DEVELOPMENT OF A LEARNING MODULE FOR EMERGENCY DEPARTMENT NURSES TO IMPROVE GERIATRIC KNOWLEDGE TO GUIDE GERIATRIC PATIENT CARE

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Abstract

Background: Canada's population is aging, and the geriatric patient population utilizes emergency departments (ED) at increasingly high numbers. Older patients (65 +) often present to the ED with complex atypical disease presentations, putting them at a higher risk for morbidity and mortality if not recognized. Since the ED model is traditionally designed for rapid assessment and triage, providing effective care to older adults presents many challenges. ED nurses are expected to detect frailty and vulnerability and recognize atypical symptoms of a hidden disease (i.e., geriatric syndromes). However, it is difficult to ensure the delivery of consistent assessments and care in the ED without specific geriatric knowledge and education. **Purpose:** The purpose of this practicum was to develop a geriatric learning module (GLM) to improve ED nurses' geriatric knowledge to better guide patient care and assessment. **Methods:** The four methods consisted of 1) an integrated review to identify factors influencing nurses' ability to care for and address the complex needs of older adults visiting the ED and to identify potential strategies to enhance nurses' knowledge and overall geriatric care in the ED, 2) an environmental scan to determine what geriatric resources and policies were available, 3) consultations with ED nurses to identify practice and knowledge issues related to the care of geriatric patients in the ED, and identify educational needs through a questionnaire, 4) the development of the GLM. **Results:** The literature review identified individual and work environment level factors influencing the care of older adults in ED. Individual-level nursing factors included knowledge gaps, limited experience, negative perceptions, and attitudes. A lack of appropriate physical space and equipment, workload and staff shortages, and ED culture were work environment-level factors. The strategies to improve geriatric care and assessment included education, Geriatric Emergency Management (GEM) nurses, focused nursing assessments, and

Geriatric Emergency Department Intervention (GEDI) (i.e., multidisciplinary teams). The environmental scan strengthened the review findings and provided additional information about assessment methods, geriatric educational resources, and the educational needs of nurses. During the consultations, the nurses identified perceived barriers to providing quality care to older ED patients consistent with the literature. Based on the integrated literature review findings, environmental scan, and consultations, a GLM containing six modules and three case studies was developed. **Conclusion:** The GLM was developed to address the learning needs of the ED nurses and provide the foundational geriatric knowledge and skills to guide geriatric triage, assessment, and care to help improve outcomes for older patients in the ED. The GLM will be incorporated into the onboarding and orientation of nurses joining the ED team.

Keywords: *emergency department, nurses, geriatric care, outcomes, atypical*

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Abbreviations

Canadian Nurses Association (CAN)

Confusion Assessment Method (CAM)

Clinical Frailty Scale (CFS)

Clinical Safety Reporting System (CSRS)

Community Emergency (CE)

Cumulative Index to Nursing and Allied Health Literature (CINAHL)

Emergency Department (ED)

Emergency Nurses Association (ENA)

Facts on Aging Quiz (FAQ)

Geriatric Emergency Department Intervention (GEDI)

Geriatric Learning Module (GLM)

Geriatric Emergency Management (GEM)

Identifying Seniors at Risk (ISAR)

Joanna Briggs Institute (JBI)

Length of Stay (LOS)

Mixed Methods Appraisal Tool (MMAT)

Multidisciplinary Team (MDT)

Newfoundland Health Services (NLHS)

Nonrandomized Control Trial (NRCT)

Public Health Agency of Canada (PHAC)

Registered Nurses Association of Ontario (RNAO)

Introduction

Canada's population is rapidly aging, and Canadian seniors are living longer because of advances in health care (Canadian Institute for Health Information [CIHI], 2017). This rapid growth in the older population impacts the number of older adults (65 +) who access the emergency department (ED) because it plays an important role in the health of many as they age (Hunt, 2020). Canadian EDs welcome more patients over 65 than any other cohort, accounting for 20% - 40% of all visits (Latham & Ackroyd-Stolarz, 2014). The increase is also experienced at St. Clare's ED; based on data from Cognos Internal Reporting System at Newfoundland Health Services (NLHS), Eastern Urban Zone, this cohort's total visits to the ED increased by 10% from 2012 to 2020, with an additional 3500 people over the age of 65 visiting the ED.

Older adults visit the ED for a variety of reasons. The main reason older adults visit the ED is after a fall; other reasons include exacerbations of their chronic conditions, impaired mental status (e.g., dementia, delirium, depression), acute illness (e.g., coronary disease and abdominal pain), adverse drug effects, substance abuse, infections, and environmental and social reasons (Samaras et al., 2010). Unfortunately, many of these older patients are deemed a community emergency (CE), the term given to an elderly patient who is not admitted and can no longer be cared for at home or place of residence; they stay in the ED for weeks awaiting placement in a care facility. Since April 2022, St. Clare's ED has housed 33 CEs, and their average length of stay (LOS) in the ED is nine days (Cognos Internal Reporting System at NLHS). Given that the ED model is traditionally designed for rapid assessment and triage in the context of high flow, providing complex care to older adults does not fit that model (Taylor et al., 2015). As a result, the quality of care for those increasing numbers of complex older adults accessing the ED and living in the ED for weeks is concerning.

For several reasons assessing and providing care for older adults in the ED can be complicated. Older adults often present to the ED with physical and psychological symptoms that may be atypical, multiple chronic conditions, polypharmacy, and a higher prevalence of cognitive disorders (CIHI, 2017; Samaras et al., 2010). This complexity makes it very challenging for ED nurses to triage and prioritize presenting problems, especially if they lack specialized training in geriatrics (Taylor et al., 2015). Older adults tend to have longer LOS, repeat ED visits, increased hospital admissions and are at significant risk for negative health outcomes and adverse events while in the ED and following an ED visit (Gruneir et al., 2011; Latham & Ackroyd-Stolarz, 2014; Schnitker et al., 2011). Additionally, increased LOS in the ED puts older adults at an increased risk for complications (e.g., delirium and falls) (Émond et al., 2018).

While the problem is multifactorial, with many other issues and barriers identified in the literature, ED nurses are often the first and most frequent professionals caring for older adults. As a result, ED nurses should be able to see past the atypical presentation of the older adult and uncover hidden complexities (De Brauwer et al., 2021). A relative lack of gerontological skills, practice, and understanding of the aging process among ED nurses adds to the strain of adequately addressing and caring for older patients' complex and interrelated health and social needs (Deasey et al., 2014). Research suggests that ED nurses feel competent in acute situations but incompetent when caring for complex older patients (Skar et al., 2015) and that they lack the knowledge and education to care for this patient population and promote optimal outcomes (Deasey et al., 2018; Tacchini-Jacquier & Morin, 2016; Rawson et al. (2017). It is recognized that early detection of frailty, vulnerability, and recognition of the atypical symptoms of a hidden disease (i.e., geriatric syndromes) may help reduce or prevent possible adverse events (Gruneir et

al., 2010; Samaras et al., 2010). So, improving ED nurse's gerontological knowledge and assessment skills is important because clinical outcomes for older adults tend to improve when they are cared for by nurses with training in gerontological care (Rawson et al., 2017; Leaker & Holroyd-Leduc, 2020).

Historically, nurses have not received adequate geriatric education through formal or continuing education programs to fully care for frail older people (Boltz et al., 2013; Désy & Prohaska, 2008). Furthermore, ED nurses report that they should receive education on age-related changes to help them better identify and detect geriatric syndromes (Boltz et al., 2013). Having nurse educators integrate principles of geriatric care into unit orientations and continuing education opportunities is an important step toward addressing the lack of knowledge (Hunt, 2020).

As the manager of St. Clare's ED, I have observed several issues related to the quality of care provided to the increasing number of older patients utilizing the ED. Specifically, I have seen examples of a lack of knowledge about missed geriatric syndromes on triage during chart audits, increased Clinical Safety Reporting System (CSRS) reports related to the complex care that older patients require, and increased falls. Many of these omissions and issues could have been avoided if nurses had properly identified these geriatric syndromes. The nursing staff has also voiced their frustrations to me about the number of complex older patients in the ED and how they feel ill-equipped to deal with it.

Objectives

The overall goal of this practicum was to develop a learning module for ED nurses to improve geriatric knowledge and skills needed to guide geriatric patient care effectively. The key practicum objectives were:

1. To identify factors (i.e., barriers and facilitators) influencing nurses' ability to care for and address the complex needs of older adults visiting the ED.
2. To identify potential strategies to enhance nurses' knowledge and overall geriatric care in the ED.
3. To describe relevant issues with the current care of geriatric patients accessing the local ED in consultation with ED nurses.
4. To develop a learning module to improve the geriatric knowledge and skills of the nurses working in the ED at St. Clare's.
5. To demonstrate the application of the advanced nursing practice competencies: education, research, leadership, consultation and collaboration.

Overview of Methods

To achieve the objectives of this practicum, an integrative literature review, an environmental scan and consultations with ED nurses were completed to identify factors influencing nurses' ability to care for and address the complex needs of older adults visiting the ED, to identify potential strategies to enhance nurses' knowledge and overall geriatric care in the ED and to inform the development of a new Geriatric Learning Module (GLM) that will be incorporated into the onboarding for nurses joining the ED team.

Summary of the Literature Review

An integrative literature review (Whittemore & Knafl, 2005) was conducted to answer the research question, "What factors influence ED nurses' ability to care for and address the complex needs of older adults, and what are some possible strategies to enhance nurses' knowledge and improve geriatric care and outcomes." A search was conducted in January 2023 using the following databases: Cumulative Index to Nursing and Allied Health Literature

(CINAHL), Scopus, PubMed, Web of Science, and Google Scholar for grey literature. PubMed, Scopus, and Web of Science databases were searched using Medical Subject Headings (MeSH) of ‘geriatrics’ or ‘older, adult’ and ‘emergency nursing’ and ‘emergency service, hospital’ and ‘nursing care’. The CINAHL databases were searched using the terms “geriatrics” OR “older adults” OR “elderly” OR “aged” OR “older” OR “elder” OR “elderly”, “emergency nurses” OR “emergency department nurse” OR “emergency room nurse”, “emergency department” OR “emergency room” and “nursing care”. The search was confined to English-language full-text articles and limited to publications from January 2015 to January 2023. The search was limited to these years to capture more contemporary literature that accurately reflects the current care needs of the geriatric population. A total of 525 articles were found, and 15 articles were included in the final review. These included quantitative studies (n = 8), qualitative studies (n = 2), mixed methods (n = 3), and systematic reviews (n = 2). Quantitative studies and systematic reviews were critiqued using the Public Health Agency of Canada’s (PHAC) Critical Appraisal Tool Kit (2014). Qualitative studies were critiqued using the Joanna Briggs Institute (JBI) critical appraisal tool (2020). The quality of the mixed-method studies was critiqued using the Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018). The overall quality of the studies ranged from low to medium, and no studies were rated high quality. The full literature review and summary tables can be found in Appendix A.

Factors Influencing the Care of the Older Patients in the ED

Individual Level Factors

Two overarching themes were identified as factors influencing the care of the older adult in the ED, individual and work environment level factors. Three sub-themes of individual-level

nursing factors that influence the care of older adults in the ED are knowledge, experience, perception and attitudes.

Knowledge

ED nurses are responsible for providing knowledgeable care when managing older adults in the ED. However, research has shown that ED nurses often lack the geriatric knowledge and understanding of the aging process needed to care for this cohort (Deasey et al., 2018; Rawson et al., 2017; Tacchini-Jacquier & Morin, 2016; Monel, 2020). In two studies where ED nurses had to self-rate their knowledge and practice, there was a mismatch between the perception of their abilities and the result of their evaluation of knowledge (Monel, 2020; Rawson et al., 2017). High self-ratings of the ED nurse's practice demonstrate a perception that they were knowledgeable about geriatric care when they got some of the related knowledge questions wrong (Rawson et al., 2017). Indicating that they perceive themselves as knowledgeable when the evidence suggests knowledge gaps exist.

Additionally, the need for education and training to increase the ED nurse's knowledge was identified and threaded throughout many studies. Specifically, evidence of a lack of gerontological knowledge and the need for increased education was highlighted in studies where ED nurses could answer open-ended questions or participate in focus groups (Bulut et al., 2015; Monel, 2020; Taylor et al., 2015; Wolf et al., 2019). One mixed-method study conducted with participants from the United States, Canada, and Hong Kong to examine ED nurses' perceptions of geriatric readiness in the ED setting indicated that EDs are not ready (Wolf et al., 2019). The ED nurses identified a lack of knowledge as one of the main contributors to the lack of readiness and further identified nursing education as the top priority for optimizing the care of geriatric patients in the ED (Wolf et al., 2019).

Experience

Studies that examined the effect of experience on knowledge found that experience as an RN or years of experience in the ED did not correlate with knowledge (Rawson et al., 2017; Tacchini-Jacquier & Morin (2016). Tacchini-Jacquier & Morin (2016) found that the more experience the nurse had, the worse the score on geriatric knowledge but the better the score in the perception of skills. Indicating that the ED nurses may have perceived their ability of practical geriatric skills to be better because they were more experienced.

Perception and Attitudes

Nurses play an important role in contributing to a positive experience and good outcomes for the older person utilizing the ED. Nurses' perceptions and attitudes toward older adults in the ED can affect the care they provide and their interactions with older adults (Deasey et al., 2016).

Positive Attitudes. Two cross-sectional studies examined ED nurses' attitudes toward older people (Deasey et al., 2016; Monel, 2020). Both studies reported that ED nurses mostly felt they often had positive experiences and attitudes regarding the care they provided to older adults. Results of other studies also highlighted elements reflecting positive attitudes (Bulut et al., 2015; Taylor et al., 2015). Bulut et al. (2015) found that nurses felt it was their professional responsibility to care for older adults and wanted to provide good care. Similarly, some nurses felt moral distress with the quality of care they provided to older patients due to competing priorities (Taylor et al., 2015). While these examples display nurses' positive attitudes towards older adults in the ED, other factors contributed to the quality of care the nurses provided.

Negative Attitudes. However, not all nurses have positive attitudes toward older adult care. While some studies reported overall positive attitudes, some concurrently uncovered underlying negative ones. Some of these negative attitudes about care are related to older adults'

characteristics or are reflected in their care demands (e.g., demanding, time-consuming) (Bulut et al., 2015; Gallagher et al., 2015). Some less-than-positive attitudes are reflected in ED nurses expressing that the ED is an inappropriate place to care for older people and that they do not belong there with nonacute presentations (Bulut et al., 2015; De Brauwer et al., 2021). It is also reflected in some of the ED nurse's use of language when referring to older patients with chronic conditions as 'frequent flyers' (Gallagher et al., 2015) or 'troublesome cases or bed-blockers' (De Brauwer et al., 2021).

Work Environment Factors

In addition to nurses' knowledge, experience, and attitudes, the working environment also influences the care of the older adult in the ED. Factors of the nurse's work environment can affect their ability to provide safe and quality patient care. A lack of appropriate physical space and equipment, workload and staff shortages, and ED culture have been identified in the literature as factors affecting nursing care.

Physical Space and Equipment

Aspects of the work environment affecting the quality of care provided to older adults were identified in two studies (Bulut et al., 2015; Wolf et al., 2019). Specifically, care was influenced by the physical environment (Bulut et al., 2015) and a lack of resources and equipment (Bulut et al., 2015; Wolf et al., 2019). Fewer than half the nurses in one mixed-method study identified that geriatric-friendly equipment (i.e., ambulatory aids, safety mats, sensory aids) was not always available in their EDs in the survey portion of the study, which was further corroborated during the focus groups (Wolf et al., 2019). The nurses highlighted that a lack of equipment makes it difficult to keep patients safe and maintain their dignity.

Workload and Staffing

No studies specifically identified how workload and staffing affected the care provided to older adults in the ED. However, both factors are interconnected and surfaced as contributing factors affecting the care of older adults in a few studies (Bulut et al., 2015; Gallagher et al., 2015; Rawson et al., 2017; Wolf et al., 2019). In the study by Bulut et al. (2015), nurses suggest that staffing shortages and the complexity of caring for older patients often mean older adults do not get the care they need. This factor also surfaced during the focus groups when nurses indicated that the number of nurses in the ED was quite low (Bulut et al., 2015).

