their study had not been validated outside the US. As the population studied was a group of seniors in Atlantic Canada, this may be cause for concern. Further, the results in this study are likely an underestimation as Ackroyd-Stolarz et al. limited their sample to previously well, community-dwelling adults, age 65 years and over. With increasing age, patients are more likely to present with co-morbidities, polypharmacy, and cognitive and functional impairments; thus, the likelihood of an adverse event associated with a prolonged stay in the ED should increase as age increases. Defining senior as age 65 years and older includes younger and likely more healthy adults who are less likely to experience adverse effects of the ED. Further, this study relies on documentation data; thus, events not coded will not appear. Other studies using documentation data include Bentley and Meyer (2004), Hare et al. (2003), Press et al. (2009), and Robinson and Mercer (2007). Despite the advantages of easy access to health records and decreased need for patient consent, health record data is only as good as what is recorded and may omit several key pieces of information. As stated earlier, 64% of the studies relied on

convenience sampling to select participants (Bentley & Meyer, 2004; Bridges &Nugus, 2008; Considine et al., 2010; Desy & Prohaska, 2008; hare et al., 2008; Hustey et al., 2003; Kelley et al., 2011; Kihlgren et al., 2005; Rutschmann et al., 2005). Use of convenience sampling may introduce selection bias (Haber & Singh, 2009). Additionally, many of the studies excluded those seniors unable or unwilling to give consent, those considered too ill to participate, those considered to be too cognitively impaired to participate, or those who are unable to speak English (Bridges &Nugus; Considine et al.; Hare et al.; Hustey et al.; Richardson et al.). These exclusion factors bias the evidence to reflect seniors who are relatively well; thus, do not reflect the needs of critically ill or significantly impaired seniors. Lastly, survey methods such as those used in the studies by Kelley et al. (2011), Robinson and Mercer (2007), and Roethler et al. (2011), although convenient and inexpensive, tend to be superficial and require considerable expertise in sampling, questionnaire construction, interviewing, and data analysis to produce reliable results (LoBiondo-Wood, Haber & Singh, 2009).

In summary, all fifteen studies present with strengths and limitations. As no single piece of research is perfect (Long, 2002), it is important to recognize the flaws and strengths of each piece of evidence. Identification of consistent themes and support of expert opinion may enhance conclusions; building confidence in overall findings.

Summary of the Quantitative and Mixed Methods Study Findings and Recommendations

Quantitative and mixed methods studies in this review evaluated outcomes for seniors after an emergency visit; geriatric knowledge levels of ED staff; adequacy of mental status assessment for seniors in the ED; and whether the current ED culture attends to the unique needs of seniors.

FACTORS IN GERIATRIC EMERGENCY CARE

Ackroyd-Stolarz et al. (2011) was the only quantitative study to assess outcomes of an ED visit for seniors. Using electronic information systems, Ackroyd-Stolarz et al. measured ED length of stay, presence of adverse events, and overall inpatient length of stay in nine hundred eighty-two previously well, community dwelling patients age sixty-five years and older. Seventy-five percent of the patients in this study had a prolonged ED length of stay by national standards. Unfortunately, length of stay for younger adults was not measured, so it is unclear whether a prolonged length of stay is specific to seniors or to all ED patients at this site. Regardless, Ackroyd-Stolarz et al.'s findings suggest a positive relationship between prolonged ED length of stay and the occurrence of adverse events for seniors. According to these findings, for every hour spent in the ED, a senior can expect their odds of experiencing an adverse event to increase by 3 % for any single adverse event, 4 % for medication-related adverse events, and 5% for multiple adverse events. Further, Ackroyd-Stolarz et al.'s results indicate that the presence of adverse events in patients older than sixty-five years is associated with a two-fold increase in inpatient length of stay. They suggest that the emergency environment poses risks to older adults and note that prolonged immobility on hard stretchers, potential exposure to infectious agents, noisy disorienting environments, care by multiple providers, and delays in diagnosis and treatment are all contributing factors.

While Ackroyd-Stolarz et al. (2011) focused on outcomes to seniors after an ED visit, the remainder of the quantitative and mixed methods studies focused on factors influencing the course of a senior's visit to the ED. Geriatric education and knowledge amongst nursing staff caring for seniors in the ED is a consistent and significant theme. Desy and Prohaska (2008) measured geriatric nursing knowledge prior to, immediately post, and three months after completion of a nationally developed emergency geriatric course. They report that knowledge

significantly increased post completion of the course; and this increase in geriatric knowledge contributed to changes in practice. When reporting their results, they note that some geriatric assessment tools were not consistently used post course and suggest that increased workloads, staffing shortages, and overcrowding may contribute to use of geriatric assessment tools. Effect of workloads, staff shortages, and overcrowding were not measured and remain an issue for further inquiry. Desy and Prohaska argue that their results indicate that "the GENE [Geriatric Emergency Nursing Education increased] geriatric knowledge, attitude (self-ability), and assessment skills (use of geriatric assessment tools) among participating ED nurses" (p.402). They recommend future research to determine if improvement in ED geriatric knowledge and confidence results in better outcomes for seniors. Roethler et al. (2011) and Robinson and Mercer (2007) also focused on ED nursing knowledge. Roethler et al. administered a survey tool with two components. The first component measured the nurses' geriatric knowledge; whereas, the second component measured the nurses' perception of their geriatric knowledge level. Although a single site with a relatively small sample size (n=32), Roethler et al.'s results suggest that although ED nurses rate themselves as knowledgeable in seniors' emergency care, they do not possess the knowledge to support care. In other words, despite objective measures indicating poor geriatric knowledge, ED nurses perceive their geriatric knowledge as sufficient to care for seniors. Robinson and Mercer also used a survey to assess geriatric knowledge and self-assessment in ED nurses. As with Roethler et al.'s results, Robinson and Mercer's findings indicate that although ED nurses rate themselves as fairly knowledgeable, they are uncertain of answers to geriatric care questions. Additionally, when asked what percentage of ED patients were over seventy-five years old, the ED nurses responded that seniors comprised more than 50% of their patient load when in fact patients over 75 years comprised only 14%. This result

suggests that ED nurses may feel overwhelmed with seniors' care. It is unclear if this finding is related to lack of geriatric knowledge, ageist attitudes towards seniors' care, or limited resources to care for seniors. Future research is warranted in order to more fully understand this phenomenon.

In addition to assessing nursing knowledge and perception through a survey, Robinson and Mercer reviewed health records to obtain a profile of the older adult in the ED. In their study, older adults most frequently presented with a fall. Older adults had a longer ED length of stay (5 hours 9 minutes) than younger adults (mean for all ED patients 4 hours). The finding of a prolonged length of stay is consistent with other reviews (Aminzadeh & Dalziel, 2002; Grief, 2003; Moons, Arnauts & Delooz, 2002; Salvi et al., 2007; Samaras, Chevalley, Samaras & Gold, 2010). Additionally, Robinson and Mercer note that approximately half of the seniors in their study were admitted to hospital. This admission rate is two to three times as many as in patients younger than sixty-five years (Moons, Arnauts & Delooz, 2003).

When asked about obstacles to seniors' care in the ED, nurses responded that the most common obstacle to geriatric care is a lack of geriatric knowledge. This is followed by economic pressures, staff shortages, communication difficulties, confusion about decision-makers, lack of transportation home, and limited inpatient beds (Robinson & Mercer).

Another significant theme in this group of studies is the presence and the appropriateness of cognitive assessment. Hustey et al. (2003) assessed patients age 75 and older for the presence of cognitive impairment (CI) and delirium. Additionally, they interviewed emergency physicians to determine if they had successfully identified CI in patients. During a second interview, Hustey et al. revealed which patients had a cognitive impairment and asked the emergency physicians if the diagnosis of CI would have changed their treatment plan. Findings

suggest that CI is prevalent in older adults presenting to the ED (28%); however, it is poorly detected (detected in 38% of those assessed with a CI), and when informed of a CI, physicians do not alter their plan of care (0%). Although this might suggest that by ignoring the influence of CI on seniors' care, ED physicians are not influenced by ageist practices, thus treat all ED patients equally; I would argue that by ignoring such a significant factor in seniors' care, ED physicians demonstrate a lack of understanding and attention to seniors' needs. Hustey et al. warn of the potential for serious negative clinical outcomes when cognition is neither assessed nor incorporated into plans of care for seniors. They recommend further study into the effect of mental status impairment on morbidity and mortality in older ED patients.

Press et al. (2009) also found limited attention to cognitive assessment in older ED adults. They used a retrospective chart audit to identify the rate of mental status assessment and the prevalence of delirium in ED patients over age sixty five years. In three hundred and ninety-one seniors' ED records, researchers were unable to find any chart identifying the presence of delirium. As delirium is present in nearly 10% of all older adults in the ED (Salvi, Morichi, Grilli, Giorgi, DeTommaso & Dessi-Fulgheri, 2007; Samaras et al., 2010), the lack of notation on delirium indicates that some patients with delirium were either misdiagnosed, not assessed, or not recorded. Further, they found that 87.5% of documented cognitive assessments were inadequate, 10.9 % of documented cognitive assessments were partially adequate, and only 1.6% of documented cognitive assessments were adequate, revealing a lack of attention to cognitive assessment in the elderly ED patient. Press et al. used the DSM IV diagnostic criteria for delirium as a framework for assessing cognition and defined "adequate cognitive assessment" as documentation of at least four aspects of the following: attention, orientation, memory deficit, language disturbances, perceptual imbalances, and speed of onset. "Partial assessment" they

defined as notation of two to three aspects and "inadequate assessment" as one or less. As a result of their findings, Press et al. recommend enhanced education for ED staff as well as the inclusion of a geriatrician in the ED. Hare et al. (2008) also evaluated CI in older adults presenting to an ED. Using an audit design, they assessed twenty-eight elderly patients in the ED to determine the presence of cognitive impairment and delirium. After administering the Cognitive Assessment Method (CAM) and routine cognitive screening assessment, they found that 39.3% of seniors demonstrated a CI other than delirium and 10.7% tested positive for delirium. Although Hare et al.'s study size is small; their findings are consistent with results from other studies (Salvi et al., 2007; Samaras et al., 2010). As these results confirm that CI may be common amongst elderly ED patients, especially over age 75, it is noteworthy that routine cognitive testing is not done in most emergencies nor is it considered significant when planning care.

The last theme amongst the quantitative and mixed methods studies relates to lack of attention to ED seniors' needs in assessing and planning care. Rutschmann et al. (2005) collected triage, mode of admission, and discharge data on all consecutive patients older than 65 years presenting to an ED in a ten week period. Patients were divided into two groups: those with an acute medical condition and those thought to be "home care impossible" without an acute medical condition. Rutschmann et al. identified patients as "home care impossible" as patients experiencing one of the following: an admission note from a GP indicating that care for the patient is no longer possible at home and the triage nurse could not identify any specific complaints to explain the situation or, the initial evaluation by the triage nurse revealed a lack of social or familial support as the primary reason for admission to the ED. The "home care impossible" group was further assessed using the Minimal Data Set Home Care (MDS-HC)

instrument to assess for psychosocial geriatric conditions. Rutschmann et al. found that half the patients initially thought to be 'home care impossible" had an acute medical condition requiring intervention. This misdiagnosis led to under triage of the patient and delayed care. Additionally, findings suggest that this patient population has a high level of biopsychosocial comorbidities (as determined by the MDS-HC) that may contribute to misdiagnosis. Bentley and Meyer (2004) is the final study in this group. They retrospectively examined health records to explore re-attendance, assessment, and discharge issues for people over age 75 years in an ED. Data was validated through qualitative interviews with key informants and five illustrative cases were presented. Findings suggest that staff often fail to question the impact of the clinical illness or injury on the elderly patient's ability to function at home. As a result, older adults discharged home may be more likely to return to the ED. Bentley and Meyer note that significant problems can result for older ED patients who do not receive a comprehensive assessment prior to discharge from the ED. By focusing solely on the initial illness or injury, ED staff do not incorporate social and functional issues into planning care and the senior leaving the ED may experience a negative outcome. Hastings and Heflin (2005) argue that "favorable outcomes depend not only on the care received in the ED, but also on the successful transition of care from the ED to the patient's home" (p. 978). As such, Bentley and Meyer's findings are significant when assessing why seniors may re-attend.