Similarly, workload emerged as both a theme and a barrier to quality geriatric care in the study by Wolf et al. (2019). Challenging presentations to the ED plus limited cognitive and physical impairments resulted in longer assessments and processes because older adults spend longer in the ED, which the nurses stated significantly increases their workload.

ED Culture

Most EDs are not equipped to meet older adults' needs due to their micro-culture, which can impact the quality of care for older adults (Skar et al., 2015). No studies specifically looked at the ED culture and its effects; however, one study identified it as one of their main themes (Taylor et al., 2015), and another study found evidence that the distinctive flow culture of the ED can affect the care of the older adult (De Brauwer et al., 2021).

In a focused ethnographic study, the researchers observed that the culture of the ED consisted of a time-pressured, rapidly changing environment where priorities were always changing concerning whom the sickest patients were at any given time. The nature of the ED is to get patients admitted or discharged, thus leaving the researchers to conclude that the culture made it very challenging for nurses to care for older patients (Taylor et al., 2015). The observation was confirmed when the nurses noted that the level of complexity that older patients

often present with did not fit with the rapid priority setting in the ED. In an observational study by De Brauwer et al. (2021), the researchers observed that there was 'no geriatric flow routine.' According to the researchers, the ED triage nurses prioritized, categorized, and labelled the problem (De Brauwer et al., 2021). Older patients do not fit neatly into this concept nor the flow culture of the ED.

Strategies to Improve Older Adult Care

Healthcare organizations need strategies to improve the quality of care and outcomes in the fastest-growing population. Four strategies were identified that could help ensure the highest quality of care for older adults in the ED, including education, Geriatric Emergency Management (GEM) nurses, focused nursing assessments, and Geriatric Emergency Department Intervention (GEDI) (i.e., multidisciplinary teams).

Education

It is documented in the literature that a lack of knowledge may influence the outcomes of older adults (Deasey et al., 2014). Despite ED nurses reporting the need for educational opportunities to prepare them better to care for older adults (Bulut et al. (2015; Taylor et al., 2015; Wolf et al., 2019), little research was found. Only one nonrandomized control (NRCT) longitudinal study was found that evaluated and explored the effect of a geriatric workshop on the attitudes and knowledge of ED nurses (Rhew et al., 2017). Interestingly, both groups showed an improvement in knowledge of aging and attitudes from the initial pretest to the four-week posttest and no difference between groups was found. The researchers did say that some of the EDs were part of a Nurses Improving Care for Health System Elders (NICHE) program, so it is plausible that improvements in the control group over time could be attributed to events at their specific ED or that after doing the pretest some nurses were motivated to doing some self-study.

Regardless of how it happened, these improvements in knowledge and attitudes fuel the need for educating ED nurses on this important topic, specifically on the importance of improving knowledge of geriatric syndromes and atypical disease presentations to ensure the quality of care.

GEM Nurse

Many Canadian EDs have hired GEM nurses to meet the needs and improve outcomes for older adults in the ED. GEM nurses are ED nurses with advanced training in geriatrics who can better identify, assess, and manage the complex care needs of older adults during their ED visits (Leaker & Holroyd-Leduc, 2020). Gem nurses have been known to effectively access and manage the complex care needs of older adults and reduce unnecessary hospitalizations. In a recent well-conducted system review (n = 8), Leaker and Holroyd-Leduc (2020) appraised the impact of having a GEM nurse in the ED on the care provided to frail older adults. Specifically, the researchers looked at the impact of assessments and interventions regarding ED revisits, hospital admissions/readmission rates, and other outcomes (Leaker & Holroyd-Leduc, 2020).

The results of the included studies varied. Three of the five studies in the review found that a GEM intervention reduced ED revisits. Four of five studies found that having a GEM nurse was associated with reduced admission/readmission. One study in the review showed that having a GEM nurse reduced functional decline at the 4-month mark, while one showed increased patient satisfaction. GEM nurses working in the ED can be effective at helping to reduce repeat ED visits and unnecessary hospitalizations and create more durable transitions for these patients by linking them with various home and community supports (Leaker & Holroyd-Leduc, 2020). Additionally, through education, GEM nurses can foster friendly geriatric attitudes and practices in the ED.

Focused Nursing Assessment

Geriatric-focused nurse assessments and interventions are duties performed within a nurse's scope of practice as part of a multidisciplinary team (MDT). In a well-conducted systematic review (n = 9) that included only experimental studies, Malik et al. (2018) reviewed the impact of geriatric-focused nursing assessments and interventions on admission rate, ED revisits, and LOS. The results showed no significant impact of the focused nursing assessments and interventions on patient outcomes. However, three of the five studies that examined ED revisits showed a significant reduction in ED revisits (Malik et al., 2018). While it was difficult to draw any definitive conclusions, focused assessments that extend post-ED discharge into primary health care can impact readmission rates (Malik et al., 2018).

GEDI Team

Evidence exists to support that MDT care of older patients leads to reduced ED length of stay, decreased ED revisits, decreased hospital admissions, improved functional outcomes, and increased system-level healthcare cost savings (Hickman et al., 2015; Marsden et al., 2022; Wallis et al., 2018). Once such, MDT is a GEDI team or intervention, which consists of an ED physician champion and advanced practice nurse with additional education in gerontology and the care of older adults (Craswell et al., 2016). As part of that team, the GEDI nurse identifies older people presenting to the ED who would benefit from the expertise of the GEDI team through screening and targeted geriatric assessments (Craswell et al., 2016). Two studies were identified that evaluated the effectiveness of implementing the GEDI model of care in Australian EDs on older adult healthcare outcomes (Marsden et al., 2022; Wallis et al., 2018).

While the results of these studies cannot be generalized outside of Australia, they highlight and support the notion that a team of practitioners with specialized geriatric training

can streamline care and improve outcomes for older adults in the ED, making the model of care very translatable. Also supporting that advanced practice nurses can replace nurse practitioners in this role if there is a strong physician champion to consult with and advise (Wallis et al., 2018)

Summary of Environmental Scan

The overall goal of the environmental scan was to determine what resources and policies were available to aid in building the foundational geriatric knowledge, skills, and systematic process needed to guide geriatric patient care and improve outcomes in the ED. Information that was identified assisted in developing the GLM.

The environmental scan (Appendix B) was conducted in two parts. The first part of the environmental scan was completed by conducting a 1-hour Microsoft Teams meeting that involved a discussion with key stakeholders. Key stakeholders included two NLHS clinical educators; one responsible for educating ED nurses in the Eastern urban (Health Sciences and St. Clare's ED) zone, the other responsible for the Eastern rural zones, and the Eastern urban ED program manager. The clinical educators and the program manager were very knowledgeable about the content of their orientation packages and other educational material and policies that guided older adult care. The second part of the environmental scan was conducted to find online resources about geriatric care by viewing the provincial LEARN system and the Intranet at NLHS. An online scan of what other provinces do in their EDs to enhance geriatric education and care (e.g., screening tools and educational materials) was also completed.

Findings suggested limited geriatric resources and policies available at NLHS, in the current ED orientation, or at other Canadian EDs. Resources did exist for identifying and managing delirium, dementia, and depression, but they were specific to caring for the patient in a long-term care setting. Similarly, other Canadian websites and ED resources were geared toward

the physician group. An inductive content analysis process (Elo & Kyngäs, 2008) was chosen to manage the data and analysis found in the environmental scan. The method helped code and create the categories that explained and described the current state of the available educational resources with a geriatric focus. Three main themes were identified: *Assessment Methods,* *Limited Geriatric Educational Resources,* and *Identified Educational Needs*.

Summary of Consultations

The overall objectives for the consultations were to assess the overall need for a GLM and to inform its development. Consultations occurred with nurses working at St. Clare's ED (N = 8), four experienced ED nurses and four inexperienced nurses. A nurse must work in the ED for two years before being considered an experienced ED nurse, regardless of previous nursing experience. The objectives were achieved by utilizing a questionnaire to examine the nurse's current geriatric processes and knowledge, their thoughts on knowledge gaps, facilitators and barriers to caring for the older patient in the ED and gaining feedback on the educational topics they wanted to include in the GLM. The full report and questionnaire can be found in Appendix C.

All questionnaires (N = 8) were returned. Descriptive statistics were used to describe data in sections A and B of the questionnaire. All eight nurses (100%) rated their colleagues' overall older adult knowledge skill level as "somewhat knowledgeable". While all eight nurses correctly answered all the basic knowledge questions, few had completed any courses or modules on physical or cognitive assessment for older adults. Also, variations were noted in the practice of conducting cognitive assessments.

Notably, there were not many glaring differences between the two groups. However, one difference was that 100% of the experienced ED nurses (~avg of 8 years of ED experience)

reported that the current orientation did not adequately prepare new ED nurses to work with older patients, and 100% of the inexperienced or new ED nurses who did orientation less than 2 years ago reported that it did. Interestingly, there has been little modification to the orientation over the last six years, and it contains very little geriatric educational content. In Part B, all eight nurses answered all five questions correctly in the geriatric knowledge questions.

An inductive content analysis process was used to manage the data and analysis, which helped code and create the categories or themes that highlighted the questionnaire results (Elo & Kyngäs, 2008). Three overall themes were identified from an analysis of the questionnaire results: *barriers and facilitators to providing care, the need for geriatric training, and educational topics and learning methods*), which coincided with the literature review findings.

Theoretical Framework

The theoretical frameworks chosen to address ED nurses' learning needs and help guide the planning of the GLM were two adult learning theories: Knowles' Theory of Andragogy (1984) and the theory of Constructivism (McLeod, 2019). The ED program is changing its nursing orientation to an onboarding process in keeping with the Emergency Nurses Association (ENA) (2022) expectations. Onboarding is a structured process that welcomes new hires into their new role and is important in nursing because it will help the nurse, both new graduates and experienced nurses, start work in their new area without feeling completely overwhelmed (Prvulovic, 2023). The process will help them feel welcome and have the knowledge, policies, and protocols needed to feel supported and grow in their new area. The curriculum part of the current orientation is taught using the traditional (didactic) method with little interaction, which is mostly the part that will change. The method will switch to more of an immersive didactic teaching method. Depending on the content (i.e., harm reduction, inclusivity, code blue), self-

directed learning in the morning sessions will be combined with immersive/interactive afternoon group sessions (i.e., case study, low and high simulation).

Emergency nursing is a specialty type of nursing that requires a unique skill set for patient assessment and interventions based on a presenting chief complaint and the patient's acuity level. The ED nurses' expertise is tailored to the diverse patients they care for, so providing competent emergent, urgent, and non-urgent care to patients across the health and age continuum is critical (ENA, 2022). The complexity of knowledge and skill needed to be a competent emergency nurse requires various learning methods (i.e., self-paced learning modules with follow-up discussions, simulation with debriefing, and case scenarios) (ENA, 2022).

Learning theories can help guide nursing practice and assist with developing educational programs for nurses (Aliakbari et al., 2015). So, utilizing the principles embedded in both adult learning theories will ensure that the self-directed GLM will help engage nurses and increase their knowledge base.

Knowles' Theory of Andragogy

Knowles' Theory of Andragogy (1984) focuses on adult learners and asserts that adults have different learning characteristics than children. This theory fits this project since the target population is adult ED nurses. This theory also asserts that adults are most interested in learning relevant and impactful things and that adult learning is problem centred. Adults can learn best when the focus shifts from subject-based learning or simply knowing a concept to more problem-focused content or actual knowledge and skills to help them solve problems (Knowles et al., 2015). The six principles of andragogy are: 1) the learner's need to know, 2) self-concept of the learner, 3) prior experience of the learner, 4) readiness to learn, 5) orientation to learning, and 6)

motivation to learn (Knowles et al., 2015). These principles will be discussed as they apply to the development of the GLM for ED nurses.

Learner's Need to Learn

The first principle, the learner's need to know, is based on the premise that adults want to know why they need to have the knowledge and what the benefit will be in possessing that knowledge before taking action to learn it (Knowles et al., 2015). If adults perceive the need for education, they will engage in learning activities if they feel it will benefit their practice. It was evident from the literature review and nursing consultations that ED nurses themselves report that they should receive education on age-related changes to help them better identify and detect geriatric syndromes (Boltz et al., 2013). Specifically, ED nurses identified a knowledge deficit as one of the main contributors to the lack of geriatric readiness in the ED setting, further identifying the need for nursing education as the top priority for optimizing the care of geriatric patients in the ED (Wolf et al., 2019). The knowledge obtained from the GLM developed through the practicum project will benefit the ED nurses in that it may increase their competence and confidence levels when caring for geriatric patients.

Learner's Self-Concept

The second principle, self-concept of the learner, involves the adult's ability to be self-directed and responsible for their learning (Knowles et al., 2015). Adults want to be responsible for their learning and be seen as capable of being self-directed; however, factors such as motivation affect that. Adults are motivated by both internal and external factors, but it can be blocked by barriers such as negative self-concept from previous learning experiences. Adults uncomfortable in certain learning situations can be provided with front-end learning experiences to help them transition from dependent to self-directed learning (Knowles, 1989). This GLM will

provide nurses with valuable front-end information and learning that they can use in their everyday practice. Throughout the session, the nurses will engage in various learning activities such as built-in knowledge checks, reflection, and mini-case studies, giving them a certain level of control and independence, which will further help them during the afternoon case study discussions.

Prior Learner Experience

The third principle of adult learning, prior experience of the learner, suggests that with age comes experience, in that adults bring a range of different life experiences compared to children, which allows them to connect their learning to those life experiences to gain a better understanding of the material they are learning (Knowles et al., 2015). This premise was important to keep in mind when developing the GLM. Whether the nurses attending orientation are new graduates or experienced nurses joining the ED, they can draw on past experiences caring for geriatric patients during self-directed learning. They can use the new knowledge they have gained and reflect upon how they cared for geriatric patients differently in those past experiences. The GLM will be added to the orientation to increase ED nurses' gerontological knowledge and assessment skills to build on existing knowledge and experience to provide quality patient care that may result in better patient outcomes. Allowing for sharing experiences, for example, in group discussions, is an important teaching method under this assumption (Knowles et al., 2015) and could be utilized during the case study discussion.

Readiness to Learn

The fourth principle, readiness to learn, is based on the premise that adults desire knowledge to help them handle real-life situations more effectively (Knowles et al., 2015). Adult learners want to learn material that they can use in the present and are less concerned with

future-oriented initiatives. The literature review and nursing consultations determined that the population is aging, and older adults are utilizing the ED for care in increasingly high numbers and spending weeks in the ED awaiting placement in long-term care. Therefore, there is an educational need and readiness to learn more about geriatric care. This GLM will provide nurses with relevant information to their practice to enhance patient care and outcomes. Case studies offered at the end of the self-learning session will allow the nurses to apply their new knowledge to potential real-life scenarios.

Orientation to Learning

The fifth principle, orientation to learning, states that an adult views education as a process to improve their current situation in life or work (Knowles et al., 2015). It is important for nurses to feel that this GLM will be important to their nursing practice and will have a positive impact on their work, the care they provide, and their patients (Knowles et al., 2015). Again, the results of the literature review and nursing consultations support the development of this GLM. Additionally, to help promote effective learning, activities must actively engage the participants (Knowles et al., 2015). As mentioned, there will be some reflective questions, knowledge checks, and discussions during the case studies.

Motivation to Learn

The final principle, motivation to learn, assumes that adult learners are motivated to learn by internal factors, such as increased job satisfaction and confidence (Knowles et al., 2015). It was discussed throughout the literature that a relative lack of gerontological skills, practice, and understanding of the aging process among ED nurses adds to the strain of adequately addressing older patients' complex and interrelated health and social needs. Historically, nurses have not received adequate geriatric education through formal or continuing education programs to fully

care for frail older people (Boltz et al., 2013; Désy & Prohaska, 2008). ED nurses feel competent in acute situations but incompetent when caring for complex older patients (Skar et al., 2015). Nurses are more likely to learn and absorb information if they feel motivated and the content is relevant. The GLM content will address this motivation to learn and potentially contribute to improved job satisfaction and competence in caring for older adults.

Constructivism

The theory of Constructivism posits that learning is not simply transmitted from the instructor to the learner. Instead, the learner is the driving force behind their knowledge development and the meaning they create for themselves (McLeod, 2019). In Constructivism, instructors act as facilitators for learners, asking questions and providing information that learners can use to explore the concepts being taught. Learners use their existing knowledge, experiences, and beliefs to understand new concepts, link old information to new information, and contextualize it (McLeod, 2019).

Encouraging discussion and questions during the case studies shows a recognition that some adults may have more knowledge of geriatric concepts. Recognizing that adult learners are practical and problem-based learners, the case discussion will draw on real-world examples, allowing the nurses to apply knowledge and make the experience more meaningful (Collins, 2004). The case discussion will allow the educator and nurses to interact, encouraging knowledge-sharing between colleagues. It will also allow for any questions the nurses might have from the information presented in the GLM, and encouraging questions and discussion should help increase learner engagement.

The case study method as a teaching strategy was chosen for its ability to help facilitate learning and discussion. The case method combines two elements: the case itself and the

discussion of that case (Science Education Resource Center, 2018), and it was added as a strategy because it emphasizes learning rather than teaching; students do the work in a case discussion rather than watch or read about it (Nair, 2017). For a case study to be successful, the learners must have a basic knowledge of the topic. After completing the modules, nurses should have at least a basic level of geriatric knowledge. The case discussion requires more time to prepare and do well (Nair, 2017); however, it is worth the extra effort because it can help engage the learner (Thistlethwaite et al., 2012).

Summary of the Resource

The results of the integrated literature review, environmental scan, and consultations were instrumental in informing the development of the GLM. The educational topics, content and mode of delivery were chosen based on information obtained through these measures. The mode of delivery chosen was a series of self-learning modules followed by three case studies to help reinforce learning. This mode of delivery aligns with the new ED onboarding, and the consultations helped reinforce that choice since the ED nurses chose self-directed learning as a favourite educational strategy.

The GLM (Appendix D) consists of six learning modules that will help provide the foundational geriatric knowledge and skills to guide geriatric patient care that could help improve outcomes for older patients in the ED. Text boxes are incorporated throughout the GLM to help present the information. Orange boxes include additional facts, green boxes include reflective questions and statements, and light-yellow boxes include links to extra learning and associated global and ED policies and protocols. The answer key to the knowledge checks is provided in Appendix A, and the educators' case study notes in Appendix B.

The first module reviews physiological changes that occur with aging according to the anatomical system, the concept of homeostenosis and diminished physiological reserves in the older adult, and a discussion of illness versus aging. Knowledge of underlying physiology and expected aging changes will help ED nurses distinguish what is normal and what is a warning sign.

The second model discusses various geriatric syndromes, their implications, and assessing frailty at triage. The purpose of this module is to define geriatric syndromes and provide an overview of their implications, discuss the triage process as it pertains to the geriatric patient and the concept of frailty as a modifier. Delivering acute care to this population in a busy ED presents unique challenges, so knowledge of the various geriatric syndromes and strategies can support the ED nurse's clinical decision-making to improve outcomes.

The third module distinguishes between dementia, delirium, and depression and further discusses the important link between delirium and sepsis. Geriatric patients are at increased risk for sepsis and delirium with poor outcomes. It is important to distinguish between dementia and delirium and identify any underlying sources, such as infection-causing delirium, before the infection leads to sepsis. To complicate matters, they often have atypical presentations of infection and sepsis. Giving ED nurses the knowledge to identify these conditions early is needed to promote the best possible outcomes. The module ends with a discussion of screening tools that ED nurses should use based on policy to help guide care and ensure that the patient receives care promptly.

The fourth module provides an overview of trauma and falls, including fall statistics, risk factors, and geriatric considerations when triaging an older adult after a fall. Given the

prevalence and severity of head trauma and hip fractures, they were the focus of this module, and it ends with a discussion of the current ED fall risk policy. This knowledge aims to prevent ED nurses from under triaging trauma and falls in older patients.

The fifth module discusses the atypical illness presentation of older adults to the ED. The module aims to help ED nurses recognize that weakness and other nonspecific complaints in older patients often obscure the underlying serious medical condition. The ED nurse should be alert to an atypical disease presentation by picking up on subtle cues or vague complaints that are geriatric red flags, such as weakness, dizziness, confusion, falls, functional decline, and comments like "just not right." Sometimes these are all real symptoms that are often the only clues to serious life-threatening conditions.

Lastly, the sixth module focuses on how physiologic changes that occur with aging can affect how the aging body responds to medications. It overviews the physiological effects on pharmacokinetics, pharmacodynamics, polypharmacy, and the most common high-risk medication. This knowledge will assist nurses ED nurses in being aware that the adverse effect of some medication generates many ED visits, whether due to the addition of at least one new drug or dose. Having the knowledge and asking the right questions during triage will guide the nurse in assessing the patient's risks.

The ED nurses will complete the self-learning modules in the morning orientation session. In the afternoon session, the educator will present three case studies that will be discussed as a group, allowing the nurses to apply the knowledge they learned from the modules.

Discussion of Advanced Practice Nursing (APN) Competencies

To practice at an advanced level, nurses must exhibit the effective blending and execution of core competencies in various practice environments (Canadian Nurses Association, [CNA]

2019). To guide nurses to practice safely and ethically in their roles and in the settings where they provide care, the CNA (2019) developed six core competencies. The following four competencies have been demonstrated through completing Nursing 6660 and 6661: education, research, leadership, and consultation and collaboration.

Education

Advanced practice nurses support all healthcare professionals' professional growth and learning needs. APNs can integrate their clinical experience with theory, research, and nursing knowledge to identify issues that have health implications for patients; develop new programs or policies; and plan, initiate or coordinate educational programs based on indicated needs, priorities, and organizational resources (CNA, 2019). The geriatric learning needs of ED nurses were identified by conducting the literature review, environmental scan, and nursing consultations in preparation for the development of the GLM. The GLM was developed to support the ED nurses by increasing their foundational geriatric knowledge, competence, and confidence levels when assessing and caring for older adults to optimize care.

Research

Advanced practice nurses identify, appraise and apply research to guide best practices to advance the nursing profession (CNA, 2019). An integrated literature review, critical appraisal, and synthesis of the literature were conducted and the evidence that was identified informed the development of the content and delivery of the GLM. Conducting my first full-scale integrative literature review and analysis allowed me to promote a more holistic understanding of the research topic and to strengthen my critical appraisal skills. Furthermore, it allowed me to make better use of the available evidence to develop a GLM that aims to improve overall knowledge and clinical practice.

Leadership

Advanced practice nurses are leaders in their workplace, community, and organization. They act as change agents, always looking for ways to improve practice and the quality of care (CNA, 2019). They identify problems such as the current quality of assessment and care being provided to our geriatric population in the ED and initiate changes to address this issue to improve that care. In a leadership role as the manager of St. Clare's ED, I have observed several issues related to the quality of care provided to the increasing number of older patients utilizing the ED. Specifically, evidence of missed geriatric syndromes and other concerns identified on triage during chart audits, increased CSRS reports related to the complex care that older patients require, and increased falls. Many of these omissions and issues could have been avoided if nurses had properly identified geriatric syndromes, underlying physiology and frailty. This ability to improve practice and the quality of care provided to older adults in the ED motivated me to develop the GLM through the practicum project.

Consultation and Collaboration

Advanced practice nurses must consult and collaborate with colleagues and multidisciplinary team members at the organizational, provincial, national and international levels (CNA, 2019). Timely and appropriate consultations were conducted with key stakeholders within the emergency program, including the clinical educator and the program manager, at various stages throughout the development of the GLM. During the development of the GLM, ED nurses were also engaged and consulted to help gather and synthesize qualitative and quantitative information to identify issues and gaps regarding geriatric knowledge, assessment and level of care.

Next Steps

The project did not involve the implementation of the GLM; however, it has been approved by the ED director to be incorporated into the onboarding and orientation of nurses joining the ED team. All ED onboarding and orientation sessions end with an evaluation component. The valuable feedback received over the years regarding content, relevance and flow has been instrumental in guiding our orientation to help ensure that nurses have the knowledge and tools necessary to be successful in the ED. So once the GLM is implemented, all nursing feedback will be discussed with key stakeholders, and the content will be modified accordingly.

Conclusion

The overall goal of this practicum was to develop a GLM for ED nurses to improve geriatric knowledge and skills needed to improve and guide geriatric patient care and assessment. A literature review, consultations with ED nurses, collaboration with stakeholders, an environmental scan, and my knowledge as a manager supported the need for the GLM.

The literature review helped to identify factors that influence the ability of nurses to care for and address the complex needs of older ED patients, such as lack of knowledge and educational opportunities, negative attitudes, physical settings and environments, workload and staffing, and ED culture. Additionally, the review helped identify strategies that could be implemented to support nurses in their quest to improve outcomes for older patients in the ED, such as geriatric-specific education, hiring GEM nurses, and implementing a GEDI team. The environmental scan and nursing consultations further highlighted a significant lack of geriatric-focused resources, gaps in knowledge and practice, and educational opportunities for ED nurses, as well as perceived barriers to providing quality care to older ED patients; all providing additional support for the development of the GLM.

Implementing strategies such as GEDI teams and hiring GEM nurses are two strategies that could improve care delivery in the ED; however, these are not feasible at this time due to fiscal constraints. Additionally, they do not address the current lack of ED nurses' geriatric knowledge, educational opportunities, and negative attitudes toward older adults. The current trend in the aging population, their increased utilization of the ED and the ED nurse's lack of geriatric knowledge and educational opportunities strongly support educating nurses and the development of GLM.

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Appendix A: Literature Review

Canada's population is rapidly aging, and Canadian seniors are living longer because of advances in health care. The older population (age 65 +) in Canada is projected to increase by 68% between 2017 and 2037, jumping from 6.2 to 10.4 million, respectively (Canadian Institute for Health Information [CIHI], 2017). The proportion of the population 65 and over in Newfoundland and Labrador jumped 4.2% from 2016 to 2021, sitting at 23.6% (Government of Canada, Statistics Canada, 2022). It is suspected that they will account for 27% of the province's population by 2026 (Provincial Advisory Council on Aging and Seniors, 2018)

This rapid growth in the older population impacts the number of older adults who access the emergency department (ED) because it plays an important role in the health of many as they age (Hunt, 2020). Older adults visit the ED for a variety of reasons. One of the main reasons older adults visit the ED are falls (15-30%), and another reason is the prevalence of chronic conditions, making them more susceptible to complications and exacerbations (Samaras et al., 2010). Other reasons include impaired mental status (e.g., dementia, delirium, depression), acute illness (e.g., coronary disease and abdominal pain), adverse drug effects, substance abuse, infections, and environmental and social reasons (Samaras et al., 2010).

Canadian EDs welcome more patients over the age of 65 than any other cohort, accounting for 20% to 40% of all visits (Latham & Ackroyd-Stolarz, 2014), and this number is expected to continue to increase (Leaker & Holroyd-Leduc, 2020). Based on the data from Cognos Internal Reporting System at Newfoundland Health Services (NLHS), Eastern Urban Zone, this cohort's total visits to St. Clare’s ED have increased by 10% from 2012 to 2020. That is an additional 3500 people over 65 visiting the ED. Community emergencies (CE), the term given to older patients who are not admitted and can no longer be cared for at home or in their place of residence, stay in the ED while awaiting placement in a care facility. Since the first

capture of this data (April 2022), the ED has housed 33 CEs, and their average length of stay (LOS) in the ED has been nine days. Given that the ED model is traditionally designed for rapid assessment and triage in the context of high flow, the quality of care for those increasing numbers of older people accessing the ED is concerning.

Providing care for older adults in the ED can be complicated for several reasons. Older adults often present to the ED with a combination of physical and psychological symptoms that may be atypical, multiple chronic conditions, polypharmacy, and a higher prevalence of cognitive disorders (CIHI, 2017; Samaras et al., 2010). This complexity makes it very challenging for ED nurses to triage and prioritize presenting problems, especially if they lack specialized training in geriatrics (Taylor et al., 2015). Older adults tend to have longer LOS, repeat ED visits, increased hospital admissions and are at significant risk for negative health outcomes and adverse events while in the ED and following an ED visit (Gruneir et al., 2011; Latham & Ackroyd-Stolarz, 2014; Schnitker et al., 2011). One study found that 20% of older adults were admitted to the hospital following their ED visits, and 9% over 85 had ED stays longer than 24 hours. Samaras et al. (2010) found that 10.3% and 19.3% of older adults revisited the ED within 30 days, and 17.2% and 26% revisited the ED within 90 days. The researchers also found that older adults experienced higher incidents of negative health outcomes such as functional decline and death. Specifically, a general decline in 10%-52% of older patients' short-term functional outcomes was noticed before three weeks. Approximately 1%-2.2% of older ED patients died within 30 days, and 2.4%-10% died within three months (Samaras et a., 2010). It is recognized that early detection of frailty, vulnerability, and recognition of the atypical symptoms of a hidden disease (i.e., geriatric syndromes) may help reduce or prevent possible adverse events (Gruneir et al., 2011; Samaras et al., 2010).

The growing number of ED visits by older adults and their increased risk of negative health outcomes and adverse events requires an immediate shift in focus. However, the recently released Health Accord (Health Accord NL, 2022) for Newfoundland and Labrador highlights that "the province as a whole and our health system have not adapted well to the increased numbers or to the increased percentage of the population who are elderly" (p. 75). In recent years, there has been a great deal of interest in how best to meet the complex healthcare needs of older adults in the context of a busy, chaotic ED (Hunt, 2020). However, many EDs, including the local ED, have been slow to address specific changes that would help improve the overall function and provide better outcomes for this population.

A relative lack of gerontological skills, practice, and understanding of the aging process among ED nurses adds to the strain of adequately addressing older patients' complex and interrelated health and social needs (Deasey et al., 2014). Historically, nurses have not received adequate geriatric education through formal or continuing education programs to fully care for frail older people (Boltz et al., 2013; Désy & Prohaska, 2008). ED nurses feel competent in acute situations but incompetent when caring for complex older patients (Skar et al., 2015), which may be related to the underrepresentation of older patient care issues in the nursing curricula. A relationship exists between adverse events that older adults experience while in the hospital and the knowledge of the staff caring for them (Lyons & Paterson, 2009). While the problem is multifactorial, with many other issues and barriers identified in the literature, ED nurses are often the first and most frequent professionals caring for older adults. As a result, ED nurses should be able to see past the atypical presentation of the older adult and uncover hidden complexities, which require more education. Arming ED nurses with gerontology skills, knowledge, and understanding of the aging process is paramount to providing high-quality care and improving

outcomes for this population (Brown-O'Hara, 2013). Furthermore, the nurses of Newfoundland and Labrador have a professional obligation to provide safe and competent care to their patients (College of Registered Nurses of Newfoundland and Labrador, [CRNNL], 2019).

Review Purpose

The purpose of this literature review is to identify factors influencing nurses' ability to care for and address the complex needs of older adults visiting the ED and to identify potential strategies to enhance nurses' knowledge and overall geriatric care in the ED. The research question guiding this review is: "What factors influence ED nurses' ability to care for and address the complex needs of older adults, and what are some possible strategies to enhance nurses' knowledge and improve geriatric care and outcomes."

Background

The ED is a fast-paced, chaotic environment designed to see high-acuity patients, which can negatively affect ED nurses' ability to care for older patients adequately. Some nurses have expressed that the ED environment is poorly suited for older patients (Rawson et al., 2017). Both the physical space and processes are designed to perform rapid triage and diagnosis, and the goals do not align with the needs of older adults. Due to this mismatch, the delivery of care may not match the needs of older adults in the ED. Despite the aging population and their high utilization of the ED, we have been slow to address specific changes.

The increasing number of older adults seen in ED is partly due to the higher number of chronic diseases and the exacerbation of these conditions (Samaras et al., 2010). During their stay in the ED, older adults are more likely than younger cohorts to have more diagnostic tests, longer LOS and increased admission rates (Boltz et al., 2013). Older adults often arrive in the ED with more complex presentations, multiple comorbidities managed by multiple providers,

functional and cognitive impairments, psychosocial problems, polypharmacy, and communication problems (Boltz et al., 2013; Samaras et al., 2010; Schnitker et al., 2011). Additionally, atypical presentation of illness (e.g., falls, cognitive disorders) often complicates their management and care, leading to negative outcomes or adverse events (Gruneir et al., 2011; Samaras et al., 2010).