In summary, quantitative and mixed methods studies in this review focused on negative outcomes (adverse events and prolonged length of stay), lack of ED staff geriatric knowledge, poor recognition and incorporation of cognitive impairment in seniors' ED care, and inadequate assessment of seniors' care needs.

Summary of the Qualitative Study Findings and Recommendations

FACTORS IN GERIATRIC EMERGENCY CARE

The qualitative studies in this review explore the experiences and perceptions of seniors and ED staff.

Bridges and Nugus (2008) report on a national study aimed at describing older peoples' experiences in the ED. The study's team of investigators interviewed 69 patients and 27 relatives. As with many of the studies in this review, Bridges and Nugus used convenience sampling to choose their participants and excluded any patients who had previously been in the care of the interviewer, or who were deemed to be unable to cope with an interview due to an impairment or illness. Six themes emerged as representative of the seniors' experiences through thematic analysis. First, older people tend to delay seeking help and often need assistance or permission when deciding to access the ED. Second, many seniors felt that they did not matter; they expressed a sense of insignificance; and, reported a power imbalance between themselves and ED staff. Further, seniors recounted that entering the ED provoked fear and anxiety. Despite these negative themes, seniors note that they value emergency experiences which incorporate personal touch and help with activities of daily living (ADLs). Lastly, continuity of care and presence of friends or relatives are important factors in promoting a sense of security for seniors in the ED. In conclusion, Bridges and Nugus recommend incorporating their findings into initiatives to promote dignity in seniors' emergency care and suggest "that development interventions need to target, not just individual practitioners, but the wider organizational culture as well" (p.52).

As with Bridges and Nugus (2008)'s study, Considine et al. (2010) focused on the older persons' experience of ED care. Using convenience sampling, thirty seniors (ten in three ED sites) were chosen and any participant who could not give consent was excluded. In order to overcome sample bias, Considine et al. set apriori criteria and targeted participants. Four main

themes were identified through observation, semi-structured interviews, and thematic analysis. First, Considine et al. note that there is variation in an older person's ED use. Thus, not all seniors use the ED for the same reason. For example, some seniors visited the ED on a regular basis due to multiple comorbidities, some visited occasionally, and some seniors in Considine et al.'s study were in the ED for the first time. Second, as with Bridges and Nugus's findings, older people are reluctant to seek care and often seek validation and permission. Personal experience of waiting is significant; however, older people in this study report mixed experiences with waiting in the ED. Some felt their care was expedited; whereas others expressed concern over long, uncomfortable, and unexplained waits. Lastly, their perception of factors which influence care varied reflecting the heterogeneity of this population. Considine et al. posit that the "current 'one size fits all' approach to ED triage and waiting systems may not be appropriate as the demographics of ED users change with the ageing population" (p. 68). They note that ED systems may need modification in order to meet the needs of older adults and they recommend further research to determine the most appropriate modifications.

Dunnion and Kelly (2005) and Kihlgren et al. (2005)'s studies focused on the perceptions of ED staff caring for older patients. Dunnion and Kelly used purposeful sampling to survey two hundred and twenty-two medical and nursing staff in the emergency and the community settings to assess communication support for older patients transitioning from the ED to home. Despite a mixed level of survey response (ED staff: 36.7% physicians and 63.3% nurses; whereas in the community: 30% physicians and 70% nurses), their findings suggest that all groups perceive communication between ED and home (patient and family) or community (professional supports) to be lacking. Recommendations focus on "a multidisciplinary approach to developing

referral guidelines, staff training and a comprehensive dissemination of information between sectors ultimately to improve quality and continuity of care for the older person" (p. 776).

Kihlgren et al. (2005) interviewed a nursing focus group (n=10) to explore the experiences of ED nurses and to illuminate their concept of good ED care for seniors. Overall, nurses defined good ED nursing care for seniors as "being knowledgeable", "understanding the older person's situation", and being "responsible" (p. 603). The participants reported that "[p]rioritizing medical care or practical skills" and "prioritizing routines" (p. 603) threaten good seniors' care. Participants felt that the ED is "not the right place for these patients because the ED it is not organized to meet their needs" (p. 606). Further, Kihlgren et al. report that the nurses work between an idealistic state and a realistic state, reflecting a degree of moral angst amongst nurses caring for seniors in the ED. Nurses felt that the older adult in the emergency setting is "very vulnerable" (p. 606) and expressed concern over their perceived inability to give good nursing care. Kihlgren et al. recommend more research to support their findings and note that "the care for older patients [is] not prioritized at the ED" (606). Given the projected increase in older adult patients in the ED, Kihlgren et al. recommend organizational and cultural changes in order to meet the needs of seniors and support ED nurses caring for seniors.

Kelley et al. (2011) used a focused ethnographic approach to identify gaps between current ED practices and known "senior-friendly' care. They interviewed seniors, their proxy decision-makers, staff and community key informants. Kelley et al. supplemented this data with surveys and administrative data. As with other studies, Kelley et al. note that seniors 75 years and older comprise approximately 11% of all ED visits. Most (85%) were emergent or urgent, thus used the ED appropriately. Seniors reported 'being cold, hungry, thirsty, and experiencing noise, lack of privacy and interrupted sleep" (p. 8). Key informants reported that caring for

seniors requires "more time; [and that] seniors present with complex medical conditions" which may not be met in a busy ED. As with other studies exploring seniors' perspectives, seniors in this study expressed acceptance and understanding of their difficult situation, perhaps reflecting a submissive and passive stance. In conclusion, Kelley et al. recommend changes in ED culture to reflect "senior-friendly ED care" (p. 11); however, they note that more research is required to evaluate the impact of senior-friendly ED care on outcomes and to determine the economic effects of such a design.

In summary, these five qualitative studies reflect the experiences and perceptions of seniors and ED staff. Many of the findings expose negative aspects of seniors' care in the ED; thus, may be a catalyst for improvements.

Summary of the Expert Opinions and Recommendations

Four articles representing expert physician opinion and four articles representing expert nurse opinion were chosen for this review.

Carpenter et al. (2011) and Terrell et al. (2009) are physician groups involved in proposing future directions for quality seniors' care in the ED. They propose quality indicators to evaluate seniors' emergency care; however, they note that currently there is insufficient evidence to support the use of indicators to measure care. As such, both Carpenter et al. and Terrell et al. contend that future research to develop quality indicators is important in promoting geriatric emergency care. Despite a lack of agreement and evidence regarding indicators of care, there is consensus amongst physicians as to domains to support seniors' care in the ED (cognitive assessment, pain management, transitional care (Terrell et al.), medication management, screening and prevention, and functional assessment (Carpenter et al.)). Thus,

there is expert agreement on domains of geriatric emergency care; however, there remain significant gaps in the evidence to support measures for those domains.

Hwang and Morrison (2007) are physicians specializing in seniors in the ED. In their article *The Geriatric Emergency Department*, they describe how the current ED structure does not meet the needs of seniors and recommend that "Geriatric Emergency Department Interventions" (GEDI) be incorporated into ED systems. GEDI are a set of interventions designed to enhance geriatric education amongst clinical staff; to promote evidenced-based protocols for geriatric syndromes; and to make appropriate space modifications to the physical ED environment. Hwang and Morrison write "Emergency medicine recognizes the special needs of children and psychiatric patients. Perhaps it is time to also address the specialized needs of older adults within the ED setting" (p. 1876).

The fourth physician expert is Eric Coleman (2003), a physician who specializes in transitions particularly for seniors with complex needs. I included this article as I assert that entrance to and exit from the ED for seniors represents an important transition; thus, significantly contributes to their experience. Coleman argues that complex elderly patients experience heightened vulnerability during transitions and that "hand off" or communication is essential in improving transitions. Coleman's descriptions of poorly executed transitions and potentially remediable barriers are significant particularly as Dunnion and Kelly (2005)'s study suggests that ED communication supports for transitioning elderly are poor. Further, Coleman argues that the older adult is usually ill prepared to advocate for better transitions. Thus, emergency systems and staff need to advocate for and empower older adults as they transition in and out of the emergency setting.

Nolan (2009), a Geriatric Nurse Practitioner (GNP), describes issues associated with the older adult in the ED. She writes that older adult ED patients require more time and resources than younger patients; are more likely to be admitted to an inpatient bed; are more likely to have a primary care physician; to have a CI; to die; to present with polypharmacy; impaired baseline function; and multiple comorbidities. Nolan argues that most emergency departments are ill prepared to deal with this patient population; and as a result, she makes several recommendations to improve seniors' ED care. First, Nolan recommends that as most EDs are not prepared for seniors, other options should be considered. Thus, if a visit to an emergency department could be avoided through enhancing community supports or improving access to outpatient diagnosis or treatment, those options should be explored. Nolan also recommends early detection of issues through screening tools to enhance early interventions. As with Coleman's (2003) article, Nolan recommends improving transitions for seniors through the use of comprehensive geriatric evaluation tools and follow up after discharge. Improved communication, medication reconciliation, and clear instructions are some of Nolan's concrete recommendations. Nolan's final three recommendations are education for staff on the emergency needs of the geriatric patient, development of senior friendly units, and minimal waits for seniors in the ED. Peters (2010), a Quick Response Program nurse and graduate student echoes many of the concerns put forth by Nolan (2009). She recommends that ED staff obtain a full medical history, complete medication list, and a functional assessment. As with other experts and researchers, Peters strongly supports increased geriatric education for ED nurses.

Shanley et al. (2008) are a group of nurse researchers focusing on ED health needs for seniors. They posit that nurses have a pivotal role in contributing to better approaches for seniors in the ED and to raising the profile of quality geriatric ED care. Specifically, they

recommend an enhanced and more comprehensive geriatric approach to assessment and discharge for seniors; improved communication with patients and their caregivers; a focus on basic nursing care; and modifications to the physical ED space to improve patient safety and reduce stress for seniors.

> "The traditional ED model focusing on rapid triage, treatment and throughput does not meet the needs of many older patients, who have complex presentations, and require comprehensive assessment and referral…[E]mergency nurses need to view the care for the older person as a central part of their own core business" (Shanley et al., p. 157).

The final group of nursing experts in my review is Voyer and Sync-Norrena (2003), two nursing professors at Laval University in Quebec. Voyer and Sync-Norrena state that there are two types of mistakes that practitioners make when assessing the elderly. The first mistake is to see a problem when the symptoms simply are a reflection of normal ageing. The second mistake is to see a problem as normal ageing. Voyer and Sync-Norrena argue that ED nurses are more likely to make the second mistake; thus miss a potentially serious problem in an elderly patient. They contend that "future ER nurses must possess Gerontological knowledge" (p. 22) and note that although there is minimal research related to the elderly in the ED, "care for the elderly can be improved by simple, yet important, interventions relating to hydration, thermoregulation, asepsis techniques and mobilization" (p. 23).

Carpenter et al. (2011), Hwang and Morrison (2007), Nolan (2009), Peters (2010), Shanley et al. (2008), Terrell et al. (2009), and Voyer and Sync-Norrena (2003) all outline gaps in seniors' emergency care: mismatch between current ED processes and emergency care needs of seniors (Carpenter et al.; Hwang & Morrison; Terrell et al.; Shanley et al.), inadequate preparation or attention to seniors' needs (Carpenter et al.; Nolan; Terrell et al.; Voyer& Sync-Norrena); lack of gerontological knowledge contributing to under triage and misdiagnosis

(Peters, Voyer& Sync-Norrena; 2010), and poor outcomes (Hwang & Morrison; Nolan; Peters; Shanley et al.; Voyer& Sync-Norrena). As an expert on transitions for seniors in multiple care settings, Coleman (2003) contributes valuable information on transitions for seniors in the emergency setting. All experts expose the challenges and opportunities in seniors' emergency care.

In summary, the experts all agreed that the current ED system does little to meet the emergency needs of seniors; in fact, it often results in negative outcomes. They put forward recommendations involving improved education and geriatric knowledge, improved communication during transitions, enhancing the seniors' ability to advocate for better care or to advocate for them, and to produce evidence to support seniors care through future research.

Synthesis of Findings

I followed Whittemore and Knafl's (2005) steps to analyze my findings and produce relevant themes to understand the factors influencing seniors' ED care. First, I reduced the research and expert data into various notes (*data reduction).* Second, I displayed the data using stickies (*data display).* After displaying various pieces of data, I compared similarities and differences *(data comparison).* Finally, I grouped data into prominent themes; thus, drawing conclusions on factors affecting seniors' emergency care. I verified each theme through a reflection of my own personal experience and on conclusions drawn by pervious reviewers (*conclusion drawing and verification).* Throughout this process I reflected on my three research questions: *What is known about the healthcare needs of seniors in the emergency department? What factors affect the type and quality of emergency care for seniors? What is known about the perceptions and knowledge of emergency nurses who care for seniors?* Additionally, I continued to use a critical social lens, viewing seniors in the emergency setting as a

disadvantaged and vulnerable group. With this perspective I was able to view the data as a means to highlight the experiences of seniors in the ED; to identify factors which influence their care; and to develop care guidelines in order to ameliorate the discrepancies that I contend exist in ED seniors' care.

I identified three main interrelated and interacting themes influencing seniors' care in the emergency setting: *seniors themselves*; *staff caring for seniors in the ED*; and *care and process mismatch*. My discussion will clearly illustrate the complexity and interrelatedness of factors within these three main themes.

Seniors Themselves. When identifying factors affecting senior's ED care, it is important to note that seniors themselves are a significant factor. As with other ED patients, a senior's presentation at triage; their symptomatology; their ability to communicate; and their level of acuity factor into the assessment and treatment of care needs. Although seniors attending the ED are a heterogeneous group (Considine et al., 2010; Mental Health Commission of Canada, 2011; Parke, Beaith, Slater & Clarke, 2011; Special Senate Committee on Aging, 2009), they are more likely than younger ED patients to present with conditions that may complicate their assessment and care. Although characteristics common amongst seniors (polypharmacy, functional and cognitive impairments, presence of comorbidities, altered symptomatology associated with aging) have been well documented to influence care, in my review, I identified two major sub-themes relating to the *seniors themselves* that give additional evidence. The first theme relates to the prevalence of CI in ED seniors and the second theme relates to the patient role that seniors commonly assume as they enter the ED system.

The prevalence of CI in ED seniors is a significant factor affecting care. The pervasiveness of articles dedicated to exploring this phenomenon suggests that CI may be the

most influential patient related factor. Parke et al. (2011) in their review of the literature on contextual factors influencing ED care for elderly patients with CI write: "cognition is central to being safe in the ED because it affects the persons' ability to remember, follow directions, solve problems, perform independent self-care and communicate relevant information required for accurate and timely assessment" (p. 1427). Cognitive assessment and impairment amongst ED seniors were the primary foci in three studies (Hare et al., 2008; Hustey et al., 2003; Press et al. 2009) and important issues discussed by three experts (Nolan, 2009; Peters, 2010; Terrell et al., 2009). Fifty percent of the participants in Hare et al.'s study and twenty-eight percent of the participants in Hustey et al.'s study tested positively for CI. These findings support previous reviews in which moderate to severe cognitive impairment were estimated between one third to forty percent of all ED patients age sixty-five and over (Moons et al., 2003; Parke et al., 2011; Salvi et al., 2007). Patients with CI may have difficulties complying with care plans and following discharge instructions; leading to negative patient outcomes (Hustey et al.; Moons et al., 2003). Assessing patient history, medication, current treatment regimes, pain, and patient wishes (e.g. end of life (EOL) issues) are challenging in the presence of CI. Further, Hustey et al. and Press et al. (2009) found that although cognition is a significant factor influencing ED seniors' care, it is poorly assessed. Delirium, a form of CI (also known as acute confusion), is present in approximately ten percent of elderly ED patients (Hustey et al.; Salvi et al.). If detected and treated early, delirium is reversible; however, if missed, delirium can become a permanent state leading to profound disability and death (Han, Eden, Shintani, Morandi, Schnelle, Dittus, Storrow & Ely, 2011). As with all types of CI, early diagnosis and treatment of delirium significantly affect patient outcomes. Unfortunately, delirium (as in other forms of CI) is poorly detected in the ED (Press et al., 2009).

FACTORS IN GERIATRIC EMERGENCY CARE

None of the studies in this review investigated why CI is not consistently assessed in the ED elderly. Areas for future research should target why cognition is not adequately assessed in the ED. Do noise, lack of privacy, or acute illness and injury preclude mental status assessment? Which cognitive assessment tools are valid in the ED? Although the Cognitive Assessment Method (CAM) tool designed to detect delirium is known to be valid in ED settings (Samaras et al. 2010); factors influencing its use, misuse, or non-use in the ED are not fully understood (Wei, Fearing, Sternberg & Inouye, 2008: Monette, du Fort, Fung, Massoud, Moride, Arsenault & Afilalo, 2001). Further, if cognitive impairment is detected erroneously in the ED due to environmental ED factors (noise, busyness, or lighting), what measures can be taken to rectify the patient's chart? What role does ageism, if any, play? In my search, I was unable to locate studies exploring the effect or presence of ageism in the emergency setting. As ageism in health care is well documented (Grant, 1996; Shortt, 2001; Kane & Kane, 2005), it would seem likely that ageism is present in emergency departments. Does the rapid triage, assessment, treatment and disposition model of most EDs allow for accurate assessment of cognition? Given the importance of this factor for seniors attending an ED, considerably more attention to cognitive assessment and the role it plays in patient care must be made. Terrell et al. (2009) define cognitive assessment as an area where quality gaps exist for seniors in the ED. Understanding why this gap exists is the first step. Implementing interventions to ensure appropriate assessment and incorporation of CI into ED seniors' care is the second. In the interim, ED nurses and physicians should recognize the prevalence of CI in their elderly patients and tailor their assessment and care accordingly.

Studies exploring the experiences of seniors in the ED reveal the second sub-theme associated with seniors themselves as they enter the ED system. Richardson et al. (2007),

Bridges and Nugus (2008), Kelley et al. (2011), and Considine et al. (2010) researched seniors' ED care from the perspective of seniors and their caregivers. Their research reveals that seniors in the ED often assume a passive role relegating care decisions to others. Evidence suggests that seniors experience a diminished sense of significance in the ED and perceive a power imbalance between themselves and ED staff (Bridges & Nugus). Further, seniors may be more accepting (Kelley et al.; Richardson et al.) of hazardous conditions such as a lack of food or fluids, discomfort from prolonged lying on hard stretchers, or incontinence due to infrequent toileting. This may help to explain why simply being in the ED can result in adverse events for seniors (Ackroyd-Stolarz et al., 2009). Responses such as "*I am not the only pebble on the beach, and I can't expect them [nurses] to run around me and forget they have other patients"* (Bridges & Nugus, p. 49), *"I needed to go to the toilet. I didn't want to be a nuisance."* (Bridges & Nugus, p. 50), or *"I just went along with the system, it was all for my benefit and I just accepted it"* (Richardson et al. p. 138), reflect trust, acceptance, relinquishment and deference. Richardson et al. report that this passive role appears on arrival at the ED and remains evident post discharge. Given the busyness and fast pace of most emergency departments, assuming a passive role and experiencing a diminished sense of significance may contribute to assessment and treatment delays. Further, seniors delay seeking emergency help and often need assistance or permission to come the ED (Bridges & Nugus; Considine et al.) adding support to the notion of ED seniors as a passive, submissive patient group.

Many experts and researchers have indicated that delays and misdiagnoses in seniors in the emergency setting are due to the complexity of patient presentation (symptoms associated with normal ageing, polypharmacy, multiple comorbidities, cognitive and functional impairments, and communication problems). However, given the evidence illuminating the role

in which many seniors in the ED assume delays and misdiagnoses for seniors may additionally be associated with patient passivity and disempowerment as seniors are less likely to complain or advocate for better care. Evidence from all four articles (Bridges &Nugus; Considine et al.; Kelley et al. & Richardson et al.) is consistent in exposing a diminished sense of significance, an acceptance of lesser quality of care, and a lack of advocacy amongst ED seniors and their caregivers. Whether this theme is associated with ageism and cultural mores subjecting seniors to assume a passive role in the ED, or it is associated with the response of seniors (an already compromised patient group) to a threatening environment (noisy, fast paced, physically uncomfortable, and disorienting) are topics for future research on ED seniors' care.

Additionally, Bridges and Nugus note that ED experiences provoke fear and anxiety in most seniors. Moons et al. (2003) confirm that seniors in the ED are likely to be anxious and frightened. For seniors, a visit to an ED is a stressful and potentially life altering event. As noted earlier, I propose that the ED represents a significant transition for most seniors. Coleman (2003) writes "patients with complex acute and chronic care needs [as is common in the ED seniors' group] experience heightened vulnerability during…transitions" (p. 549). Given a fearful, anxious reaction in a patient who assumes a passive and insignificant stance, it is not surprising that seniors may experience lesser ED care than younger patients.

Assumption of a submissive and disempowered patient persona within the ED setting may contribute to negative experiences and outcomes, and forms the second subtheme within the *seniors themselves* group. As the "Baby Boomer" generation ages and forms the next group of ED seniors, it will be interesting to see whether they assume a similar passive role. Recently some EDs have begun implementing limited geriatric services to attempt to address seniors' needs. As I reflect on these initial initiatives, I question whether this change is the result of

identified negative outcomes for seniors or the result of concerns generated from the Baby Boomer generation as they progress towards forming the next ED senior patient population.

In summary, the first theme representing factors affecting ED seniors is *seniors themselves*. Within this theme, I identified two sub-themes: cognitive impairment and passivity amongst seniors in the ED. I argue that both significantly affect ED care and need to be considered in conjunction with other known geriatric conditions (polypharmacy, functional impairments, physiological changes associated with ageing, and comorbidities).

Staff Caring for Seniors in the ED.

The second theme grouping factors influencing seniors' ED care relates to the staff responsible for administering care in the ED. The sub-themes I identified within this group are geriatric knowledge and education; attitudes and perceptions; and moral distress.