Health Outcomes and Adverse Events

In a well-conducted systematic review (n = 64), Schnitker et al. (2011) identified several negative health outcomes and adverse events. They referred to negative health outcomes as changes related to the health status of the older patient attending the ED. An adverse event was defined as any unintended event in a healthcare setting affecting the health status of patients. Common negative health outcomes identified included functional decline, death, ED readmission and subsequent hospitalization. Some adverse events potentially related to suboptimal ED practice included under triage of illness severity, lack of recognition of geriatric syndromes and depression, suboptimal pharmacotherapy, and adverse communication-related events (Schnitker et al., 2011). There is a lack of evidence about the adverse events specifically caused by suboptimal ED practice; however, it appears that these events are preventable (Schnitker et al., 2011), and many geriatric conditions or syndromes encountered in the ED are preventable or reversible (Samaras et al., 2010; Kennelly & McCabe, 2015).

Geriatric Syndromes and Atypical Symptoms

Geriatric syndrome refers to clinical conditions that do not fit neatly into a disease category (Brown-O'Hara, 2013). Examples include delirium, dementia, falls, dizziness and syncope, malnutrition, pressure ulcers, incontinence, eating and feeding problems, sleeping problems, functional decline, and self-neglect (Brown-O'Hara, 2013; Kennelly & McCabe,

2015). Rosted et al. (2012) conducted a prospective descriptive study that tested a model for structured nursing assessment and intervention (ISAR) for older people at risk of adverse outcomes, and they found that in older adults over the age of 70, 32% suffer from depressive symptoms and 59% have cognitive disorders. In a multicenter observational study (Émond et al., 2018) conducted in Montreal, Canada, it was observed that one in eight older adults had an incident of delirium after spending only eight hours in the ED. While ED-induced delirium could be the result of many factors, nurses must provide basic care known to prevent delirium (Émond et al., 2018).

Older persons with geriatric syndromes can be missed because of the business of the ED and due to the atypical signs and symptoms that bring them to the ED (Brown-O'Hara, 2013; Peters, 2010). For example, patients with urinary tract infections present with confusion; patients with heart attacks may not complain of chest pain; patients with depression may manifest somatic complaints (Désy & Prohaska, 2008; Peters, 2010). Furthermore, for some of the classic geriatric syndromes, such as falls and delirium, incontinence might be the only symptom of a more serious illness (Schnitker et al., 2011). To further complicate the care of the older patient in the ED, their reason for presentation may appear straightforward; however, it can trigger a waterfall of deterioration in their health compared to younger patients, indicating underlying frailty. Frailty is defined as having an increased risk of experiencing adverse outcomes compared to others in the same age bracket (Leaker and Holroyd-Leduc, 2020). More than 25% of persons over 65 are frail and at risk for adverse health events (Muscedere et al., 2016).

These complex presentations require heightened awareness to help prevent adverse outcomes. ED nurses must adjust their practice to care for older adults whose response to acute disorders varies from that of younger individuals. Nurses in the ED are not solely responsible for

the care and management of older adults; however, they play a pivotal role as they are the gatekeepers of the ED in terms of triaging and placement, and they are the most frequent caregivers of patients. It is suggested in the research that ED nurses do not recognize many geriatric syndromes (De Brauwer et al., 2021). Furthermore, a review of the current triage processes on mortality suggested that ED nurses are under-triaging older adults, and small modifications to the triage process and ensuring that more experienced nurses are conducting the triage might improve outcomes (Davis & Evans, 2021).

Methodology

An integrative literature review (Whittemore & Knafl, 2005) was conducted to achieve the objectives of this practicum project. The integrative method allowed experimental and non-experimental research to provide a more holistic understanding of this complex issue (Whittemore & Knafl, 2005). Whittemore and Knafl (2005) outline five steps for a successful integrative review that were followed for this review. The first step is problem identification which has already been established. The four other steps are outlined below: literature search, data evaluation, data analysis, and presentation.

Literature Search

A search was conducted in January 2023 using the following databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Scopus, PubMed, Web of Science, and Google Scholar for grey literature. PubMed, Scopus, and Web of Science databases were searched using Medical Subject Headings (MeSH) of 'geriatrics' or 'older, adult' and 'emergency nursing' and 'emergency service, hospital' and 'nursing care'. The CINAHL databases were searched using the terms “geriatrics” OR “older adults” OR “elderly” OR “aged” OR “older” OR “elder” OR “elderly”, “emergency nurses” OR “emergency department nurse” OR “emergency

room nurse", "emergency department" OR "emergency room", and "nursing care". The search was confined to English-language full-text articles and limited to publications from January 2015 to January 2023. The search was limited to these years to capture more contemporary literature that accurately reflects the current care needs of the geriatric population. Reference lists of retrieved papers were also scanned for relevant articles.

Data Evaluation

All articles included in the literature review were evaluated. The quality of the individual qualitative studies was critiqued using the Joanna Briggs Institute (JBI) critical appraisal tool (2020). The JBI, through a series of ten questions, guides the critical appraisal of the study to examine its methodological quality to determine if the study has addressed the possibility of bias in its design, conduct and analysis.

The quantitative studies and reviews were critiqued using the Public Health Agency of Canada's (PHAC) Critical Appraisal Tool Kit (2014). Through a series of questions and a guiding dictionary, the toolkit guides the critical analysis of individual studies to assess the selection bias, internal validity of the study, the amount of control for confounding, ethics, and the assessment of analysis and applicability.

The mixed-method studies were critiqued using the Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018). The MMAT, through a series of five questions, allows the methodological quality of mixed-method studies to be examined, and an overall quality score is given. Studies were given a quality rating of high, moderate, or low (Appendix A).

Data Analysis and Presentation

The selected studies were initially categorized into subgroups, quantitative, qualitative, mixed methods, and systematic review. The studies were then reviewed in detail, and findings

relevant to the purpose were extracted. Each article was read three times to ensure no data was missed, and the findings were extracted into a table created for each study. After this was completed, findings and quotes were sorted into categories to develop themes and subthemes. A constant comparison method was used to help group similar data in a spreadsheet. The data were reduced into categories based on whether the focus of the data was individual or environmental. Subthemes and patterns emerged through continually comparing and contrasting the data and further reducing the data, with two overarching themes outlined below.

Results

Search Results

Initial searches identified 552 articles, CINAHL (N = 432), Scopus (18), PubMed (N = 11), Web of Science (N = 79), and Google Scholar (N = 12). After excluding duplicates (N = 112), 440 records were screened by title and abstract. Seventeen full-text articles were reviewed for eligibility, and three were excluded with reasons. Studies focusing on patient and caregiver experiences while in the ED were excluded. The studies had to include emergency nurses and focus on some aspects of care or models of nursing care for the older adult in the ED setting. Two studies were excluded because, upon further examination, they explored multidisciplinary perspectives of caring for older patients in the ED, and the nurse's perspective could not be teased out. One study was excluded because, upon further examination, the setting was a combined acute care and ED setting. One article was identified through snowballing, leaving 15 articles for the literature review.

Study Characteristics

The articles included in this review consisted of a variety of studies. There were eight quantitative studies, including three cross-sectional (Deasey et al., 2016; Deasey et al., 2018;

Rawson et al., 2017), two retrospective cohort (Marsden et al., 2022; Wallis et al., 2018), one nonrandomized control trial (NRCT) (Rhew et al., 2017), and two that were a quantitative descriptive design (Monel, 2020; Tacchini-Jacquier & Morin, 2016). There were two qualitative studies, one qualitative descriptive (De Brauwer et al., 2021) and one focused ethnography (Taylor et al., 2015). Finally, three mixed methods studies (Bulut et al., 2020; Gallagher et al., 2015; Wolf et al., 2019) and two systematic reviews (Leaker & Holroyd-Leduc, 2020; Malik et al., 2018). The individual studies were conducted in a variety of countries, with the majority conducted in Australia (Deasey et al., 2016; Deasey et al., 2018; Gallagher et al., 2015; Marsden et al., 2022; Rawson et al., 2017; Wallis et al., 2018) and the United States (Monel, 2020; Rhew et al., 2017; Wolf et al., 2019). Other countries included Belgium (De Brauwer et al., 2021), Turkey (Bulut et al., 2020), Canada (Taylor et al., 2015), and Switzerland (Tacchini-Jacquier & Morin, 2016).

Quality Rating

The overall quality of the studies ranged from low to medium, and no studies were rated high quality. Out of the six quantitative studies that utilized a questionnaire, all had low response rates, with the highest reported at 60% (Tacchini-Jacquier & Morin, 2016), and the rest reported below 40% (Deasey et al., 2016; Deasey et al., 2018; Rawson et al., 2017; Rhew et al., 2017; Monel, 2020). Additionally, those studies were subjected to self-selection and response bias, given the nature of the self-reported questionnaires. All quantitative studies also had limited generalizability outside the country in which they were conducted. Some methodological issues were noted within the qualitative and mixed methods studies. There was a lack of a clear explanation of the methods or data analysis and issues with rigour in one study (De Brauwer et al., 2021). In two mixed methods studies, there was no justification for using an MMR; the data

were merely integrated using narratives with no clear explanation at the analysis and interpretation levels (Bulut et al., 2020; Wolf et al., 2019).

Factors Influencing the Care of the Older Patients in the ED

Two overarching themes were identified as factors influencing the care of the older adult in the ED, individual and work environment level factors. Three sub-themes of individual-level nursing factors that influence the care of older adults in the ED are knowledge, experience, and perception and attitudes.

Individual Level Factors

Knowledge

ED nurses are responsible for providing knowledgeable care when managing older adults in the ED. However, a search revealed few studies concerned with the ED nurse's level of geriatric knowledge, highlighting a gap. Only four studies were identified that specifically assessed the ED nurse's knowledge and understanding of the aging process (Deasey et al., 2018; Rawson et al., 2017; Tacchini-Jacquier & Morin, 2016; Monel, 2020), and the results were similar, but there were variations noted. However, the need for education and training to increase the ED nurse's knowledge was identified and threaded throughout many studies.

In a cross-sectional study by Deasey et al. (2018), the researchers compared ED nurses' knowledge and understanding of age-related characteristics of the older person. Overall, 66% of ED nurses had a basic understanding of the physical aspects of aging and a 59% correct response rate on items measuring physiological and age-related characteristics and common misconceptions about aging. While it appears to be an acceptable level of knowledge, 33% of unsure questions about knowledge and 42% of incorrect responses on the Facts on Aging Quiz

(FAQ) are noteworthy. Although the ED nurses were aware of the physiological changes with aging, they had limited knowledge about the characteristics of knowledge (Deasey et al., 2018).

A similar study by Tacchini-Jacquier & Morin (2016) found a lower level of geriatric knowledge in a group of ED nurses in Switzerland, with only 51.9% (SD 12.51) of correct answers. Researchers in another study, which will be discussed in more detail later, found that ED nurses' lack of knowledge of aging was evident at the pretest portion of the study. Specifically, the nurses had an overall mean of 13.8 (SD = 2.1) out of 25 (Rhew et al., 2017). Further evidence supporting a knowledge deficit and understanding of the ageing process was found in the study by Deasey et al. (2016), where ED nurses suggested that urinary incontinence is part of the aging process and that older people easily adapt to the sick role.

Varied results were found in two studies where ED nurses had to self-rate their knowledge and practice, and there was a mismatch between the perception of their abilities and the result of their evaluation of knowledge (Monel, 2020; Rawson et al., 2017). Specifically, in a cross-sectional study by Rawson et al. (2017), the researchers found large variation in knowledge of aging (24% - 68%), gerontic health-related knowledge (5-14) with a mean of 9.04 (SD 1.80), and self-rating of practice on some aspects of older care. High self-ratings of the ED nurse's practice demonstrate a perception that they were knowledgeable about geriatric care when they got some of the related knowledge questions wrong (Rawson et al., 2017). Indicating that they perceive themselves as knowledgeable when the evidence suggests knowledge gaps exist. In the second study of a similar design, ED nurses rated themselves favourably in a questionnaire when asked how often they used specific interventions (e.g., preventing pressure ulcers, delirium, and falls) when caring for older patients (Monel, 2020). Although both studies were given a moderate

and weak rating, they highlight some possible inherent bias in self-reporting or influences by the work environment (Rawson et al., 2017).

A qualitative descriptive study consisting of 450 hours of observations in three EDs in Belgium identified factors that influenced the care quality of older patients in the ED (De Brauwer et al., 2021). The researchers used an inductive reasoning approach and developed four themes highlighting factors affecting older patients' care, specifically those presenting with geriatric syndromes (De Brauwer et al., 2021). Two of these themes will be discussed in this section. Two nursing-related factors were highlighted as part of the first theme, 'no geriatric flow routine,' suggesting a possible lack of knowledge. First, it was observed that nurses often failed to use the geriatric screening tools if there were available, suggesting that it was not important or they did not have time. Second, it was observed that geriatric syndromes were not addressed properly. For example, falls were not recognized as atypical presentations that usually have possible consequences of underlying medical conditions but instead labelled as a 'wound to repair,' resulting in an incomplete assessment and inadequate care (De Brauwer et al., 2021). These observations highlighted the low priority nurses gave to geriatric triage compared to technical tasks, and the researchers suggested that this was related to a lack of knowledge (De Brauwer et al., 2021).

Evidence of a lack of gerontological knowledge and the need for increased education was also presented in studies where ED nurses could answer open-ended questions or participate in focus groups (Bulut et al. (2015; Monel, 2020; Taylor et al., 2015; Wolf et al., 2019). There was a need for education about caring for those with delirium or confusion and different presentations of common illnesses in older adults (Monel, 2020). The nurses in the study by Bulut et al. (2015) identified that poor care is often the result of nurses not being trained in good nursing care and

suggested that possessing geriatric knowledge would help. ED nurses are trained to react in acute situations and may find older people challenging due to a lack of specialized training and knowledge. In the study by Wolf et al. (2019), nurses perceived that some newer nurses who had not received training had less interest and competence with older adults. In contrast, those who had received some training were considered excellent geriatric nurses.

In a Canadian cross-sectional study by Taylor et al. (2015), nurses reported that elderly patients were often given a lower quality of care due to poor orientation of priority in the ED setting. Nurses conveyed that time management and a lack of geriatric education and knowledge made it difficult to puzzle through the atypical presentations and attend to the needs of older adults. Ultimately posing an increased risk of negative outcomes for older adults.

Wolf et al. (2019) conducted a mixed methods study that included a survey and a focus group to gather information on ED nurses' perceptions of geriatric readiness in the ED setting. The study consisted of participants from the United States, Canada, and Hong Kong attending a national emergency conference, and the results indicated that EDs are not ready. The nurses highlighted many deficits that will be discussed later. However, the ED nurses identified a lack of knowledge as one of the main contributors to the lack of readiness and further identified nursing education as the top priority for optimizing the care of geriatric patients in the ED. In the study's survey phase, only 27.8% of nurses (N = 1610) stated that they had geriatric-specific education in the last 12 months, and 56.5% of the nurses stated that they believed their colleagues were not sufficiently trained to care for geriatric populations. One of the themes that emerged in this study was ‘pushed to the side,’ meaning that nurses suggested that some triage nurses do not recognize older people as being ill and are often undertriaged, further supporting a lack of geriatric knowledge (Wolf et al., 2019). This lack of specialized training was further

supported in a study where 81% of the nurses stated that they did not have specialized geriatric training (Rhew et al., 2017).

Experience

Studies that examined the effect of experience on knowledge found that experience as an RN or years of experience in the ED did not correlate with knowledge (Rawson et al., 2017; Tacchini-Jacquier & Morin (2016). Tacchini-Jacquier & Morin (2016) found that the more experience the nurse had, the worse the score on geriatric knowledge ($t = -0.27$; $p < 0.05$), but the better the score in the perception of skills ($t = 0.33$; $p < 0.05$. Indicating that the ED nurses may have perceived their ability of practical geriatric skills to be better because they were more experienced.

Perception and Attitudes

Nurses play an important role in contributing to a positive experience and good outcomes for the older person utilizing the ED. Nurses' perceptions and attitudes toward older adults in the ED can affect the care they provide and their interactions with older adults (Deasey et al., 2016).

Positive Attitudes. Many studies reported positive attitudes, but only two specifically examined ED nurses' attitudes toward older people (Deasey et al., 2016; Monel, 2020). In a cross-sectional study by Deasey et al. (2016), they found that 90% of the nurses had correct responses to attitudes about ageing for statements such as older people are capable of making their own decisions if not confused, and older patients should have a say if they receive lifesaving measures. Similarly, Monel (2020) found that ED nurses mostly felt they often had positive M = 3.9657 (SD .562) experiences and attitudes regarding the care they provided to older adults. Bulut et al. (2015) found that nurses felt it was their professional responsibility to care for older adults and wanted to provide good care, but it was not that simple. Similarly, some

nurses felt moral distress with the quality of care they provided to older patients due to competing priorities (Taylor et al., 2015). While these examples display nurses' positive attitudes towards older adults in the ED, other factors contributed to the quality of care the nurses provided.

Negative Attitudes. However, not all nurses have positive attitudes toward aspects of older adult care. While some studies reported overall positive attitudes, some concurrently uncovered underlying negative ones. Some of these negative attitudes about care are related to older adults' characteristics or are reflected in their care demands (e.g., demanding, time-consuming) (Bulut et al., 2015; Gallagher et al., 2015). Some less-than-positive attitudes are reflected in ED nurses expressing that the ED is an inappropriate place to care for older people and that they do not belong there with nonacute presentations (Bulut et al., 2015; De Brauwer et al., 2021). It is also reflected in some of the ED nurse's use of language when referring to older patients with chronic conditions as ‘frequent flyers’ (Gallagher et al., 2015) or ‘troublesome cases or bed-blockers’ (De Brauwer et al., 2021).

A mixed-methods study by Bulut et al. (2015) identified four themes concerning nurses’ views on older patients in the ED. Nurses identified older persons as dependent compared to other patient groups because they could not address their own needs and were an increased safety risk. Nurses indicated that ‘good nursing care’ meant ensuring that older patients' physical, social, psychological, and safety needs were met on time, and 11.8% stated that the ED was not the proper setting to care for an older individual. Other negative attitudes that surfaced during the focus groups were that while the nurses felt the care, they provided in the ED was inadequate, some nurses stated that all they felt towards older adults was pity, hopelessness, and sometimes anger which caused the nurses a great deal of stress and internal conflict (Bulut et al., 2015).

Work Environment Factors

In addition to nurses' knowledge, experience, and attitudes, the working environment also influences the care of the older adult in the ED. The following section will discuss factors of the nurse's work environment that can affect their ability to provide safe and quality patient care. A lack of appropriate physical space and equipment, workload and staff shortages, and ED culture have been identified in the literature as factors affecting nursing care, with no one factor emerging across the studies.

Physical Space and Equipment

Aspects of the work environment affecting the quality of care provided to older adults were identified in two studies (Bulut et al., 2015; Wolf et al., 2019). Specifically, care was influenced by the physical environment (Bulut et al., 2015) and a lack of resources and equipment (Bulut et al., 2015; Wolf et al., 2019). In the study by Bulut et al. (2015), 55.5% of nurses reported inadequacies in the physical space (i.e., heat, light, layout) as one of the primary factors affecting good nursing care and 36.1% identified equipment shortages.

Fewer than half the nurses in one mixed method study identified that geriatric-friendly equipment (i.e., ambulatory aids, safety mats, sensory aids) was always available in their EDs in the survey portion of the study, which was further corroborated in the focus group portion (Wolf et al., 2019). The nurses highlighted that a lack of equipment makes it difficult to keep patients safe and maintain their dignity.

Workload and Staffing

No studies specifically identified how workload and staffing affected the care provided to older adults in the ED. However, both factors are interconnected and surfaced as contributing factors affecting the care of older adults in a few studies (Bulut et al., 2015; Gallagher et al.,

2015; Rawson et al., 2017; Wolf et al., 2019). In the study by Bulut et al. (2015), nurses suggest that staffing shortages and the complexity of caring for older patients often mean older adults do not get the care they need. More specifically, 52.7% of staff identified insufficient staff as the second highest factor affecting good nursing care for older patients. This factor also surfaced during the focus groups when nurses indicated that the number of nurses in the ED was quite low (Bulut et al., 2015).

A mixed-methods study examining which older patients' nurses perceived as using the most nursing resources supports that care of older adults significantly adds to the nurse's workload (Gallagher et al., 2015). In this mixed method study, nurses identified that older patients often have multiple health problems and cluster ED visits, increasing their LOS and requiring intensive nursing time during their stay, impacting the nurse's workload.

In the study by Rawson et al. (2017) mentioned above, 83.2% of the ED nurses agreed that the care needs of the older adult were their responsibility; however, 89.1% agreed that the level of work and time required to care for this cohort makes it difficult to meet those care needs. Furthermore, nurses are often unable to properly attend to other ED patients because they are busy caring for complex older patients (Bulut et al., 2015). Similarly, workload emerged as both a theme and a barrier to quality geriatric care in the study by Wolf et al. (2019). Challenging presentations to the ED plus limited cognitive and physical impairments resulted in longer assessments and processes because older adults spend longer in the ED, which the nurses stated significantly increases their workload.

ED Culture

Most EDs are not equipped to meet older adults' needs due to their micro-culture, which can impact the quality of care for older adults (Skar et al., 2015). No studies specifically looked

at the ED culture and its effects; however, one study identified it as one of their main themes (Taylor et al., 2015), and another study found evidence that the distinctive flow culture of the ED can affect the care of the older adult (De Brauwer et al., 2021).

In a focused ethnographic study using interviews and non-participant observation of seven ED nurses, Taylor et al. (2015) explored the nurses' experience of caring for the older adult in the ED. Three themes were identified, but only two will be discussed here, *'culture'* and *'fit and lack of it between the older adult and the ED.'* The first theme, *'culture',* focused on priority setting and the flow of patients. The researchers observed that the culture of the ED consisted of a time-pressured, rapidly changing environment where priorities were always changing concerning whom the sickest patients were at any given time. This culture also surfaced during the interviews when nurses stated that there was always pressure to turn beds and move patients. The nature of the ED is to get patients admitted or discharged, thus leaving the researchers to conclude that the culture made it very challenging for nurses to care for older patients (Taylor et al., 2015).

The second theme highlighted how the older patient often did not fit with the culture of the ED. The researchers observed that older adults only fit in the ED when they presented with an acute issue; otherwise, the older adult was 'out of synch' with the culture of the ED (Taylor et al., 2015). The observation was confirmed when the nurses noted that the level of complexity that older patients often present with did not fit with the rapid priority setting in the ED. It was explained well in that the nurses felt that older patients were a puzzle that needed solving, and in the rapid movement of patients, there was no time to solve puzzles. Interestingly, the nurses in the study were aware that culture placed older adults at risk; however, they all defaulted to the culture of priority and patient flow.

The flow-centred ED culture was also identified in the study by De Brauwer et al. (2021). The researchers observed ‘no geriatric flow routine’ during this observational study. Meaning that all patients, regardless of age, were triaged in the same biomedical task-oriented way, and there was minimal geriatric screening, if any. According to the researchers, two principles guided the goals or culture of the ED: (1) prioritize and categorize and (2) label the problem (De Brauwer et al., 2021). Older patients do not fit neatly into this concept nor the flow culture of the ED.

Strategies to Improve Older Adult Care

Healthcare organizations need strategies to improve the quality of care and outcomes in the fastest-growing population. Furthermore, they must address why nurses lack knowledge and tend to have more negative attitudes toward older adult patients in the ED. The following section will describe strategies that can help ensure the highest quality of care for older adults in the ED, including education, Geriatric Emergency Management (GEM) nurses, focused nursing assessments, and Geriatric Emergency Department Intervention (GEDI) (i.e., multidisciplinary teams).

Education

It is documented in the literature that a lack of knowledge and positive attitudes may influence the outcomes of older adults (Deasey et al., 2014). Despite ED nurses reporting the need to have educational opportunities to prepare them better to care for older adults (Bulut et al. (2015; Taylor et al., 2015; Wolf et al., 2019), little research was found that evaluated the effectiveness of an educational intervention on nurses’ attitudes and knowledge toward older adults in the ED setting.

One nonrandomized control (NRCT) longitudinal study of moderate quality explored the effect of a geriatric workshop on the attitudes and knowledge of ED nurses (Rhew et al., 2017). Using a convenience sample of 67 nurses from five EDs in one healthcare system, the researchers found that a four-hour online geriatric workshop improved ED nurses' knowledge, attitudes, and care behaviors toward older adults (Rhew et al., 2017). Interestingly, both groups showed an improvement in knowledge of aging and attitudes from the initial pretest to the four-week posttest and no difference between groups was found.

Given the time-lapse, it is unsure if the interventional group had access to any education regarding gerontology; this could explain the improvement in their scores. The researchers did say that some of the EDs were part of a Nurses Improving Care for Health System Elders (NICHE) program, so it is plausible that improvements in the control group over time could be attributed to events at their specific ED or that after doing the pretest some nurses were motivated to doing some self-study. Regardless of how it happened, these improvements in knowledge and attitudes support educating ED nurses on this important topic, specifically on the importance of improving knowledge of geriatric syndromes and atypical disease presentations to ensure the quality of care.

GEM Nurse

Some Canadian EDs have hired Geriatric Emergency Management (GEM) nurses to meet the needs and improve outcomes for older adults in the ED. GEM nurses are ED nurses with advanced training in geriatrics who can better identify, assess, and manage the complex care needs of older adults during their ED visits (Leaker & Holroyd-Leduc, 2020). Gem nurses have been known to effectively access and manage the complex care needs of older adults and reduce unnecessary hospitalizations. In a recent well-conducted system review (n = 8), Leaker and

Holroyd-Leduc (2020) appraised the impact of having a GEM nurse in the ED on the care provided to frail older adults. Specifically, the researchers looked at the impact of assessments and interventions regarding ED revisits, hospital admissions/readmission rates, and other outcomes (Leaker & Holroyd-Leduc, 2020).

Five studies in the review examined ED revisitation, and it was indicated that three studies found that a GEM intervention successfully reduced ED revisits, with one study reporting no reduction in ED visits 120 days after the intervention. In one study, the intervention was associated with a greater risk of 72-hour ED representation at two of the three sites. Hospital admissions/readmission rates were examined in five studies, and four of those studies showed a reduction in the risk of admission/readmission. Regarding other outcomes, one study showed that having a GEM nurse reduced functional decline at the 4-month mark, while one showed increased patient satisfaction. GEM nurses working in the ED can be effective at helping to reduce repeat ED visits and unnecessary hospitalizations and create more durable transitions for these patients by linking them with various home and community supports (Leaker & Holroyd-Leduc, 2020). Additionally, through education, GEM nurses can foster friendly geriatric attitudes and practices in the ED.

Focused Nursing Assessment

Geriatric-focused nurse assessments and interventions are duties performed within a nurse's scope of practice as part of a multidisciplinary team (MDT). In a well-conducted system review (n = 9) that included only experimental studies, Malik et al. (2018) reviewed the impact of geriatric-focused nursing assessments and interventions in terms of admission rate, ED revisits, and length of hospital stay (LOHS). The researchers included studies where intervention

and assessment were completed by an individual nurse or as part of MDT. Interventions included in the study were quite varied, but some meta-analyses were possible.

The results showed no significant impact of the focused nursing assessments and interventions on patient outcomes. Admission rates were examined in six studies, and no differences were found between groups in either the individual studies or in five of the studies included in the pooled data. Three of the five studies that examined ED revisits showed a significant reduction in ED revisits, and two did not (Malik et al., 2018). There was no impact regarding LOHS in the nine studies that examined it. It was difficult for the researchers to draw any definitive conclusions given the range of interventions and inconsistencies in the assessments across studies; however, focused assessments that extend post-ED discharge into primary health care can impact readmission rates (Malik et al., 2018).

GEDI Team

Despite that, Malik et al. (2018) did not find any significant impact of lone or MDT-focused nursing assessment and interventions on older adult outcomes; other evidence exists to support that interdisciplinary care of older patients leads to reduced ED length of stay, decreased ED revisits, decreased hospital admissions, improved functional outcomes, and increased system-level healthcare cost savings (Hickman et al. 2015; Marsden et al., 2022; Wallis et al., 2018). GEDI intervention is an MDT that consists of an ED physician champion and advanced practice nurse with additional education in gerontology and the care of older adults (Craswell et al., 2016). As part of that team, the GEDI nurse identifies older people presenting to the ED who would benefit from the expertise of the GEDI team through screening and targeted geriatric assessments (Craswell et al., 2016).

Two studies were identified that evaluated the effectiveness of implementing

the GEDI model of care in Australian EDs on older adult healthcare outcomes (Marsden et al., 2022; Wallis et al., 2018). The first study was a pragmatic trial with three implementation phases from 2012 to 2016 in a large tertiary ED (Wallis et al., 2018). Due to the initial trial's success, the intervention was implemented in two more EDs at the request of ED clinicians and managers (Marsden et al., 2022). In the first study, the researchers found that when the GEDI team was working, there was an increased likelihood of discharge (HR = 1.19; 95% CI: 1.13-1.24), reduced LOS (HR = 1.01; 95% CI: 0.23-4.43), no increase in mortality (HR = 1.42; 95% CI: 1.33-1.52); and no risk of representation after 28 days (HR = 1.21; 95% CI: 0.99-1.49).

Marsden et al. (2022) evaluated a tailored GEDI model of care implementation in two more EDs in Australia and found similar results. Hospitals A and B had an increased likelihood of discharge and shorter time to admission if the patient needed hospitalization and was seen by a GEDI nurse during the post-GEDI phase. Hospital A was associated with a reduction in the chance of ED revisit (Hazard ratio 0.88, CI 0.85,0.92), decreased longer hospitalization, and decreased mortality post-GEDI if seen by a GEDI nurse (pre-GEI = 44; post-GEDI = 18). Hazard ratios for hospital B for time to admission by GEDI nurses were well above 1 (1.17, CI 1.11,1.24), indicating a significantly increased likelihood of shorter LOS in ED. While the results of this study are very promising, they cannot be generalized outside of Australia; however, it highlights and supports the notion that a team of practitioners with specialized geriatric training can streamline care and improve outcomes for older adults in the ED, making the model of care very translatable. It further supports that advanced practice nurses can replace nurse practitioners in this role if there is a strong physician champion to consult with and advise (Wallis et al., 2018)

Conclusion

The population is aging, and older adults are utilizing the ED for care at increasingly high

numbers. The ED model is traditionally designed for rapid assessment and triage with pressure to maintain flow, not for addressing older adults' complex care needs. As a result, the quality of care provided to those increasing numbers of older people in the ED is affected, with older patients experiencing increased negative health outcomes and adverse health events. Many factors have been identified that influence the ability of nurses to care for and address the complex needs of older ED patients, such as lack of knowledge and educational opportunities, negative attitudes, physical settings and environments, workload and staffing, and ED culture.

Some strategies that could be implemented to support nurses in their quest to improve outcomes for older patients in the ED are hiring GEM nurses, implementing a GEDI team, and education. Implementing GEDI teams and hiring GEM nurses are two strategies that would improve care delivery in the ED but may not be achievable. A proposal was sent to the government of Newfoundland and Labrador to request funding for a GEM nurse. The proposal was sent on the heels of the recently released Health Accord, highlighting that this province's health system had not adapted well to the increased elderly population (Health Accord NL, 2022) in the hopes of using that momentum. However, this funding is not expected soon due to current fiscal restraints and healthcare challenges. If funding were to happen, it would help address the often complex and interrelated needs of older ED patients. However, adding a GEM nurse to the ED is just one strategy for improving older adult care; it will not address the current lack of ED nurses' geriatric knowledge and educational opportunities and negative attitudes toward older adults.

The identified lack of geriatric-specific knowledge and educational opportunities available to ED nurses is a more easily modifiable factor. Especially when ED nurses tend to feel competent in acute situations but incompetent when caring for complex older patients and often

focus on the patient’s presenting complaints without considering the dependence and presence of geriatric syndromes. Researchers have suggested that early detection of frailty, vulnerability, and recognition of the atypical symptoms of a hidden disease (i.e., geriatric syndromes) may help reduce or prevent possible adverse events (Gruneir et al., 2010; Samaras et al., 2010). The current trend in the aging population, their increased utilization of the ED and the ED nurse's lack of geriatric knowledge and educational opportunities strongly support educating nurses. While aiming to increase ED nurses' geriatric knowledge is only one aspect of optimizing the care of the older adult in the ED, it will be the focus of this practicum project.