Lack of geriatric education and knowledge in both the ED nurse and physician groups is a consistent theme within research evidence and expert opinion (Desy & Prohaska, 2008; Roethler et al., Bentley & Meyer, 2004; Robinson & Mercer, 2007; Kelley et al., 2011; Kihlgren et al., 2005; Hwang & Morrison, 2007; Nolan, 2009; Peters, 2010; Voyer& Sync-Norrena, 2003). ED nurses score poorly on geriatric knowledge tests (Roethler et al.; Robinson & Mercer) revealing an overall low understanding of the specialized needs of this patient population. Although my review did not reveal evidence directly measuring physician geriatric knowledge, Hustey et al.(2003) and Press et al. (2009) found that ED physicians frequently miss the presence of CI (a significant factor in geriatric patient assessment) in seniors, suggesting that ED physicians in addition to nurses suffer from a geriatric knowledge deficit. Further, both ED physicians and nurses rarely incorporate biopsychosocial comorbidities (common in the geriatric

population) into patient assessment and care, leading to under-triage and delayed treatment (Rutschmann et al., 2005).

Although it is clear from the evidence that there is a lack of geriatric knowledge amongst ED staff caring for seniors, nurses rate their level of geriatric knowledge as moderately high (Roethler et al., 2011; Robinson & Mercer, 2007). This finding suggests that either ED nurses under estimate the significance of geriatric knowledge in providing seniors' care in the emergency setting or that ED nurses simply are unaware of the unique needs and challenges of this patient population. In contradiction to their positive self-assessment of geriatric knowledge, nurses report that the most common obstacle to seniors' care in the ED is lack of geriatric knowledge (Robinson & Mercer). These two pieces of contradictory evidence suggest that although nurses may be aware that the ED setting does not meet seniors' needs, they may be unsure of their own role in influencing ED seniors' care. As most emergency nursing courses do not target elder care, findings indicating a lack of geriatric knowledge in ED staff are not surprising. As written previously, evidence assessing ageism specifically in the ED setting does not exist; thus future research exploring the influence of ageism on preparation for ED staff is warranted. ED nurses are required to complete courses targeting paediatrics, mental health, substance abuse, cardiac, and trauma care. As seniors form the largest growing patient population in the ED, the lack of attention to geriatric education and knowledge amongst ED staff is concerning.

Attitudes and perceptions of seniors by ED staff tend to be either negative or inaccurate. Surveyed nurses in Robinson and Mercer (2007)'s study reported that more than 50% of their patients were older than 75 years; while in reality only 14% were older than seventy-five. In a similar study surveying emergency medicine residents, Schumacher, Deimling, Meldon and

Woolard (2005) found that physicians also overestimate the percentage of older patients presenting to the ED. Over estimating the numbers of seniors presenting to the ED may "contribute to or indicate feelings of burden particularly if these patients are also considered to be unsatisfying or time-consuming cases" (Schumacher et al., P.458).

As stated previously, nurses perceive that the most common obstacle to seniors' ED care is a lack of geriatric knowledge amongst staff (Robinson & Mercer, 2007). Other barriers to seniors' ED care identified by nurses include economic pressures to limit treatment or length of stay, followed by staff shortages, communication difficulties with the older patient, confusion as to the appropriate decision-maker, lack of transportation home, and no available in-patient bed (Robinson & Mercer). ED nurses in Kihlgren et al. (2005)'s study suggest that prioritizing medical procedures, everyday tasks and routines negatively impact seniors' ED care. Additionally, nurses contend that the ED is not an appropriate setting for seniors (Kelley et al., 2011; Kihlgren et al.), an opinion echoed by experts (Hwang & Morrison, 2007; Nolan, 2009; Shanley et al., 2008). Despite a belief that the ED is not appropriate for senior's care, no other setting is identified in the articles for acutely ill or injured seniors. In Kelley et al.'s study, nurses perceive that compassionate care for seniors is negatively influenced by low staffing levels, high complexity of care, and lack of skill and knowledge in geriatric care. Staff report that care for seniors takes more time and that their needs may not be met due to ED busyness (Kelley et al.). Thus, nurses and other health care professionals in the ED perceive that the current ED system does not meet the needs of seniors. Nurses report that they are often prevented from giving what they consider good care. Further, they believe that they care for a higher number of seniors in the ED than the demographics support (50% versus 14%), indicating a sense of an increased burden of care towards this patient population. Lack of geriatric

knowledge, primacy of medical and everyday tasks and routines are perceived barriers to quality seniors' ED care. In summary, attitudes and perceptions of ED staff toward seniors' care tend to be negative and incorrect, reflecting a culture and environment which perpetuates a negative milieu for both ED seniors and staff.

In caring for seniors, ED nurses tend to work in a state between the ideal and the real (Kihlgren et al., 2005). Although nurses want to improve their care to seniors, they continually find themselves in situations where they perceive barriers to care (Kelley et al., 2011). Despite recognition of the importance of geriatric knowledge to seniors' care, most ED nurses do not possess the knowledge or skills to competently administer that care (Desy & Prohaska, 2008; Roethler et al., 2011; Robinson & Mercer, 2007; Kelley et al., 2011; Kihlgren et al., 2005; Nolan, 2009; Peters, 2010; Voyer& Sync-Norrena, 2003). Experiences of ED staff caring for seniors suggest that staff experience moral angst. Zuzelo (2007) describes moral angst as a sensation felt when a person is unable to react appropriately to moral distress. She defines moral distress as "a negative state of painful psychological imbalance experienced when nurses make a moral decision but cannot act accordingly because of real or perceived…constraints" (p. 345). Further Zuzelo posits that nursing is "recognized as an inherently moral profession with demonstrably ethical goals: protecting patients, providing care that prevents complications, and maintaining a healing psychological environment" (p. 346). Thus, when nurses are exposed to situations where they are unable to protect patients, prevent complications, and promote healing, they experience moral distress. If moral distress continues, nurses experience angst (Zuzelo). Given the evidence on ED seniors' care, it is not surprising that nurses experience distress and angst when caring for this patient population. I suggest that care by nurses caught in an

environment of moral distress and angst is unlikely to meet the specialized emergency needs of seniors; thus, is a significant factor when assessing seniors' care in the ED.

Care and Process Mismatch. The third and final theme grouping factors which affect ED seniors' care is the mismatch between seniors' health needs and current ED offerings. Most ED models of care focus on rapid assessment, treatment, and throughput (Shanley et al., 2008): a model unlikely to meet the complex health care requirements of many seniors (Hwang & Morrison, 2007; Kelley et al., 2011; Nolan, 2009; Peters, 2010; Voyer& Sync-Norrena, 2003). Hwang and Morrison contend that "most [studies] have focused on specific diseases or conditions and have not looked specifically at how ED care and environmental factors may be associated with patient outcomes" (p. 1873). Further research into ED care for seniors in general is important to understand how care can best be modified and why emergency systems appear disinclined to change.

Seniors in the ED are misdiagnosed; their care is frequently delayed; and their outcomes are often negative (Ackroyd-Stolarz et al., 2011; Hustey et al., 2003; Press et al., 2009; Rutschmann et al., 2005; Bentley & Meyer, 2004; Richardson et al., 2007). Regrettably, most ED nurses do not possess the knowledge and skills to care for seniors nor do they recognize their lack of knowledge (Roethler et al., 2011; Robinson & Mercer, 2007; Kelley et al., 2011; Hwang & Morrison, 2007; Nolan, 2009; Peters, 2010; Voyer& Sync-Norrena).

"Favorable outcomes depend not only on the care received in the ED, but also on the successful transition of care from the ED to the patient's home" (Hastings & Heflin, 2005, p. 978). Unfortunately, transitions for seniors to and from the ED are often poorly executed (Bentley & Meyer, 2004; Dunnion& Kelly, 2005). The literature suggests that the existence of silos in both the ED and community help to perpetuate inadequate transitions for seniors entering

and leaving the ED system (Coleman, 2003; Dunnion& Kelly, 2005). Further, seniors report a reluctance to attend the ED (Bridges &Nugus, 2008: Considine et al., 2010) and when in the ED, they often demonstrate a passive and accepting persona which may increase their risk of harm in this busy, noisy, medically focused environment.

Researchers and experts point to the existence of multiple staff, noisy and cramped environments, primacy of medical diagnosis and treatment, and lack of privacy and comfort as some of the factors affecting how seniors react to ED care (Ackroyd-Stolarz et al., 2011; Bridges &Nugus, 2008; Kelley et al., 2011; Kihlgren et al., 2005; Nolan, 2009; Shanley et al., 2008; Richardson et al., 2007). Attitudes and perceptions within the ED reflect a culture that is not supportive of seniors' care (Hustey et al., 2003; Press et al, 2009; Roethler et al., 2011; Rutschmann et al., 2005; Bentley & Meyer, 2004; Robinson & Mercer, 2007; Kelley et al., 2011; Kihlgren et al, 2005). Additionally, minimal and inconsistent evidence exists to support the use of quality indicators with which to measure care; thus, EDs and their administrators do not possess tools to accurately measure new or existing initiatives for seniors.

Schnitker, Martin-Khan, Beattie and Gray (2011) propose two questions which they argue need to be addressed in order to improve ED care for seniors. First, are the negative outcomes and experiences in seniors' ED care preventable in our current fast paced ED model? Second, is our existing design capable of assessing and managing the care needs specific to seniors? I argue that although significant change is required, seniors can be well assessed and treated within the current ED system. In the following section, I will outline evidence informed practice guidelines which, when initiated, will support seniors' care in the current ED system.

Evidence Informed Practice Guidelines for ED Seniors' Care

Practice Guidelines Associated With the Theme "Seniors Themselves"

Despite the prevalence of moderate to severe CI in seniors attending the ED, my review reveals significant gaps in mental status assessment and in attention to the influence of CI on patient assessment, treatment, and discharge. Given the significance of this patient related factor on all aspects of care, it is important to ensure that all seniors in the ED are assessed for CI and that, if detected, the impact of CI is reflected in plans of care. Thus, the use of assessment tools for seniors in the ED to detect all aspects of CI including delirium is supported. Although the CAM tool (to detect delirium) has been validated for use in the ED, appropriate and accurate tools to assess mental status in the ED have yet to be determined. Therefore future research into determining an accurate and useable CI assessment tool for the ED is required. In the interim, ED nurses need to consider the likelihood of CI in ED seniors. Family and other caregivers able to provide information to support patient assessment should be encouraged and included. As with any patient living with complex needs, seniors should be advised to keep current written medical information with them at all times as ED visits are often unplanned. Residential care homes and EDs must work towards establishing clear lines of communication especially when transferring patients to and from the ED.

Evidence suggests that seniors respond to an ED visit with fear and anxiety (Bridges & Nugus, 2008) and once in the ED, assume a passive and disempowered persona (Bridges & Nugus; Considine et al.,2010; Kelley et al., 2007; Richardson et al., 2007). Hence, clear communication, interventions to reduce stress (noise levels, lighting, calm manner), and attention to seniors' needs such as toileting, administering food, fluid, and comfort measures are all supported by my review. Additionally seniors report that the presence of family, friends, and caregivers is an important element in their ED experience (Bridges & Nugus, 2008). Thus, in

addition to their important role in assisting with determining patient history and care planning, family and friends form a vital role in helping to alleviate fear and stress.