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Appendix A: Literature Summary Tables

Study/Design	Methods	Key Results	Comments
Bulut et al. (2015) Design: Mixed Methods Convergent design Purpose: To reveal the views of emergency service staff concerning ageing and elderly patients	Country/Setting: Turkey/ED Sample: All 17 nurses and 19 physicians who worked in the ED purposeful sample Data Collection: Between July and December 2010 *Quantitative:* • Semi-structured interviews (6 open-ended questions) • Demographics were obtained *Qualitative:* • 2 separate focus groups nurses (n=7); and doctors (n=11) • 5 open-ended questions • Lasting 30-45 minutes • Recorded and transcribed verbatim Data Analysis: • Descriptive statistics for quantitative data • Focus group questions were analyzed with thematic analysis	**Theme 1** *Understanding older patients' situations* • Dependency • Having multiple chronic diseases • Using multiple Drugs • Having psychological problems **Theme 2** *Good nursing care and medical treatment* • Meeting social, physical, and psychological needs • Providing a secure environment • Using drugs safely • Establishing good communication **Theme 3** *Affecting good nursing care and medical treatment* • Increasing patients' quality of life • Accurate diagnosis and treatment • Providing safe drug use • Take protective measures **Theme 4** *Emotions experienced* • Exhaustion and desperation • Pity • Stress/worry • Urge to protect	Strength of Design: Qualitative: **Weak credibility** Limitations: No clear justification for using an MMR data only merged using narratives no clear data analysis Unclear if there is relationship between researchers and participants Data saturation not Addressed Strength of Design: Quantitative Design: **Weak** Quality: **Medium** Limitations: Not enough details on the data collection Limited generalizability Limited recruitment strategies

Study/Design	Methods	Key Results	Comments
Deasey et al. (2016) Design: Cross-sectional Purpose: To compare regional and metropolitan nurses' attitudes toward older people in the ED	Country/Setting: Australia/ED Sample: N=371 All nurses from the College of Emergency Nursing Australia were invited to participate Group 1: n=211 Metropolitan Group 2 n=159 regional Data Collection: Data from a 2013 survey • OPACS 110 items (5-point Likert) and • V&R • Only 30 items that measured attitude were used in this study • Demographics obtained Outcomes: • OPACS knowledge of aging, including the correct, deficit, and unsure • Palmore's facts of aging, including correct and deficit • Differences between regions Data Analysis: • Descriptive statistics	**Top 2 correct attitude scores for both groups** • 90% of older people can make their own decisions • 90% of older people should have a say in whether they receive lifesaving measures **Top 2 incorrect attitude scores for both groups** • 70% too many older people receive lifesaving measures • 69% of older patients adapt easily to the sick role **Differences between Groups** **Group 1: Scored higher** • Older people can make their own decisions (p = 0.03) • Higher agreement that too many people receive lifesaving measures (p = 0.05) **Group 2: Scored higher** • Older people have more discharge problems (p = 0.01) • Older people are more dependent at discharge (p = 0.03) • Older people are more concerned with bowel habits (p = 0.04)	Strength of Design: Design**: Weak** Quality: **Medium** Limitations: Potential for self-selection and non-response bias 39% response rate Not generalizable outside of Australia

Study/Design	Methods	Key Results	Comments
Deasey et al. (2018) Design: Cross-sectional Purpose: To compare regional and metropolitan ED nurses' knowledge of understanding of age-related characteristics of the older person	Country/Setting: Australia/ED Sample: N=371 All nurses from the College of Emergency Nursing Australia were invited to participate n=211 metropolitan n=159 regional Data Collection: Data from a previous 2013 survey • OPACS 110 items (5-point Likert) and Palmore's Facts of Aging Quiz (FAQ1) (true/false) • V&R • measuring knowledge, attitudes, and practice • Demographics obtained Outcomes: • OPACS knowledge of aging, including the correct, deficit, and unsure • Palmore's facts of aging, including correct and deficit • Differences between regions Data Analysis: • Descriptive statistics • Chi-square and t-tests	**Knowledge of Aging** **OPAC knowledge items** • 66% of nurses had a basic knowledge of the physical aspects of aging *Regional scored higher on 5 responses:* Older people are more likely to develop post-op complications (p = 0.02) Older patients are more prone to nosocomial infections (p = 0.02) Early discharge is difficult to achieve with older patients (p = 0.02) Poor nutrition is a problem associated with aging (p = 0.05) Older people have more skin problems (p = 0.05) **FARQ1 knowledge items** • 59% correct responses • 10 items had scores less than 50% (12%-48%) No difference noted between groups	Strength of Design: Design: **Weak** Quality: **Medium** Limitations: Potential for self-selection and non-response bias 39% response rate Not generalizable outside of Australia

Study/Design	Methods	Key Results	Comments
De Brauwer et al. (2021) <u>Design</u>: Qualitative description <u>Purpose</u>: To explore factors that positively or negatively influence care quality in the naturalistic context of the ED	<u>Country/Setting</u>: Belgium/3 ED <u>Sample</u>: N = all ED staff, patients and relatives <u>Data Collection</u>: • Observations were conducted at 3 EDs for 1 month during the morning shift • Ad hoc field interviews supplemented data • Field notes included geographical details, care processes and personal notes. <u>Data Analysis</u> • Data transcribed and analyzed by the researcher • Analysis based on Donabedian's framework • Other researchers revied and critically analyzed the data • Results discussed with ED experts • Themes formed using inductive reasoning	**Theme 1** *No geriatric flow routine* • Biomedical approach • Little geriatric profiling • Low priority given to geriatric triage • Priority given to acuteness • Lack of recognition of geriatric syndromes **Theme 2** *Risk of discontinuity of care* • Multiple caregivers • Multiple shift changes **Theme 3** *Unmet basic needs and patient-centred care* • Basic care, not a priority • Competing priorities **Theme 3** *Complex older patients are unwelcomed in EDs* • Care too complex • Lack of time • Negative attitudes	<u>Strength of Design</u>: Qualitative: **Weak credibility** <u>Strengths:</u> Peer debriefing Findings linked to literature <u>Limitations:</u> Data saturation not addressed No audit trail No member checking

Study/Design	Methods	Key Results	Comments
Gallagher et al. (2015) Design: Mixed Methods (Qual-Quat) Convergent design As part of a larger study) Quantitative descriptive- Purpose: To determine which older people ED nurses perceive as using the most nursing resources and to profile the subgroup from the ED dataset.	Country/Setting: Australia/ED Sample: N = 27 ED nurses convenience sample N = 13 older patients chart purposeful sample Data Collection/analysis: *Qualitative: from previous study* • Nurse focus groups (6-12 per group) Sept 2011-Oct 2011 • Semi-structured interviews with open-ended questions • Demographics were obtained • Data coded • Thematically analyzed with Gibbs framework 3 investigators • *Quantitative:* • All episodes of care data from aged ≥ 60 from the ED database in 2010 • A subset of 13 was selected to explore in more detail • Descriptive statistics • Chi-square and t-tests	Type of patient nurses deems most resource intensive – 3 themes from focus groups **Theme 1** • Repeat cluster presentations – often called 'frequent flyers' **Theme 2** • Presence of multiple health issues **Theme 3** • Waiting time for consultation team Quantitative data from database and patient case *Cluster ≥ 3 visits* n = 3253 tended to be • older than non-cluster (M = 75.7, SD 1.97 vs M = 73.3, SD 11.19, p < .01) • male (52.5% vs 46.7%, p < 0.01) • longer length of stay in the ED (M = 488.76 minutes, SD 231 M = 442.29, SD 309, p < .01) *Complexity well illustrated in patient case* • vague symptoms • new condition with each visit • more complex health scenario with falls and dizziness requiring extra vigilance	Strength of Design: Qualitative: **Moderately credible** Strengths: Rigor established with credibility, transferability, authenticity, and confirmability. Dependability could not be assessed Findings linked to literature Quantitative Strength of Design: Design: **Weak** Quality: **Medium** Overall Limitations: Data saturation not addresses Potential social desirability bias Conducted in a single institution so not generalizable

Study/Design	Methods	Key Results	Comments
Leaker et al. (2020) Design: Systematic Review Purpose: To determine the impact of Geriatric Emergency Management Nurses (GEM) on the care provided to frail older adults within within the ED	8 studies included Databases: MEDLINE, Embase, CINAHL, Cochrane Register of Control Trials, and the Cochrane Database of Systematic Reviews Search terms: "Aged", "Emergency department", "Geriatric Nursing", and "Nursing assessment" English published from inception up until January 2020 PRISMA methods were applied Data analysis: Qualitative descriptive summary of the literature Not conducive to meta analysis	**Outcome results:** *ED revisitation (5 studies):* • 3 studies found that a GEM intervention was successful in reducing ED revisits • 1 study reported no reduction in ED visits 120 days after the intervention • In 1 study, the intervention was associated with a greater risk of 72-hour ED representation at two of the three sites *Hospital admissions/ readmissions (5 studies)* • 4 studies showed a reduction in the risk of admission/readmission *Other outcomes (3 studies)* • 1 study showed no effect on cost • 1 study showed reductions in functional decline at the 4-month mark • One study showed an increase in patient satisfaction	Overall Quality: **Moderate** Strengths: Multiple databases searched for literature Gray literature was reviewed References from relevant articles were searched for additional articles Articles critically appraised with GRADE by 2 independent researchers Limitations: Includes only English language Only included quantitative studies

Study/Design	Methods	Key Results	Comments
Malik et al. (2018 Design: Systematic Review Purpose: To systematically review the impact of geriatric focused nurse assessment and intervention in the ED on hospital utilization in terms of admission rate, ED revisits and length of hospital stay (LOHS).	9 studies included Databases: Cochrane, Medline, CINAHL, Embase, Scopus and Web of Knowledge Search terms: Geriatric nurse assessment, nurse discharge planning, geriatric nurse specialist, nurse intervention, emergency department, accident and emergency patient outcomes, discharge, admissions, readmissions, hospital utilization, hospitalization, length of stay/hospital stay English language and limited to publications from 1990 to 2016 PRISMA methods were applied Data analysis: Studies were narratively summarized Meta-analysis was conducted on studies exploring identical outcome measures Country/Setting:	**Outcome results:** **Overall effect of the interventions on outcomes** Primary outcome *Hospitalization - 6 studies:* • No differences were found in hospitalization rates in either study • 5 studies were eligible for 2 meta-analyses. Pooled data for both did not indicate a difference in hospitalization between study groups in • In the study not included in the meta-analysis, no differences in admission to hospital was found between study groups Secondary outcomes *Readmission – 5 studies:* • 2 studies found a reduction in readmission rate, and 3 did not *LOHS – 9 studies:* • No studies had an impact regarding LOHS *ED revisitation – 5 studies:* • 3 studies showed a significant reduction in ED revisits, and 2 studies did not	Overall Quality: **Moderate** Strengths: Multiple databases searched for literature References from relevant articles were searched for additional articles Evidence-based Librarianship (EBL) critical appraisal tool was used Limitations: Includes only English language Only included experimental Unsure about grey literature search

Study/Design	Methods	Key Results	Comments
Marsden et al. (2022) Design: Retrospective cohort with non-concurrent control group Purpose: To evaluate the effectiveness of the implementation of the Geriatric Emergency Department Intervention (GEDI) model of care into two EDs	Australia/ED Sample: older adults ≥ 70 who presented to ED before and after GEDI Pre GEDI: N= *Hospital A:* 9391 *Hospital B:* 8933 Pre GEDI: N= *Hospital A:* 9391 *Hospital B:* 8933 GEDI intervention: consist of advanced practice nurses with 5 years of geriatric experience embedded in a specialty team – nurse screens patients ≥ 70 after presenting to ED Data Collection: • De-identified data collected retrospectively from electronic databases • Hospital A from Jan 2017-Dec 2018 • Hospital B from July 2016-Sept 2018 Outcomes: • Disposition, ED LOS, hospital LOS, mortality, time to revisit ED, and cost Data Analysis**:** • Descriptive statistics • Survival analysis • Cox proportional hazard	**Hospital A** • Increased likelihood of discharge during post-GEDI if seen by a GEDI nurse • Increased time to admission if the patient needed hospitalization and was seen by a GEDI nurse (0.88, CI 0.85,0.92 • Post-GEDI was associated with a reduction in the chance of revisit (Hazard ratio 0.88, CI 0.85,0.92) • Decreased longer hospitalization for those seen post-GEDI if seen by a GEDI nurse • Decreased mortality post-GEDI if seen by a GEDI nurse (pre-GEI = 44; post-GEDI = 18) **Hospital B** • Increased likelihood of discharge during post-GEDI if seen by a GEDI nurse • Hazard ratios for time to admission by GEDI nurses were well above 1 (1.17, CI 1.11,1.24), indicating a significant increased likelihood of shorter time to admission and shorter ED LOS in ED	Strength of Design: Design: **Moderate** Quality: **Moderate** Strengths: Linear and multiple regression Coxs model to estimate association between variables De identified date from database Limitations: Not generalizable outside of Australia

Study/Design	Methods	Key Results	Comments
Monel (2018) Design: Descriptive quantitative Purpose: To identify insufficient gerontology skills and knowledge in ED nurses	Country/Setting: USA/ED Sample: N=50 nurses who worked in the ED Recruitment by researcher attending 3 daily huddles in the ED for 2-week period Data Collection: • The Geriatric in Hospital Nursing Care Questionnaire contains (GerINCQ) 67 item (5 point Likert scale Permission granted for use in the ED setting • 21/67 items used for this study + 2 open-ended questions • Demographics were obtained ***5 Outcome measures***: • Performed intervention • Age-sensitive care delivery • Professional responsibility • Attitudes towards care of elderly • Perception about caring for elderly Data Analysis**:** • Descriptive statistics	**Mean Values (range)** • Performed Geri-specific intervention (score 1 - 4) M = 2.51 (1.62 - 3.39) • satisfied with age-sensitive care delivery in ED (score 1 - 5) M = 3.4 (2 - 5) • Professional responsibility toward care and incidents (score 1 - 5) M = 3.51 (1 - 4.75) • Attitudes towards care of elderly (score 1 - 5) M = 3.9 (3 - 5) • Perception about caring for older adults (score 1 - 7) M = 2.88 (2.47 - 3.60)	Strength of Design: Design: **Weak** Quality: **Low** Limitations: Conducted in a single institution so not generalizable Self-reported questionnaire high potential of social desirability bias due to data collection

Study/Design	Methods	Key Results	Comments
Rawson et al. (2017) Design: Cross-sectional Purpose: To access ED nurses' knowledge and self-rating practice when caring for older adults	Country/Setting: Australia/ED Sample: N=101 Data Collection: • Palmore's Facts of Aging Quiz (FAQ2) (multiple choice) 25-item, V&R • Geriatric Emergency Nurses Association questionnaire (15-item) to enhance data about ED setting (face and content validity) • Self-evaluated practice assessment (5-point Likert) • Demographics obtained Outcomes: • OPACS knowledge of aging, including the correct, deficit, and unsure • Palmore's facts of aging, including correct and deficit • Differences between regions Data Analysis**:** • Descriptive statistics • T-tests for continuous • Mann-Whitney for lowest scoring • Pearson Correlation for associations	**Knowledge of Aging M(SD) out of 25** • M = 12.7 (2.66) **Gerontological health related questions M(SD) out of 15** • M = 9.04(1.80) *****Scores not affected by years of experience as an RN or length of time working in ED **Self-evaluated practice Assessment** *Good at:* • Assessing pain 94.9% • Identify delirium 87.8% • Identifying dementia 82.8 *Poor at:* • Identifying depression 46.5% • Assessing polypharmacy 46.5% • Assessing nutrition 37.8%	Strength of Design: Design: **Weak** Quality: **Medium** Limitations: Potential for self-selection and non-response bias 40.4% response rate Not generalizable outside of Australia