It is important to recognize that seniors are a heterogeneous patient population (Considine et al., 2010; Mental Health Commission of Canada, 2011; Parke et al., 2011; Special Senate Committee on Aging, 2009). Thus, in addition to attending to factors known to be common in this patient group, ED nurses must also recognize that each senior is an individual. An essential component of assessment and care for seniors is to recognize the senior as a unique person. Family and friends (particularly when a senior is unable to communicate due to prior impairments or current illness) are essential in helping to understand the person behind the patient. Thus, the presence of significant others at the bedside is strongly supported.

Practice Guidelines Associated With the Theme "Staff Caring for Seniors in the ED"

Lack of geriatric knowledge and education is a significant theme in the research evidence and is an issue well recognized by experts. Further, evidence suggests that perceptions and attitudes of ED nurses are often inaccurate and negative. Desy and Prohaska (2008)'s study supports education to improve ED nurses' geriatric knowledge and care; whilst numerous experts call for enhanced geriatric education for all ED nurses (Hwang & Morrison, 2007; Nolan, 2009; Peters, 2010; Shanley et al., 2008; Voyer & Sync-Norrena, 2003). Thus, my review supports comprehensive and ongoing geriatric education for all ED staff, especially nurses, as they are in a pivotal position to contribute for better approaches for seniors ED care (Shanley et al., 2008). Further, ED cultural change (from a focus on rapid treatment of singular illness or injury to comprehensive, supportive, and respectful care), facilitated through ongoing geriatric education, needs to occur in order to support seniors' care and ameliorate the moral angst that nurses

experience. ED nurses caring for seniors need to be supported through organizational processes and systems. Workloads need adjustment to accommodate comprehensive, time consuming assessments and to allow for attention to seniors' needs for assistance with activities of daily living (ADLs) such as toileting, feeding and mobility.

Practice Guidelines Associated With the Theme "Care and Process Mismatch"

The current ED system does not match the needs of seniors (Hwang & Morrison, 2007; Nolan, 2009; Shanley et al., 2008) and appears to contribute to negative patient outcomes (Ackroyd-Stolarz et al., 2011; Bentley & Meyer, 2004). In addition to the practice care guidelines identified above, I propose the following initiatives in order to ameliorate this mismatch and support this vulnerable patient group. First, the emergency setting needs to be supported in cultural change from one in which patients are rapidly assessed, treated and discharged to one in which complex patients can be thoroughly assessed and supported throughout their ED stay and subsequent discharge or transfer to acute care. An initiative such as this involves resource allocation, leadership support and physical space alterations. All levels of emergency health care delivery need to recognize the significance of this patient group and alter care delivery in order to promote meaningful and ongoing change. Emergency departments can no longer ignore the presence and significance of seniors. Thus, as with other acute care initiatives to support seniors care (delirium watch, 48/6), the emergency department needs to begin and maintain meaningful cultural and process change. Second, emergency departments need to improve relations with other health care groups in order to improve transitions for seniors. Seniors should be able to expect seamless care delivery as they transition from home or community to the ED and from the ED to home or community. Coleman (2003) illuminates the

heightened vulnerability that seniors currently experience during these transitions. Essential to providing seniors with optimal care is good communication between the ED and other care providers as well as the seniors and families themselves.

Gaps Identified and Recommendations for Future Research

Despite a growing body of evidence regarding seniors' ED care; there remain several areas for future research and exploration. Gaps in evidence can be grouped into the same themes identified in this paper: *seniors themselves, staff caring for seniors in the ED,* and *care and process mismatch.*

I identified two main gaps in the evidence within the *seniors themselves* theme. First, there are gaps in our understanding of mental assessment and cognitive impairment amongst ED seniors. Although evidence exists outlining the need for cognitive assessment (especially in those over age 75), routine cognitive assessment for ED seniors, is not performed in most EDs. Future research to identify valid, useable tools and to understand contextual factors influencing their use in the ED is important to rectify this. Further, as recommended by Hustey et al. (2003), data outlining the relationship between mental status impairment and morbidity and mortality in older ED patients is important to enhance support for routine cognitive assessment.

The second gap in the *seniors themselves* theme relates to the context and experiences of seniors and their families. Current research suggests that seniors within the ED are passive and accepting. Enhanced understanding of the context of this response may be key to improving seniors' ED care.

Several gaps in evidence, hence areas for future research, exist within the theme *staff caring for seniors in the ED.* Desy and Prohaska (2008)'s study suggest that geriatric education improves geriatric knowledge amongst ED nurses and positively influences seniors' ED care.

However, effects of workload, staff shortages, and overcrowding on care for seniors in the ED is a gap in the evidence, hence an area for future research. Current evidence suggests that ED nurses' attitudes and perceptions are both inaccurate and negative; however, understanding why ED nurses perceive ED seniors' care in this fashion is unknown. Thus, enhanced understanding of ED nurses' attitudes and perceptions towards seniors and identification of evidenced informed interventions to improve attitudes and perceptions amongst ED staff caring for seniors is warranted. Lastly, research investigating the association between improved geriatric knowledge, attitudes and perceptions amongst ED staff, and outcomes for seniors is an important area for future research. If a positive association between seniors' outcomes and education and support for ED staff is demonstrated through future research, it is more likely that resources will be made available for such programs.

The final area I identified for future research is associated with enhanced understanding of *care and process mismatch*. Both Carpenter et al. (2011) and Terrell et al. (2009) argue for evidence based quality indicators to support geriatric ED care. They argue that objective evidenced based measures are integral to improving seniors' ED care. Consistent with Carpenter et al. and Terrell et al.'s call for evidence based measures are Kelley et al. (2011)'s recommendations for future research measuring ED modifications purporting to be "senior friendly". They propose that modifications to ED processes be measured against outcomes for seniors.

Concluding Thoughts

Whilst older adults are the largest growing group of emergency patients, most emergency departments are ill prepared to receive, assess, and treat their often complex needs. My review has revealed gaps in ED seniors' care and research. Three significant themes, *seniors*

themselves, staff caring for seniors in the ED, and *care and process mismatch* illuminate significant factors affecting care. My review adds to the current evidence on seniors' care in the ED and helps ED planners and managers design systems to meet seniors' needs. Despite significant gaps and inequities in current ED seniors' care, I strongly believe that evidence informed practice guidelines for seniors combined with comprehensive cultural and process change to emergency departments will significantly enhance care and ameliorate the disparities experienced by seniors in our current ED system. This direction requires significant will on all levels. Health care is bombarded with multiple demands for enhanced care for many patient populations in various settings. Thus, prioritizing initiatives based on evidence is more important than ever. I contend that changes to improve seniors' ED care are long overdue and must become a priority. Given the rate of growth in this patient population and the potential harm of inaction, do we have a choice?

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Appendix A: Data Collection Coding Sheet

Category	Collected Data/Information
Citation	
Type of Article (primary research, experiential, expert opinion	
Description of Methodology	
Methods	
Ethical considerations	
Limitations	
Miscellaneous	
Score	

Appendix B: Critiquing Criteria for Quantitative Data Analysis

Were appropriate descriptive statistics used?	
What level of measurement is used to measure each of the major variables:	
Is the sample size large enough to prevent one extreme score from affecting the summary statistics?	
What descriptive statistics are reported?	
Were these descriptive statistics appropriate to the level of measurement for each variable:	
Are appropriate summary statistics provided for each major variable?	
Does the hypothesis indicate that the researcher is interested in testing for differences between groups or in testing for relationships: What is the level of significance?	
Does the level of measurement permit the use of parametric statistics?	
Is the size of the sample large enough to use parametric statistics?	

Has the researcher provided enough information to decide whether the appropriate statistics were used?	
Are the statistics used appropriate to the problem, the hypothesis, the method, the sample, and the level of measurement?	
Are the results for each of the hypotheses presented clearly and appropriately?	
If tables and graphs are used, do they agree with the text and extend it, or do they merely repeat it?	
Are the results understandable?	
Is a distinction made between practical significance and statistical significance?	
Score:	

Source: Whittemore, Grey, Kirton& Singh (2009). Chapter 16: Quantitative data analysis. In Nursing Research in Canada: Methods and Critical Appraisal for Evidence-Based Practice, G. LoBiondo-Wood, J. Haber, C. Cameron & M. Singh (Eds.) 2nd ed. Mosby Elsevier: Toronto.

Appendix C: Critiquing Criteria for Qualitative Data Analysis

Is the method of data analysis clearly stated?	
Is the strategy of data analysis appropriate for the methodology?	
Are the steps of analysis listed for the reader to follow?	
Is evidence provided that the researcher's interpretation captures the phenomenon under study?	
Does the researcher address the credibility, auditability, and fittingness of the data?	
Score	X/5

Source: Cameron, C. (2009). Chapter 15: Qualitative data analysis. In: Nursing Research in Canada: Methods and Critical Appraisal for Evidence-Based Practice, G. LoBiondo-Wood, J. Haber, C. Cameron & M. Singh (Eds.) 2nd ed. Mosby Elsevier: Toronto.

Appendix D: Sample Size, Selection, and Method

Citation	Sample Size	Selection	Method
Ackroyd-Stolarz et al. (2011)	982	All community dwelling persons age sixty-five and over admitted to an acute inpatient bed from the ED in a 6 month period. Restricted to relatively healthy persons (excluded those with an ED visit or hospitalization in previous 6 months).	Retrospective cohort study using electronic information systems. Determined that the screening criteria were 60% sensitive and 97% specific.
Bentley, J. & Meyer	2275 quantitative 5 illustrative cases	All consecutive patients over 75 in a three month period. Did not explicitly state how charts were chosen, or how they chose the experts or illustrative cases.	Mixed methods used retrospective documentary research (2275) and supported with qualitative interviews with experts. Added illustrative cases (5) in results.
Bridges &Nugus (2008)	69 patients and 27 relatives	Convenience sampling using persons aged 75 and older who had used the ED or Urgent Care Centre. Excluded were patients who had been in the care of the nurse interviewer, or who were deemed cognitively impaired, physically, psychologically or otherwise mentally unable to cope with an interview.	Discovery interview technique. Thematic analysis with QSR XSight 2.0. Validated data with focus groups (n=52).
Considine et al. (2010)	30	Convenience sampling (10 persons from three sites).	Descriptive approach using observation and semi-structured interviews (face to face using the recursive model – questions based on the answers to the previous question and a set of core questions). Data analysis through inductive process to identify these, patterns and categories.
Desy & Prohaska (2008)	102	Convenience sample. 98% (102) completion immediately post and 62% (63) completion at	Tested knowledge pre, immediately post and 3 months post using a questionnaire

		3 months. No significant differences in demographics pre and post sample.	designed to measure knowledge, self-rated ability, knowledge incorporated into practice, and use of geriatric tools.
Dunnion & Kelly (2005)	222	Purposeful sample of ED and community nurses and physicians.	Survey with open and closed questioning. Qualitative data content analyzed for themes.
Hare et al. (2008)	28	Convenience sample of patients 65 years and over. Collected sample during five consecutive mornings in April 2007. Excluded if too ill, unable to speak due to medical problem or unable to understand or speak English.	Used CAM and routine cognitive assessment to determine presence of CI in ED older patients.
Hustey et al. (2003)	271	Convenience sampling targeting patients age 70 years and over who presented to an ED over a 17 month period. Excluded persons who refused to participate, were critically ill, were unable to communicate or cooperate, or did not speak English in the absence of an acceptable translator.	Prospective cross sectional study. Screened patients for the presence of CI. Interviewed ERPs to determine if the presence of CI would change their plan.
Kelley et al. (2011)	ED interviews 56 seniors and 9 proxy, post discharge interviews 11 seniors and 4 proxy, 61 staff, 8 key informants, 26 surveys	Targeted seniors age 75 and over. Convenience sampling. (did not state survey response rate)	Focused ethnography using seven data sets: utilization data, ED interviews with seniors and proxy decision makers, post discharge interviews with seniors and proxy decision-makers, staff interviews, key informant interviews, observations, staff survey.

	completed/ returned		
Kihlgren et al (2005)	10	Convenience sampling	Semi-structured interviews with focus groups. Used thematic analysis.
Press et al. (2009)	391	Simple random sampling of medical records for patients 65 years and over.	Retrospective chart audit.
Richardson et al. (2007)	69 quantitative 13 qualitative	Purposive sampling. Patients age 80 and over. Excluded non-English speaking, cognitively impaired or considered too unwell.	Mixed methods. Quantitative using descriptive statistic for audit of patient demographics and process. Qualitative interview face to face with follow up telephone
Robinson & Mercer (2007)	206 18	Stratified random sampling for selection of records (every seventh chart), 37% survey return rate.	Mixed methods: Health record review Survey with Likert scale and 2 open ended questions
Roethler et al. (2011)	32	47% return rate	Quantitative descriptive study using a survey. The questionnaire consisted of 2 separate sections – a knowledge section with 15 questions and a self-evaluated practice section using a Likert scale.
Rutschmann et al. (2005)	253	All consecutive patients 65 years and over in a 10 week period who presented when the research nurse was on – day shift (convenience sample)	Exploratory observational study. Used SPSS 11.0 for Windows to calculated mean and 95% confidence intervals.

Appendix E: Objectives of Articles

Ackroyd-Stolarz, S., Guernsey, J.R., MacKinnon, N.J. & Kovacs, G. (2011). The association between a prolonged stay in the emergency department and adverse events in older patients admitted to hospital: a retrospective cohort study. *BMJ Quality and Safety*, 20(7), 564-569	To determine whether a prolonged ED length of stay is associated with an increased risk for the occurrence of AEs (adverse events) for older patients admitted to hospital.
Bentley, J. & Meyer, J. (2004). Repeat attendance by older people at Accident and Emergency Departments. Issues and Innovations in Nursing Practice, 48 (2), 149-156.	To describe a six month study exploring re-attendance, assessment and discharge issues for people over 75 years in an ED.
Bridges, J. &Nugus, P. (2008). Dignity and significance in urgent care: Older people's experiences. *Journal of Research in Nursing*, 15(1), 43-54.	To describe older peoples' experiences of ED care.
Carpenter, C.R., Heard, K., Wilber, S., Ginde, A.A., Stiffler, K., Gerson, L.W., Wenger, N.S. & Miller, D. (2011). Research priorities for high-quality geriatric emergency care: Medication management, screening, and prevention and functional assessment. *Academic Emergency Medicine*, 18(6), 644-654.	To propose research questions to support evidenced based quality indicators for medication management, screening and prevention, and functional assessment in caring for seniors in the ED.
Coleman, E.A. (2003). Falling through the cracks: challenges and opportunities for improving transitional care for persons with continuous complex care needs. *Journal of American Geriatric Society*, 51(4), 549-555.	To outline barriers in good quality transitional care for complex seniors and propose measures to improve transitions for seniors.
Considine, J. Smith, R. Hill, K. Weiland, T., Gannon, J. Behn, C. Wellington, P. & McCarthy, S. (2010). Older peoples' experience of accessing emergency care.	To describe older peoples' perspectives on accessing ED care.

Australian Emergency Nursing Journal, 13. 61-69.	
Desy, P.M. &Prohaska, T.R. (2008). The geriatric nursing education (GENE) Course: An evaluation. *Journal of Emergency Nursing*, 34(5), 396-402.	To measure the effect of an eight hour geriatric course on ED nurses' knowledge and practice.
Dunnion, M. E., & Kelly, B. (2005).From the emergency department to home. *Journal of Clinical Nursing, 14*(6), 776-785.	To explore ED and community based nurses' perceptions of the quality of seniors' care communication.
Hare, M., Wynaden, D., McGowan, S., & Speed, G. (2008). Assessing cognition in elderly patients presenting to the emergency department. *International Emergency Nursing*, 16, 73-79	To evaluate the presence of cognitive impairment in ED older patients.
Hustey, F.M., Meldon, S.W., Smith, M.D., &Lex, C.K. (2003). The effect of mental status screening on the care of elderly emergency department patients. *Annals of Emergency Medicine*, 41(5), 678-684.	To determine the effect of cognitive screening on elderly ED patient care and to prospectively assess recognition of mental status impairment by emergency physicians.
Hwang, U., & Morrison, R. S. (2007).The geriatric emergency department. *Journal of the American Geriatrics Society, 55*(11), 1873-1876.	To describe how the current Ed structure does not meet the needs of the older adult patient and make recommendations for improvement.
Kelley, M., Lou, Parke, B., Jokinen, N., Stones, M., & Renaud, D. (2011). Senior-friendly emergency department care: An environmental assessment. *Journal of Health Services Research & Policy, 16*(1), 6-12.	To identify gaps between current ED practices and known "senior-friendly" care
Kihlgren, A. L., Nilsson, M., &Sørlie, V. (2005). Caring for older patients at an emergency department -- emergency nurses' reasoning. *Journal of Clinical*	To explore the experiences of ED nurses and to illuminate their perception of what constitutes good ED care for older adults.

Nursing, 14(5), 601-608.	
Nolan, M. R. (2009). Older patients in the emergency department. *Journal of Gerontological Nursing, 35*(12), 14-18.	To describe the older patient in the emergency department, to argue that most EDs do not meet seniors' care needs, and to make recommendations to improve seniors' ED care.
Peters, M. (2010). The older adult in the emergency department: Aging and atypical illness presentation. *JEN: Journal of Emergency Nursing, 36*(1), 29-34.	To describe characteristics of older adults presenting to the ED and make recommendations for improvement to care.
Press, Y., Margulin, T., Grinshpun, Y., Kagan, E., Snir, Y., Berzak, A., &Clarfield, A. M. (2009).The diagnosis of delirium among elderly patients presenting to the emergency department of an acute hospital. *Archives of Gerontology & Geriatrics, 48*(2), 201-204.	To identify the rate of mental status assessment and prevalence of delirium in ED patients older than 65 years.
Richardson, S. Casey, M. & Hider, P. (2007). Following the patient journey: Older persons' experiences of emergency departments and discharge. *Accident and Emergency Nursing*, 15(3), 134-140.	To examine older patients (greater than 80) admitted to an in-patient medical unit via the ED and then discharged to the community.
Robinson, S., & Mercer, S. (2007). Older adult care in the emergency department: Identifying strategies that foster best practice. *Journal of Gerontological Nursing, 33*(7), 40-47	To obtain a profile of older adults in the emergency department, examine their LOS, contributing factors, and determine nurses' knowledge and perception of care provided to older adults.
Roethler, C., Adelman, T., & Parsons, V. (2011).Assessing emergency nurses' geriatric knowledge and perceptions of their geriatric care. *JEN: Journal of*	To conduct a needs assessment of an ED concerning registered nurses' knowledge and self-assessment of geriatric care.

Emergency Nursing, 37(2), 132.	
Rutschmann, O. T., Chevalley, T., Zumwald, C., Luthy, C., Vermeulen, B., & Sarasin, F. P. (2005). Pitfalls in the emergency department triage of frail elderly patients without specific complaints. *Swiss Medical Weekly, 135*(9-10), 145-150.	To describe a population of elderly ED patients without specific complaint, and to assess how they were evaluated in the ED.
Shanley, C., Sutherland, S., Stott, K., Tumeth, R., & Whitmore, E. (2008). Increasing the profile of the care of the older person in the ED: A contemporary nursing challenge. *International Emergency Nursing, 16*(3), 152-158.	To promote the notion that nurses have a pivotal role in improving ED seniors' care and to outline target areas for influencing seniors ED care.
Terrell, K.M., Hustey, F.M., Hwang, U., Gerson, L., Wenger, N.S. & Miller, D.K. (2009). Quality indicators for geriatric emergency care. *Academic Emergency Medicine,* 16, 441-449.	To describe gaps in quality seniors' emergency care specifically in cognitive assessment, pain management, and transitional care and to propose quality indicators for each area.
Voyer, P. &Sync-Norrena, L. (2003). Challenges in emergency room care for the elderly: If health services today do not adequately address our aging population, tomorrow's reality in emergency rooms will be overwhelming. *The Canadian Nurse,* 99 (1), 22-24.	To describe gaps in emergency seniors care and recommend interventions to improve outcomes.

Appendix F: Research and Expert Opinion Notes

Quantitative	
Citation	Notes
Ackroyd-Stolarz, S., Guernsey, J.R., MacKinnon, N.J. & Kovacs, G. (2011). The association between a prolonged stay in the emergency department and adverse events in older patients admitted to hospital: a retrospective cohort study. *BMJ Quality and Safety*, 20(7), 564-569 13/13 Canada	Identified all 65 years and older patients admitted through the ED to acute in-patient beds 2005-2006 at a tertiary hospital. Previously well community dwellers. Used electronic information systems to determine ED LOS, occurrence of AEs, and in-hospital LOS. *Objective:* To determine whether a prolonged ED length of stay is associated with an increased risk for the occurrence of AEs (adverse events) for older patients admitted to hospital. 75% of sample had a prolonged ED LOS by national standards. For every hour spent in the ED, the odds of experiencing an AE in-hospital increased by 3%. Found a positive association between ED LOS and occurrence of AE in-hospital. Occurrence of AEs associated with a two fold increase in in-patient LOS. Factors thought to be associated with this are immobilization on hard stretchers, potential exposure to infectious agents while in ED, disorienting effects of noise and lighting, care by multiple providers, potential delays in diagnostics and/or access to specialized in-patient care.
Desy, P.M. &Prohaska, T.R. (2008). The geriatric nursing education (GENE) Course: An evaluation. *Journal of Emergency Nursing*, 34(5), 396-402. 15/15 US	Evaluation research with repeated measures design. Used a convenience sample of 102 nurses and measured pre, immediately after and 3 months after the nurses took the GENE course to evaluate whether: Does the GENE increase nurses' knowledge of geriatric concepts? Does the GENE increase self-rated ability to provide geriatric care? Does the GENE increase the use of geriatric assessment tools in practice? Do ED nurses incorporate the knowledge from the GENE into practice?