Study/Design	Methods	Key Results	Comments
Rhew et al. (2017) Design: NRCT Purpose: To explore the effect of an educational geriatric workshop on attitudes and knowledge of ED nurses toward older patients and their intention to change their behavior towards this group	Country/Setting: USA/ED Sample: N = 67 nurses from 1/5 EDs in Southwest USA Data Collection: • KOP (34-item) V&R • PFAQ1 25-item V&R • 5 questions were developed & piloted with 12 nurses for V&R • Demographics obtained ***Experimental***: (n = 44) 4-hour educational workshop: pre-post online survey at the workshop & a 3rd 4 weeks later ***Control***: (n = 23) pre-post online survey on same day as workshop (e.g., at home) & a 3rd 4 weeks later Outcomes: • Attitudes toward older people • Knowledge of aging • Behavioural changes Data Analysis**:** • Descriptive statistics • T-tests and Mann-Whitney for continuous; chi-square or Fishers for categorical • ANOVA between-group differences over time	**Overall knowledge pre-intervention: M(SD) out of 25** • M = 13.8 (2.1), demonstrating a lack of knowledge **Overall attitudes pre-intervention: M(SD) out of 119** *Positive:* M = 78.6 (8.9) *Negative:* M = 44.6 (11.0) *Between groups knowledge:* • A main effect of time (F (2,96) = 15.955, p = 0.003), • No main effects of exp vs. control group (F(1,48) = 1.717, p = 0.196) • No significant interaction effects of group by time (F (1.753,84.165) = 2.295, p = 0.114) *Between groups* attitudes: • A main effect main effects of time (F(2,96) = 11.444, p = 0.001) • No main effects of exp vs. control group (F(1,48) = 0.118, p = 0.732) • No significant interaction effects of group by time (F(2,96) = 0.418, p = 0.660)	Strength of Design: Design: **Moderate** Quality: **Medium** Strengths: Multiple recruitment strategies used Good sample size based on power Limitations: Potential for self-selection bias Only 22% response rate Not generalizable outside of USA

Study/Design	Methods	Key Results	Comments
Tacchini-Jacquier & Morin (2016) Design: Descriptive quantitative Purpose: To identify the level of knowledge and perception of the level of skill in practices relating to the geriatric approach among nurses in the ED	Country/Setting: Switzerland/ED Sample: N=48 Ed nurses. All nurses working in the ED were invited to participate Data Collection: • Roethler's questionnaire (14-item) (face and content validity) *3 sections:* • 1st Demographic info • 2nd assesses theoretical knowledge • 3rd perception of nurses' level of skill in providing care to the elderly Outcomes: • OPACS knowledge of aging, including the correct, deficit, and unsure • Palmore's facts of aging, including correct and deficit • Differences between regions Data Analysis**:** • Descriptive statistics • Pearson Correlation for associations	**Overall Score of geriatric Knowledge M (SD) out of 100** • M = 51.87 (12.51) **Perceived ability to provide geriatric care by skill M(SD) out of 3** • M = 1.54 *Perceived good*: • Assessing pain (2.13 out of 3.00) *Perceived weak*: • provide appropriate referrals for treatment (1.38 out of 3.00) • recognizing depression (1.31 out of 3.00) • offering age-specific discharge instructions (1.25 out of 3.00). **Perceived ability to provide geriatric care by knowledge** *Perceived good:* • 51.1 perceive they have good functional skills *Perceived weak:* • Recognize depression (56.3%) • Provide appropriate referrals for treatment (50.0%) • Provide age-specific discharge instructions (48.9%)	Strength of Design: Design: **Weak** Quality: **Medium** Strengths: Multiple recruitment methods Limitations: Potential for self-selection and non-response bias 60% response rate Conducted in a single institution so not generalizable

Study/Design	Methods	Key Results	Comments
Taylor et al. (2015) Design: Ethnography Purpose: To explore nurses' experiences of caring for the older adult within the ED	Country/Setting: Canada/ED Sample: 7 nurses convenience sample Data Collection: *Part 1:* • Semi-structured 1:1 interview; open-ended questions • A brief follow-up interview took place on 4 occasions to clarify the data • Recorded and transcribed verbatim *Part 2:* • 12 hours of non-participant observation • Field notes • Debriefed immediately with the nurse after care to older adult was provided • 4 sessions of between 2-4 hours in peak activity time in the ED Data Analysis: • Thematic analysis • Emerging codes	**Theme 1** *Culture of the ED* • Focused on the throughput of patients • Time pressured to get things done efficiently • Turn over beds; move patients quickly • Challenging to care for older adults in this environment **Theme 2** *Lack of fit between older adult and the ED* *'Good fit':* • Only when older adult presented as a real emergency or was independent • Or if ED was quiet, which allowed nurses to spend more time with older adult *'Lack of fit':* • Older patients out of sync with what ED intended for, rapid priority setting • Complex presentation and atypical presentation **Theme 3** *Nurses managing lack of fit* • Shifting the expectation and focus of nursing care away from emergency nursing and resetting toward the needs of the older adult who remains in the ED	Strength of Design: **Moderately credible** Strengths: Rigor established with credibility, transferability, authenticity, confirmability, and dependability Finding linked to literature Multiple recruitment strategies Member checking, field notes Limitations: Data saturation not addressed

Study/Design	Methods	Key Results	Comments
Wallis et al. (2018) Design: Retrospective cohort with non-concurrent control group Purpose: To evaluate the effectiveness and cost of the GEDI model of service delivery for adults aged 70 years and over, presenting to an ED	Country/Setting: Australia/ED Sample: N = 44983 older adults ≥ 70 who presented to ED Jan 2012 and Aug 2016 3 implementations phases: (1) Pre-implementation; (2) development phase; (3) full implementation GEDI intervention: APN with 5 years of geriatric experience as part of a team – nurse screened patients ≥ 70 after presenting to ED 3 control groups: pre, interim, and full intervention. 2 intervention groups: Interim and full intervention Data Collection: • De-identified data collected retrospectively from electronic databases Outcomes: • ED LOS, hospital LOS, mortality, time to revisit ED, and cost Data Analysis**:** • Descriptive statistics • Survival analysis • Cox proportional hazard	**When GEDI team working** • Increased likelihood of discharge (HR = 1.19; 95% CI: 1.13-1.24) • Reduced LOS (HR = 1.01; 95% CI: 0.23-4.43) • No increase in mortality (HR = 1.42; 95% CI: 1.33-1.52) • No risk of representation after 28 days (HR = 1.21; 95% CI: 0.99-1.49) • Resulted in an average cost saving of $35 per ED presentation and savings of $1469 per hospital admission	Strength of Design: Design: **Moderate** Quality: **Moderate** Strengths: Coxs model to estimate association between variables De identified date from database Survival analysis considers major factors identified in the literature for this cohort Limitations: Not generalizable outside of Australia

Study/Design	Methods	Key Results	Comments
Wolf et al. (2019) Design: Mixed methods (Sequential design) Cross-sectional with qualitative descriptive Purpose: To explore emergency nurses' perception of their ability to care for geriatric patients in the ED setting	Country/Setting: USA/ED Quantitative Sample: N= 1610 nurse's national US sample Qualitative sample: N= 23 nurses from United States (86%), Canada (4.7%), Hong Kong (9.5%) Data Collection: *Part 1: Quantitative* • Modified version of the Pennsylvania ED Geriatric Readiness Survey reviewed for face and content validity Recruited by email to a list of ED nurses who attended participant observation *Part 2: Qualitative* • 2 focus groups held at a national ED conference ~ 1-hour each • Audio recorded • 6 researchers took field notes Data Analysis: • Content analyses by all 6 researchers separately, then 2nd time as a team • triangulated for comparison • 11/23-member checking	**Theme 1** *Triage and assessment* • Pushed to the side – older adults not recognized as ill, often under triaged • Challenging presentations - vague complaints, atypical symptoms **Theme 2** *Care in the ED environment* • Keeping patients safe – preventing falls • Higher workload – extended care time • Maintaining dignity for elders – lack of autonomy in ED and long care time leads to a lack of respect **Theme 3** *Discharge planning* • Keeping people safe at home and assessing ADLs **Theme 3** *Facilitators and Barriers* • Time constraints • Lower interest and comfort levels with older patients • Lack of education Top 3 nursing priorities: • Geriatric education • Assessment protocols • Case management services 56.5% reported they believed their colleagues were not sufficiently trained for geriatric care	Overall Quality **Weak** Strengths: Findings linked to Literature, field notes, Limitations: No clear justification for using an MMR Data only merged using narratives no clear data analysis Data saturation not addressed Quantitative: Strength of Design: Design: **Weak** Quality: **Medium** Limitations: Potential self-selection bias less than 50% responded

Legend: Activities of daily living (ADLs); Emergency department (ED); Kogan's Attitude toward Older People (KOP) questionnaire; Older Persons in Acute Care Survey (OPACS); Palmore's Facts of Aging Quiz (PFAQ); V&R-validity and reliability

Appendix B: Environmental Report

Canada's population is aging, and the geriatric patient population utilizes emergency departments (ED) at increasingly high numbers. This increase is also being felt at St. Clare's ED, with increasingly more patients being deemed a community emergency (CE). A CE is a term given to an elderly patient who is not admitted and can no longer be cared for at home or in their residence; they stay in the ED often for weeks awaiting placement in a care facility. Given that the ED model is traditionally designed for rapid assessment and triage in the context of high flow, the quality of care for those increasing numbers of older people accessing the ED and living in the ED for weeks is concerning. Older patients often present to the ED with atypical physiologic and psychologic disease presentations, which puts them at a higher risk for morbidity and mortality (Latham & Ackroyd-Stolarz, 2014; Schnitker et al., 2011) and their longer lengths of stay in the ED puts them at increased risk for complications (e.g., delirium and falls) (Émond et al., 2018).

ED nurses feel competent in acute situations but incompetent when caring for complex older patients (Skar et al., 2015). ED nurses, experienced and inexperienced, lack the knowledge and education required to care for this patient population and promote optimal outcomes (Deasey et al., 2018). It is recognized that early detection of frailty, vulnerability, and recognition of the atypical symptoms of a hidden disease (i.e., geriatric syndromes) may help reduce or prevent possible adverse events (Gruneir et al., 2010; Samaras et al., 2010). St. Clare's ED and its nursing staff are unprepared to handle this increasing cohort, which caught the attention of some frontline champions and the ED leadership. As a result, a physician-championed Geri ED quality improvement (QI) project was initiated with representation from many of the ED leadership team (Program Director, Chief of ED, program manager, nursing manager, and educator). I am not involved in the research aspect of this QI project (i.e., MUN medicine project). I am only there

as a manager to identify issues/needs from a financial perspective and examine any impacts on nursing.

There are several components to this QI project, including advocating for better data collection (i.e., CE numbers and length of stay), the need for a QI person/role in the ED, ways to improve screening at triage, geriatric equipment and supplies, policy and procedure development (i.e., urinary catheter use, palliative care in the ED, elder abuse screen). There have also been brief discussions about the importance of other models of care, such as a Geriatric Emergency Management (GEM) nurse and a Geriatric Emergency Department Intervention (GEDI) team. The physician champion has written a proposal to the government to request funding to create a geriatric physician position and a GEM nurse for the ED.

As part of the Geri ED project, I decided to develop a Geriatric learning Module (GLM) for registered nurses (RN) that would be incorporated into the ED orientation going forward. The aim was to increase the knowledge and assessment skills of RNs to improve the care of frail older adults in the ED. Having nurse educators integrate principles of geriatric care into unit orientations and continuing competency is an important step toward addressing this issue (Hunt, 2020). Nursing orientation is pivotal in assessing and developing nurses' competencies and retention (Brown et al., 2018; Pertiwi & Hariyati, 2019). Evidence has shown that nurses feel more satisfied and are less likely to leave the profession when their unit orientation meets their needs (Pertiwi & Hariyati, 2019).

The purpose of this environmental scan was to determine what resources and policies were available to aid in building the foundational geriatric knowledge, skills, and systematic process needed to guide geriatric patient care and help improve outcomes in the ED. Information that is identified will assist in the development of the GLM.

Specific Objective(s) for the Environmental Scan

1. To determine what educational resources are available at Newfoundland Health Services (NLHS) to assist ED nurses in developing and improving their knowledge of aging and geriatric syndromes and gerontological skills.
2. To identify what resources are available at NLHS and online at other Canadian EDs to inform the content and delivery of a learning module on geriatric emergency nursing education.
3. To identify what screening tools are available at EH, online, and in the literature to screen for geriatric syndromes and frailty.
4. To identify the policies and procedures available to guide decision-making related to the care of the older adult in the ED.

Sources of Information/Data Collection

The first part of the environmental scan was completed by conducting a 1-hour Microsoft Teams meeting that involved a discussion with key stakeholders. Key stakeholders included the clinical educators responsible for educating the ED nurses at the Health Sciences Center (HSC) and St. Clare's Mercy Hospital (SCMH), the educator for the rural EDs in the NLHS Eastern zone, and the ED program manager. The meeting was conducted on February 17, 2023, using the four guiding questions outlined below as a guide, and jot notes were taken during the meeting. The clinical educators and the program manager were very knowledgeable about the content of their orientation packages and other educational material and policies that guided older adult care.

1. What is the current geriatric focus and content level in the ED orientation?
2. Are there any resources/policies available to nurses to help improve their geriatric

knowledge and guide patient care?

3. You are in the process of changing the current ED orientation to an onboarding platform with the help of learning and development; what will the setup look entail? Furthermore, how would a geriatric-focused portion fit into that? In terms of length and structure?
4. Based on your ED experience, what type of content should be added? What would you like to see if this were added to the current orientation?

The second part of the environmental scan was conducted to find online resources about geriatric care by viewing the provincial LEARN system and the Intranet at NLHS. An online scan of what other provinces do in their EDs to enhance geriatric education and care (e.g., screening tools and educational materials) was also completed. Jot notes were taken while examining the content.

The province of Ontario is leading the way in improving geriatric care, so a scan of Registered Nurses Association of Ontario (RNAO) (https://elearning.rnao.ca) and Mount Sinai Hospital (https://geri-em.com) were also conducted. It was important to see what other Canadian EDs and nursing associations are doing because those resources might be applicable or relevant here in Newfoundland and Labrador. A brief literature review was supposed to determine what screening tools currently recognize geriatric syndromes and frailty. However, this plan changed and will be discussed further in the results section. Finally, a scan of the Emergency Nursing Association (ENA) (https://www.ena.org/) was conducted to see if they have any geriatric courses or resources specifically designed for ED nurses. ENA is a valuable resource for ED nurses looking to advance their careers and improve their practice.

Data Management and Analysis

To help manage the data and analysis, an inductive content analysis process (Elo & Kyngäs, 2008) was used to help code and create the categories that explain and describe the current state of the available educational resources with a geriatric focus. All relevant content was viewed, and general patterns were identified, resulting in three main themes; *Assessment Methods, Limited Geriatric Educational Resources,* and *Identified Educational Needs*. Below is a descriptive summary of those themes and their implications for the practicum project.

Results

Assessment Methods

A discussion with clinical educators and the program manager and a scan of the various sites outlined above revealed few resources available with a geriatric focus. The available educational components and policies centred around assessment methods, mainly cognitive and fall risk assessment. There is only one module in the current ER orientation with a geriatric focus, the *Delirium Screening and Management* module. It focuses on what delirium is, hospital and ED-related statistics, discusses predisposing factors and reversible causes, and distinguishes between delirium, depression, and dementia. It ends with a discussion of the first identified global policy, the *Delirium Screening and Management* policy, which explains how to use the Confusion Assessment Method (CAM) to assess for delirium and highlights that all clients admitted to adult acute care are screened at the point of entry (i.e., ED).

Similarly, a scan of the online provincial LEARN program and the RNAO showed that delirium, dementia, and depression are the focus of geriatric educational opportunities. The LEARN program has four learning modules designed to help clinical staff in long-term care recognize the importance of dealing with the Behavioral and Psychology System of Dementia (BPSD) using a BPSD protocol. Similarly, RNAO has a series of four learning modules designed

to enhance knowledge and abilities to care for a person experiencing delirium or dementia. Each module discusses the different types, signs, causes/risk factors, and strategies and has a case study designed to test knowledge for each module.

The second policy and assessment method identified that is specific to the ED was *Fall Prevention in the ED*, which must be implemented on all patients who present and are triaged as CTAS 1, 2, or 3. This assessment is part of the in-depth nursing assessment using a fall risk assessment tool. There was also a geriatric resource, the *Extended Flow Sheet*, which is utilized to help track the care provided to CEs that stay in the department for extended periods while waiting for placement in a care facility. Three new policies are being developed, appropriate use of indwelling urinary catheters for older patients, elder abuse, and palliative care in the ED.