	Does GENE increase implementation of geriatric protocols in EDs? *Objective:* To measure the effect of an eight hour geriatric course on ED nurses' knowledge and practice. After completing the 8 hour GENE course developed by ENA, nurses significantly improved the above indicators with the exception of a decrease in the use of the Braden scale and Scott Falls Scale at three months post course. Authors suggest that as the course targets cognitive impairment, polypharmacy, and atypical presentations, nurses may have reprioritized their practice to use the Braden and Scott scales less frequently. Also suggest that increased workloads, staffing shortages, and overcrowding may contribute to less use of these scales.
Hare, M., Wynaden, D., McGowan, S., & Speed, G. (2008). Assessing cognition in elderly patients presenting to the emergency department. *International Emergency Nursing*, 16, 73-79. n/a audit Australia	Quantitative audit of 28 elderly patients in ED for the presence of delirium using CAM and routine cognitive screening. *Objective:* To evaluate the presence of cognitive impairment in ED older patients. Found 50% (14) of patients had no cognitive deficit, 39.3% (11) displayed a cognitive deficit other than delirium and 10.7% (3) had delirium. Only one had been diagnosed with delirium prior. Recommend that ED nurses routinely establish baseline cognitive functioning and assess for delirium. Did not identify a tool appropriate for the ED
Hustey, F.M., Meldon, S.W., Smith, M.D., &Lex, C.K. (2003). The effect of mental status screening on the care of elderly emergency department patients. *Annals of Emergency Medicine*, 41(5), 678-684. 13/13 US	Prospective cross-sectional study. patients 70 years and older presenting to an urban ED over 17 months were screened with the Orientation Memory concentration examination and the Confusion Assessment Method for delirium. Emergency physicians were interviewed to determine if they identified the cognitive impairment, the results were shared with the ERPs and then the EPS were re-interviewed to determine if they would change their care plan based on the mental status results. *Objective:* To determine the effect of cognitive screening on elderly ED patient care and to prospectively assess recognition of mental status impairment by emergency physicians. Cognitive impairment in older adults presenting to the ED is highly prevalent;

	however, it is poorly detected and when ERPs are informed of a patients' cognitive impairment, the care plan is not altered. This has implications for patient care, safety, readmission, compliance and understanding with treatment regimens and medication. If physicians do not detect cognitive impairment, are ED nurses? Is the significance of CI well acknowledged in ED care of older adults?
Press, Y., Margulin, T., Grinshpun, Y., Kagan, E., Snir, Y., Berzak, A., &Clarfield, A. M. (2009).The diagnosis of delirium among elderly patients presenting to the emergency department of an acute hospital. *Archives of Gerontology & Geriatrics, 48*(2), 201-204. doi:10.1016/j.archger.2008.01.008 13/13 Israel	Examined the rate of mental status assessment and the prevalence of delirium in the ED among patients older than 65 years in a large teaching hospital via a retrospective chart audit. *Objective:* To identify the rate of mental status assessment and prevalence of delirium in ED patients older than 65 years. Researchers found no written identification of delirium in any of their chart reviews. Cognitive assessments were as follows: inadequate (87.5%) partial (10.9%) adequate (1.6%) Revealing in this study a lack of attention to cognitive assessment in the elderly ED patient.
Roethler, C., Adelman, T., & Parsons, V. (2011).Assessing emergency nurses' geriatric knowledge and perceptions of their geriatric care. *JEN: Journal of Emergency Nursing, 37*(2), 132 13/13 US	Quantitative descriptive study. Using a survey tool with 2 sections: knowledge section and a self-evaluative section. Single site small sample and survey. *Objective:* To conduct a needs assessment of an ED concerning registered nurses' knowledge and self-assessment of geriatric care. Found sample of ED nurses rated themselves as very capable in all but diagnosing delirium, assessing polypharmacy and providing EOL decision-making support (although no very poor responses received). Sample of ED nurses scored low mean 8.53/15 on knowledge assessment. Suggest that although ED nurses perceive themselves to be competent in geriatric care, they lack the associated knowledge to care for older adults well.
Rutschmann, O. T., Chevalley, T., Zumwald,	Exploratory observational study of all consecutive patients older than 65 years that

C., Luthy, C., Vermeulen, B., & Sarasin, F. P. (2005). Pitfalls in the emergency department triage of frail elderly patients without specific complaints. *Swiss Medical Weekly, 135*(9-10), 145-150. 13/14 Switzerland	presented to an ED during a 10 week period. Triage, mode of admission, and discharge data were collected. The patients were then divided into 2 groups: Those with an acute medical condition And those thought to be "home care impossible" without an acute medical condition Group two was given the minimal data set home care. *Objective:* To describe a population of elderly ED patients who present without specific complaint, and to assess how they were evaluated in the ED. Findings indicate that an acute medical problem requiring intervention existed in 51% of the "home care impossible" group. Thus this group was under-triaged and treatment delayed. Further, in group number 2 the median number of MDS-HC indicators was 13 indicating a high level of biopsychosocial comorbidities that could account for their inability to cope at home. Researchers note that the triage of the older adult is particularly difficult due to: Different and more atypical presentations than younger adults (cognitive and functional impairment, multiple co-morbidities, communication problems, and chronic or sub-acute presentation of actual illness. Busy ED nurses and physicians tend to underestimate the severity and acuity of older adults' medical complaints. The current triage scale was designed for a general adult population and has no specificity for a geriatric population.
Mixed Methods	
Bentley, J. & Meyer, J. (2004). Repeat attendance by older people at Accident and Emergency Departments. Issues and Innovations in Nursing Practice, 48 (2), 149-	Mixed design. Retrospective documentary research supplemented with qualitative interviews with experts and descriptions of illustrative cases. *Objective:* To describe a six month study exploring re-attendance, assessment and discharge issues for people over 75 years in an ED.

156. 5/5 and 11/12 UK	Found that staff often failed to question the impact of the clinical illness/injury on the elderly patients' ability to cope at home. Findings suggest that significant problems can result for older people when focus solely on initial illness or injury rather than incorporate social and functional assessment.
Richardson, S. Casey, M. & Hider, P. (2007). Following the patient journey: Older persons' experiences of emergency departments and discharge. *Accident and Emergency Nursing*, 15(3), 134-140. 5/5 and 10/10 New Zealand	Mixed methods: quantitative using descriptive statistics for audit of patient demographics and process, qualitative using face to face and telephone follow up interviews for themes. *Objective:* To examine older patients (greater than 80) admitted to an in-patient medical unit via the ED and then discharged to the community. Explored the ED and D/C journey of patients 80 years and older admitted through ED to an inpatient medical bed in a tertiary center. Suggest older patients take on a passive role and relinquish decision making to staff. Reluctant to complain and appear accepting of lack of privacy and comfort. Researchers question the impact of multiple carers, noisy, cramped confusing environments on the older adult in ED. Also noted that 49% do not receive attention within triage guidelines (m=47 min over triage time).
Robinson, S., & Mercer, S. (2007). Older adult care in the emergency department: Identifying strategies that foster best practice. *Journal of Gerontological Nursing, 33*(7), 40-47 5/5 and 11/11 Canada	Descriptive study with 2 components: Review of the records of 206 older adults seen in the ED using a stratified random sampling technique (every seventh patient). Survey of ED nurses using scales from the Geriatric Institutional assessment Scale (perception of appropriateness of various treatments, satisfaction with care, and knowledge of best practices for the older adult. *Objective:* To obtain a profile of older adults in the emergency department, examine their LOS, contributing factors, and determine nurses' knowledge and perception of care provided to older adults. Findings: Most common reason for ED visit was falls. ED LOS average 5 hours 9 minutes.

	Approximately half were admitted. Nurses perceived the most common obstacle to care as lack of knowledge about care of the older adult, followed by economic pressures to limit treatment or LOS, staff shortages, communication difficulties with the older patient, confusion as to the appropriate decision-maker, lack of transportation home, and no available in-patient bed. Nurses rated themselves as "somewhat satisfied" with care to older adults. Nurses rated themselves as fairly knowledgeable; however, the majority of scores indicated that nurses were uncertain of the answers to geriatric care questions. Although ED nurses felt that more than 50% of their patients were older than 75, only 14% were actually more than 75.
Qualitative	
Bridges, J. &Nugus (2008). Dignity and significance in urgent care: Older people's experiences. *Journal of Research in Nursing,* 15(1), 43-53. 5/5 UK	Qualitative, discovery interview. Interviewed 69 patients and 27 relatives to explore their perception of the ED care received. One to one semi-structure and used QSR X Sight 2.0 for thematic content analysis. *Objectives:* To describe older peoples' experiences of ED care. Revealed six key themes: Older people delay seeking help and often need help or permission deciding May feel they do not matter (diminished sense of significance and perceived power imbalance) Urgent care provokes fear and anxiety Older people value personal touch and help with ADLs. Continuity of care and d/c planning are important. Relatives and friends are important.

Considine, J. Smith, R. Hill, K. Weiland, T., Gannon, J. Behn, C. Wellington, P. & McCarthy, S. (2010). Older peoples' experience of accessing emergency care. *Australian Emergency Nursing Journal*, 13. 61-69. 5/5 Australia	Qualitative to describe older people's perspectives of accessing ED care through observation and semi-structured interviews. Convenience sample in 3 hospitals in Australia. *Objective:* To describe older peoples' perspectives on accessing ED care. Findings suggest 4 major themes: There is variation in older people's ED use. Older people are reluctant to seek care and sought validation and permission. Older patients described mixed experience of waiting. Perception of factors influencing care varied.
Dunnion, M. E., & Kelly, B. (2005).From the emergency department to home. *Journal of Clinical Nursing*, *14*(6), 776-785. 5/5 UK	Purposeful sample of ED and community nurses and physicians. Used a standardized survey with open and closed questioning. *Objective:* To explore ED and community based nurses' perceptions of the quality of seniors' care communication. Findings suggest that both the ED and community staff perceive the current discharge planning and communication between ED and community to be unsatisfactory. Both groups identified multiple problems for the older person being discharge from the ED when specific discharge procedures are not in place: decreased continuity of care missed opportunity to identify vulnerable or at risk patients confusion about management of a health problem non-compliance with medications or treatments increase in re-admittance for similar problems Recommend enhancing communication between ED and the community and incorporating discharge criteria and procedures into the discharge of the older

	person from the ED.
Kelley, M., Lou, Parke, B., Jokinen, N., Stones, M., & Renaud, D. (2011). Senior-friendly emergency department care: An environmental assessment. *Journal of Health Services Research & Policy, 16*(1), 6-12. 5/5 Ontario, Canada	Qualitative using a focused ethnographic approach. Interviews with seniors, their proxy decision makers, staff and key community informants. On site observations, staff survey and hospital administrative data. *Objective:* To identify gaps between current ED practices and known "senior-friendly" care. 11% of visits 75 years and older, 90% had a family physician, 32% arrived by ambulance, 85% were CTAS 2or 3, staff perceive they provide compassionate care within limits imposed by environment (low staffing levels, high complexity of care required, lack of skill and knowledge in geriatric care), physical space is overcrowded, noisy. Seniors report being cold, hungry, thirsty, experiencing noise, lack of privacy and interrupted sleep. Key Informants and ED staff reports that work with seniors takes more time; they present with complex medical conditions, needs may not be met due to ED busyness. Unaccompanied seniors present with increased challenges – difficult to confirm Hx, meds, or provide assistance. Staff expressed moral angst – report need to improve but cannot. Seniors expressed acceptance and understanding. Need for enhanced communication, education and training. ***central to moving forward is building on existing knowledge, skills and relationships...without imposing change from outside the ED.
Kihlgren, A. L., Nilsson, M., &Sørlie, V. (2005). Caring for older patients at an emergency department -- emergency nurses' reasoning. *Journal of Clinical Nursing,* 14(5), 601-608. 5/5 Sweden	Qualitative. Semi-structured interviews were used to explore the experiences of ED nurses and illuminate what they believe constitutes good ED care for older adults. Older adult = 75 years and older. N=10, thematic analysis. *Objective:* used to explore the experiences of ED nurses and illuminate what they believe constitutes good ED care for older adults. Good care= necessary to be knowledgeable, to understand the older person's situation, and to take responsibility for them. Nurses report that prioritizing medical procedures, everyday tasks and routines threaten good nursing care for older adults. Nurses reported that the ED is not appropriate for older ED patients. Seems that ED nurses work in a state between an idealistic and a realistic situation.

Expert opinion	
Carpenter, C.R., Heard, K., Wilber, S., Ginde, A.A., Stiffler, K., Gerson, L.W., Wenger, N.S. & Miller, D. (2011). Research priorities for high-quality geriatric emergency care: Medication management, screening, and prevention and functional assessment. *Academic Emergency Medicine,* 18(6), 644-654. 2/2 US	Expert opinion. (Physicians on SAEM Geriatric Task Force) Society for Academic Medicine (SAEM) and the American College of Emergency Physicians (ACEP) created the SAEM Geriatric Task Force to improve care delivered to geriatric emergency patients. Terrell et al (2009) already identified the following domains for quality indicators (QI): cognitive assessment, pain management, transitional care. Carpenter et al (2011) identified three additional domains for the emergency care of adults in the following domains: medication management, screening and prevention, functional assessment. They identified key research questions which they propose are necessary to answer before evidenced based QIs can be offered. Content experts developed potential QIs based on "IF – THEN" statements. They conducted a research review for their target conditions. Proposed QIs were vetted through a large group of experts. Found little to no evidence for improved patient-centric outcomes for each domain and as they failed to come to a consensus on proposed measures they determined that more research is needed. Specific research questions related to the three domains are proposed. The questions primarily target how better assessment and evaluation of the domains could occur in the ED.
Coleman, E.A. (2003). Falling through the cracks: challenges and opportunities for improving transitional care for persons with continuous complex care needs. *Journal of*	Expert opinion. (recognized expert in transitional care especially for complex elderly) Defines transitional care as "a set of actions designed to ensure the coordination and continuity of health care as patients transfer between locations or different

American Geriatric Society, 51(4), 549-555. 2/2 US	levels of care within the same location" (p. 549). Notes that as patients with complex care needs need frequent care from different health care professionals in different locations, `hand off` is essential to good outcomes. These patients experience heightened vulnerability during these transitions. Barriers to good transitional care = practice settings often operate as silos financial incentives to improve transitions do not exist. quality measures are on a specific setting. few QI are developed to assess clinician or system performance during transitions. Also note that the older adult/care giver is often ill prepared to advocate for better transitions.
Hwang, U., & Morrison, R. S. (2007).The geriatric emergency department. *Journal of the American Geriatrics Society, 55*(11), 1873-1876. 2/2 Montreal, Canada	Expert opinion (Physicians who have authored a number of articles on seniors in the ED) Identifies how the current ED structure does not meet the needs of seniors. Recommends Geriatric Emergency Department Interventions (GEDI) that include better clinical staff education in geriatric emergency medical and nursing care; evidenced based protocols for common geriatric syndromes; and, appropriate structural modifications to the physical ED space.
Nolan, M. R. (2009). Older patients in the emergency department. *Journal of Gerontological Nursing, 35*(12), 14-18. 2/2 US	Expert opinion (Geriatric NP) Notes: Older people consume more time and resources. Older people are more likely to be admitted, to have a PCP (primary care physician), to have cognitive impairment, to die, to present with polypharmacy, impaired baseline function, and to have comorbidities Argues: Most EDs are not prepared for older patients

	Recommends: Consider other options besides ED Screening tools so that interventions can begin early Implement steps to improve transitions Education staff re: needs of the older adult Develop a waiting unit with beds that is more user friendly Minimize waits for older adults to in-patient beds.
Peters, M. (2010). The older adult in the emergency department: Aging and atypical illness presentation. *JEN: Journal of Emergency Nursing, 36*(1), 29-34. 2/2 US	Expert opinion. (Quick Response Program nurse and graduate student researching seniors in the ED) Describes characteristics of older adults that effect ED care (multiple comorbidities, polypharmacy, and atypical presentation of symptoms). Argues that physiological changes associated with aging combined with functional impairments (cognitive, hearing, visual, and mobility) and multiple comorbidities, polypharmacy lead to difficulties with diagnosis and treatment. Recommends obtaining a full medical history, complete medication list, and an assessment of function. States that ED nurses need to understand this patient population.
Shanley, C., Sutherland, S., Stott, K., Tumeth, R., & Whitmore, E. (2008). Increasing the profile of the care of the older person in the ED: A contemporary nursing challenge. *International Emergency Nursing, 16*(3), 152-158. 2/2	Expert opinion (group of health researchers, primarily nurses focused on senior's ED care) Shanley et al (2008) state that nurses have a pivotal role in contributing to better approaches for seniors in the ED and in raising the profile of quality geriatric ED care. Specific areas are: More comprehensive elder approach to assessment and discharge planning Improved communication with the patient and their personal care givers Attention to basic nursing care Making the physical environment safer and less stressful for the older

Australia	patient. "The traditional ED model focusing of rapid triage, treatment and throughput does not meet the needs of many older patients, who have complex presentations, and require comprehensive assessment and referral…emergency nurses need to view care of the older person as a central part of their own core business (p. 157). "Care for the older person is a mainstream issue and must be the responsibility of the whole health-care team" (p.155).
Terrell, K.M., Hustey, F.M., Hwang, U., Gerson, L., Wenger, N.S. & Miller, D.K. (2009). Quality indicators for geriatric emergency care. *Academic Emergency Medicine,* 16, 441-449. 2/2 US	Expert opinion. (Physicians on SAEM Geriatric Task Force) The Society for Academic Emergency Medicine Geriatric Task Force. Authors outline three conditions where quality gaps exist for older patient care in EDs – cognitive assessment, pain management, and transitional care in both directions from nursing home and EDs. For each condition they propose quality indicators (after rigorous analysis of the literature and consultation with other experts) and recommend research to test the feasibility of the indicators and the extent to which each indicator is currently met in ED care.
Voyer, P. &Sync-Norrena, L. (2003). Challenges in emergency room care for the elderly: If health services today do not adequately address our aging population, tomorrow's reality in emergency rooms will be overwhelming. *The Canadian Nurse,* 99 (1), 22-24. 2/2 Canada	Expert opinion. (Both are professors in the Faculty of Nursing Laval University). Write "Clearly, future ER nurses must possess Gerontological knowledge" (p.22). Report there are two types of mistakes that practitioners make when assessing the elderly – To see a problem when something just presents as a result of normal aging or to see a problem as normal aging. Voyer and Sync-Norrena report that ER nurses are more likely to make the latter mistake. Although there is a dearth of research related to the elderly in the ED, Voyer and sync-Norrena report that "care for the elderly can be improved by simple, yet important, interventions relating to hydration, thermoregulation, asepsis techniques and mobilization" (p.23). They report these interventions can reduce complications, hence improve outcomes.

Appendix G: Country of Origin

Citation	Country
Ackroyd-Stolarz, S., Guernsey, J.R., MacKinnon, N.J. & Kovacs, G. (2011). The association between a prolonged stay in the emergency department and adverse events in older patients admitted to hospital: a retrospective cohort study. *BMJ Quality and Safety*, 20(7), 564-569.	Canada
Kelley, M., Lou, Parke, B., Jokinen, N., Stones, M., & Renaud, D. (2011). Senior-friendly emergency department care: An environmental assessment. *Journal of Health Services Research & Policy, 16*(1), 6-12.	Canada
Robinson, S., & Mercer, S. (2007). Older adult care in the emergency department: Identifying strategies that foster best practice. *Journal of Gerontological Nursing, 33*(7), 40-47.	Canada
Hwang, U., & Morrison, R. S. (2007).The geriatric emergency department. *Journal of the American Geriatrics Society, 55*(11), 1873-1876.	Canada
Voyer, P. &Sync-Norrena, L. (2003). Challenges in emergency room care for the elderly: If health services today do not adequately address our aging population, tomorrow's reality in emergency rooms will be overwhelming. *The Canadian Nurse,* 99 (1), 22-24.	Canada

Carpenter, C.R., Heard, K., Wilber, S., Ginde, A.A., Stiffler, K., Gerson, L.W., Wenger, N.S. & Miller, D. (2011). Research priorities for high-quality geriatric emergency care: Medication management, screening, and prevention and functional assessment. *Academic Emergency Medicine*, 18(6), 644-654.	US
Coleman, E.A. (2003). Falling through the cracks: challenges and opportunities for improving transitional care for persons with continuous complex care needs. *Journal of American Geriatric Society*, 51(4), 549-555.	US
Desy, P.M. &Prohaska, T.R. (2008). The geriatric nursing education (GENE) Course: An evaluation. *Journal of Emergency Nursing*, 34(5), 396-402.	US
Hustey, F.M., Meldon, S.W., Smith, M.D., &Lex, C.K. (2003). The effect of mental status screening on the care of elderly emergency department patients. *Annals of Emergency Medicine*, 41(5), 678-684.	US
Nolan, M. R. (2009). Older patients in the emergency department. *Journal of Gerontological Nursing*, *35*(12), 14-18.	US
Peters, M. (2010). The older adult in the emergency department: Aging and atypical illness presentation. *JEN: Journal of Emergency Nursing*, *36*(1), 29-34.	US

Roethler, C., Adelman, T., & Parsons, V. (2011).Assessing emergency nurses' geriatric knowledge and perceptions of their geriatric care. *JEN: Journal of Emergency Nursing, 37*(2), 132-137.	US
Terrell, K.M., Hustey, F.M., Hwang, U., Gerson, L., Wenger, N.S. & Miller, D.K. (2009). Quality indicators for geriatric emergency care. *Academic Emergency Medicine,* 16, 441-449.	US
Press, Y., Margulin, T., Grinshpun, Y., Kagan, E., Snir, Y., Berzak, A., &Clarfield, A. M. (2009).The diagnosis of delirium among elderly patients presenting to the emergency department of an acute hospital. *Archives of Gerontology & Geriatrics, 48*(2), 201-204.	Israel
Rutschmann, O. T., Chevalley, T., Zumwald, C., Luthy, C., Vermeulen, B., & Sarasin, F. P. (2005). Pitfalls in the emergency department triage of frail elderly patients without specific complaints. *Swiss Medical Weekly, 135*(9-10), 145-150.	Switzerland
Bentley, J. & Meyer, J. (2004). Repeat attendance by older people at Accident and Emergency Departments. Issues and Innovations in Nursing Practice, 48 (2), 149-156.	UK
Bridges, J. &Nugus (2008). Dignity and significance in urgent care: Older people's experiences. *Journal of Research in Nursing,* 15(1), 43-53.	UK

Dunnion, M. E., & Kelly, B. (2005).From the emergency department to home. *Journal of Clinical Nursing, 14*(6), 776-785.	UK
Kihlgren, A. L., Nilsson, M., &Sørlie, V. (2005). Caring for older patients at an emergency department -- emergency nurses' reasoning. *Journal of Clinical Nursing, 14*(5), 601-608.	Sweden
Considine, J. Smith, R. Hill, K. Weiland, T., Gannon, J. Behn, C. Wellington, P. & McCarthy, S. (2010). Older peoples' experience of accessing emergency care. *Australian Emergency Nursing Journal,* 13. 61-69.	Australia
Hare, M., Wynaden, D., McGowan, S., & Speed, G. (2008). Assessing cognition in elderly patients presenting to the emergency department. *International Emergency Nursing,* 16, 73-79.	Australia
Shanley, C., Sutherland, S., Stott, K., Tumeth, R., & Whitmore, E. (2008). Increasing the profile of the care of the older person in the ED: A contemporary nursing challenge. *International Emergency Nursing, 16*(3), 152-158.	Australia
Richardson, S. Casey, M. & Hider, P. (2007). Following the patient journey: Older persons' experiences of emergency departments and discharge. *Accident and Emergency Nursing,* 15(3), 134-140.	New Zealand