In the original plan, there was to be an online scan of the available geriatric screening or assessment tools. However, it was decided in the last Geri-ED meeting in consultation with program leadership that the ED program would use the Clinical Frailty Scale (CFS) and the Identifying Seniors at Risk (ISAR). Both screening tools will be added to the current triage form later, and education about these tools will be incorporated into the new learning model.

Limited Geriatric Educational Resources

Scans of other sites revealed few geriatric-focused educational resources designed for nurses, and the ones found were not easily accessible. The website at Mount Sinai has an e-learning website primarily designed for physicians working in EDs who want to provide optimal care to their older patients. It contains six modules, cognitive impairment (i.e., delirium, dementia, and depression), medication management, trauma and falls, atypical presentation, functional assessment and discharge planning, and end-of-life issues.

A scan of the ENA website was conducted to see if they have any geriatric courses or

resources specifically designed for ED nurses. Two courses were identified, level one and level two. The level one course is aimed at new nurses in the ED to help enhance their geriatric knowledge and skills to guide care, and the level two course aims to improve the understanding of high-risk geriatric patients in the ED. There was a significant cost ($130.00) associated with accessing the courses, so viewing the content is not feasible at this time.

Educational Needs Identified

The ED program is changing the current two-week classroom orientation to an onboarding platform with the help of learning and development. While still a work in progress, each day will consist of a morning and an afternoon session about a specific topic or focus. The morning session will consist of a self-learning module lasting two to four hours with knowledge checks built in. The corresponding afternoon session will consist of a lecture, simulation, case study, or other method depending on the morning content and the best way to enhance what was viewed in the morning session. All who attended the meeting agreed that geriatric-focused modules were necessary and would fit nicely into the new platform. All thought case studies would likely be the best approach for the corresponding afternoon session.

The educators identified several topics they wanted to see in the module. They would like information on the physiological aspects of aging, delirium and dementia, sepsis, end of life, falls, abdominal pain, weakness and nonspecific complaints, and how certain medications affect older patients.

Ethical considerations

This practicum project does not require review by the Health Research Ethics Authority (HREA), as indicated by the HREA screening tool (Appendix A). It is not considered to be a research project.

Implications for Practicum Project

Some of the available content discussed above will aid in developing a learning module for ER nurses to improve geriatric knowledge to guide geriatric patient care. The ER *Delirium Screening and Management* module will be updated to be more interactive and fit with the new learning platform and modules. It will also include some aspects from the RNAO module series on delirium, dementia, and depression. While some of the content was like the module already existing in the ED program orientation, the RNAO modules are more comprehensive in some respects and utilize case studies that could be referenced and used. The modules on the LEARN platform were designed to educate staff who work in LTC settings and care for patients well-known to staff. That is not always the case in the ED setting, so the content will not be relevant.

The geriatric-focused modules found on the Mount Sinai website are technical from a medical presentative and not ideal for the ED nurses; however, there are elements from two modules, trauma/falls and atypical presentations, that could help guide the development of the GLM. What aspects will be utilized is unknown but will become clearer during the module development phase.

Conclusion

The results of this environmental scan will help guide and supplement the development of the GLM for ED nurses to improve geriatric knowledge to guide geriatric patient care. The environmental scan helped to highlight significant resource and educational gaps that are geriatric-focused and designed specifically for ED nurses. With the help of inductive content analysis, it was concluded that the primary educational focus for geriatric care centers around cognitive assessment and fails to address other geriatric syndromes important for ED nurses to know. Given that ED nurses lack geriatric knowledge, do not recognize many of the geriatric

syndromes, and the environmental scan found limited resources to help educate them, it further supports the need to develop a geriatric ED nursing-focused learning module. Aspects deemed relevant to ED nursing in the environmental scan will help ensure that the learning module is as comprehensive as possible.

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Appendix A:
Health Research Ethics Authority (HREA) Screening Tool

Student Name: Michelle Crewe

Title of Practicum Project: Development of a Learning Module for Emergency Department Nurses to Improve Geriatric Knowledge to Guide Geriatric Patient Care

Date Checklist Completed: February 3, 2023

This project is exempt from Health Research Ethics Board approval because it matches item number 3 from the list below.

1. Research that relies exclusively on publicly available information when the information is legally accessible to the public and appropriately protected by law; or the information is publicly accessible and there is no reasonable expectation of privacy.
2. Research involving naturalistic observation in public places (where it does not involve any intervention staged by the researcher, or direct interaction with the individual or groups; individuals or groups targeted for observation have no reasonable expectation of privacy; and any dissemination of research results does not allow identification of specific individuals).
3. Quality assurance and quality improvement studies, program evaluation activities, performance reviews, and testing within normal educational requirements if there is no research question involved (used exclusively for assessment, management or improvement purposes).
4. Research based on review of published/publicly reported literature.
5. Research exclusively involving secondary use of anonymous information or anonymous human biological materials, so long as the process of data linkage or recording or dissemination of results does not generate identifiable information.
6. Research based solely on the researcher's personal reflections and self-observation (e.g. auto-ethnography).
7. Case reports.
8. Creative practice activities (where an artist makes or interprets a work or works of art).

For more information please visit the Health Research Ethics Authority (HREA) at https://rpresources.mun.ca/triage/is-your-project-exempt-from-review/

Appendix C: Consultation Report

Canada's population is aging, and the geriatric patient population utilizes the emergency department (ED) at increasingly high numbers (Canadian Institute for Health Information [CIHI], 2017; Latham & Ackroyd-Stolarz, 2014). The increase is also experienced at St. Clare's ED, with many older patients deemed a community emergency (CE). A CE is a term used by the ED program at Eastern Health to identify an elderly patient who is not admitted and can no longer be cared for at home or in their residence; they stay in the ED often for weeks awaiting placement in a care facility. The ED model is traditionally designed for rapid assessment and triage in the context of high flow, and providing complex care to older adults does not fit that model. As a result, the quality of care for those increasing numbers of complex older adults accessing the ED and living in the ED for weeks is concerning. Older patients often present to the ED with atypical physiologic and psychologic disease presentations, which puts them at a higher risk for morbidity and mortality (Latham & Ackroyd-Stolarz, 2014; Schnitker et al., 2011) and their longer lengths of stay in the ED puts them at increased risk for complications (e.g., delirium and falls) (Émond et al., 2018).

A literature review determined that ED nurses lack the knowledge and education to care for this patient population and promote optimal outcomes (Deasey et al., 2018; Tacchini-Jacquier & Morin, 2016; Rawson et al. (2017). It is recognized that early detection of frailty, vulnerability, and recognition of the atypical symptoms of a hidden disease (i.e., geriatric syndromes) may help reduce or prevent possible adverse events (Gruneir et al., 2010; Samaras et al., 2010). So, improving ED nurse's gerontological knowledge and assessment skills is important because clinical outcomes for older adults tend to improve when they are cared for by nurses with training in gerontological care (Rawson et al., 2017; Leaker & Holroyd-Leduc, 2020).

Unfortunately, nurses have received limited geriatric nursing education during formal undergraduate courses or informal continuing education programs (Désy & Prohaska, 2008). ED nurses themselves report that they should receive education on age-related changes to help them better identify and detect geriatric syndromes (Boltz et al., 2013). Having nurse educators integrate principles of geriatric care into unit orientations and continuing education opportunities is an important step toward addressing the lack of knowledge (Hunt, 2020).

As the manager of St. Clare's ED, I have observed several issues related to the quality of care provided to the increasing number of older patients utilizing the ED. Specifically, I have seen examples of missed geriatric syndromes on triage during chart audits, increased Clinical Safety Reporting System (CSRS) reports related to the complex care that older patients require, and increased falls. Many of these omissions and issues could have been avoided if nurses had properly identified these geriatric syndromes. The nursing staff has also voiced their frustrations to me about the number of complex older patients in the ED and how they feel ill-equipped to deal with it.

Given that a Geriatric Learning Module (GLM) will be developed for ED nurses as part of their orientation and ongoing yearly competencies, it is important to consult with them. The nursing consultations will help to identify any practice or knowledge issues related to the care of geriatric patients in the ED by performing a learning needs assessment and identifying self-reported geriatric educational needs. The consultation will aid in developing the GLM to improve ER nurses' knowledge of the aging process and geriatric syndromes to help improve the overall quality of care and outcomes.

Objective(s) for Nursing Consultations

The objectives for the nurse consultations are:

1. Assess the need for a geriatric learning module by inquiring about previous geriatric training or courses on the physical assessment of older adults and the normal aging process.
2. To examine current practice and geriatric knowledge about older patients.
3. To examine nurses' thoughts on knowledge gaps, facilitators, and barriers to caring for the older patient in the ED.
4. To seek feedback on the educational topics ED nurses want to see as part of the geriatric learning module.

Setting and Sample

Consultations were conducted with nurses at St. Clare's ED (N = 8), four experienced ED nurses and four inexperienced nurses. A nurse must work in the ED for two years before being considered an experienced ED nurse, regardless of previous nursing experience. Over the last two years, there has been a high ED RN turnover. Many experienced ED nurses have left for various reasons leaving the experience-to-inexperienced ratio well below the accepted level. I wanted to examine if there is a difference in the perspectives between experienced and inexperienced ED nurses regarding their current practice and geriatric knowledge, as well as what they would like to see included in a geriatric learning module. Nurses working in the ED can identify first-hand the challenges concerning caring for older patients in the ED and help identify any issues or knowledge gaps that warrant attention. They can provide insights into their preferred learning styles and the content of the GLM. The names of all the nurses were placed in one of two cups, experienced or inexperienced, and four names were randomly chosen from each cup to take part in the questionnaire.

Data Collection and Analysis

Eight nurses were sent an invitation (Appendix A) and a copy of the questionnaire (Appendix B) via their work email on March 13, 2023. In the invitation email, the nurse was provided with an overview of the project, why the consultations were being completed, and their privacy and confidentiality were addressed. Nurses were asked to return the questionnaire via email by March 17, 2023. Consent was inferred by the participants returning the questionnaires.

All questionnaires (N = 8) were returned by the deadline. All information was transferred into a spreadsheet on my computer which contained no identifying information. Hard copies of the questionnaires were locked in a filing cabinet in my office and will be destroyed once the project is complete. Descriptive statistics were used to describe data in sections A and B of the questionnaire. An inductive content analysis process was used to manage the data and analysis, which helped code and create the categories or themes that highlighted the questionnaire results (Elo & Kyngäs, 2008). The quantitative and qualitative sections of the survey results were read and re-read to ensure no data was missed. During this first step, comments were written in the margins of each question to make sense of the data. All comments were then transcribed and listed on a spreadsheet. The data was then moved into seven different subgroups. An interpretation was made about which comment to put into which category. General patterns were identified, and similar subgroups were grouped together, resulting in the three main themes discussed below.

Ethical Considerations

The development of this practicum project does not require review by the Health Research Ethics Authority (HREA), as indicated by the HREA screening tool (Appendix C). It is not considered to be a research project. To ensure that the ED leadership was informed of the consultation process, approval was granted from the director, my immediate boss, to conduct

consultations with staff members.

Results

Findings from the questionnaires coincide with the findings from the literature review. Below is an overview of the results of the first two parts of the questionnaire, followed by three themes identified from an analysis of the overall content of the questionnaire results: *barriers and facilitators to providing care, the need for geriatric training, and educational topics and learning methods.*

Consultations were conducted with eight nurses, four experienced (i.e., > than 2 years working in the ED) and four inexperienced (i.e., < 2 years working in the ED). All four experienced ED nurses (100%) had more than ten years of experience working as RN, with 50% having more than ten years of experience working in the ED and 50% having between six and ten years. Three out of the four (75%) inexperienced ED nurses had less than 2 years of experience working as an RN, and one (25%) had 10+ years of experience working as an RN before coming to the ED.

All eight nurses (100%) rated their colleagues' overall older adult knowledge level as 'somewhat knowledgeable.' When asked if they had completed any courses or modules on older adult physical assessment, only one nurse in the experienced group identified that they had. It was in their current Nurse Practitioner (NP) master's program. Only two experienced ED nurses reported completing modules about older adult cognitive assessment, specifically the LEARN module-Behavioral and Psychology System of Dementia (BPSD), identified in the environmental scan, which is geared towards caring for older adults in a long-term care setting.

For the cognitive-specific questions six through eight, the results varied. All eight nurses reported that they asked older patients if they felt depressed some of the time. When RNs were

asked if it was easy to tell whether older patients felt depressed, three out of four (75%) inexperienced ED nurses said sometimes, and only one (25%) said no. In the experienced group, 50% said sometimes, and 50% said yes. All eight nurses reported routinely asking their patients questions to determine whether they had cognitive issues. Of concern was that 88% felt that ED nurses only sometimes promote a culture of patient safety, and 100% of the nurses suggested that nurses do not always follow organization policies and procedures.

Notably, there were not many glaring differences between the two groups. However, one difference was that 100% of the experienced ED nurses (~avg of 8 years of ED experience) reported that the current orientation did not adequately prepare new ED nurses to work with older patients, and 100% of the inexperienced or new ED nurses who did orientation less than 2 years ago reported that it did. Interestingly, there has been little modification to the orientation over the last six years, and it contains very little geriatric educational content. In Part B, all eight nurses answered all five questions correctly in the geriatric knowledge questions.

Barriers and Facilitators to Providing Care

Many of the barriers and facilitators identified by the participants were like those identified in the literature review. Some barriers identified were staffing levels and workload, lack of physical space and equipment, lack of geriatric knowledge, and ED culture (i.e., rushed environment). One nurse wrote that the main barriers were "lack of knowledge for some nurses and lack of bed spaces, resources, equipment, and time." Another nurse wrote that the "ER is a fast-paced environment, and I feel as an ER nurse you do not often have time to do a proper assessment adequately." Some facilitators identified by nurses reflected in direct quotes were "staff nurses' knowledge," "motivation to provide better care to older patients in the ED," and the "ability of the nurse to perform a thorough geriatric assessment and the presence of specialized

geriatric teams."

Need for Geriatric Training

The nurses answered all the basic geriatric knowledge questions correctly. However, practice gaps and the need for increased geriatric education were threaded throughout the results. The participants rated the nurse's overall knowledge level of the older adult as only 'somewhat knowledgeable'. Only one out of eight RNs identified that they had completed any courses or modules on older adult physical assessment, and only two reported having completed any on older adult cognitive assessment. The level of geriatric knowledge of care and assessment was identified as a barrier to providing care to older adults. One example was the lack of knowledge of how certain medications affect older adults. The lack of ability to identify many of the geriatric syndromes was also highlighted. One nurse stated, "nurses have difficulty deciphering between dementia, delirium and depression." Additionally, it was suggested that some RNs were not recognizing the more pressing underlying issues related to falls and incontinence.

Educational Method and Topics

The educational strategy recommended was consistent across all responses. Self-directed online interactive modules were the front-runner for the educational strategy that would most help nurses learn about the normal aging process and geriatric syndromes, followed by simulation and case studies. All nurses stated that they learn best through case studies or hands-on learning. The geriatric topics that the nurses would like to see added to the orientation are dementia (n = 7), how medications affect older adults (n = 6), delirium (n = 6), depression (n = 3), end-of-life (n = 3), sepsis (n = 3), and weakness and nonspecific complaints (n = 3).

Informing the Practicum Project

The nursing consultations helped to identify nurses' perceived barriers to providing

quality care to older ED patients, like those identified in the literature review. Specifically, they helped to confirm modifiable barriers such as gaps in knowledge and practice and a lack of geriatric educational opportunities. So, the nurses' perspectives and the information gathered from the consultation will help to inform the development of the geriatric learning module to close the gap on that barrier. The mode of delivery will be a series of self-learning modules followed by a case study discussion to help reinforce learning. This mode of delivery aligns with the new ED onboarding, and the consultations helped reinforce that choice since the participant group chose self-directed learning as a favourite educational strategy. Additionally, the consultation process helped identify certain topics important to the RNs' learning needs, which will be considered when finalizing the specific geriatric topics that will be included.

Conclusion

The ED environment can influence the ability to care for and address the complex needs of older adults visiting the ED. Understanding nurses' perspectives will help to inform the development of the GLM. The purpose of the GLM is to improve the foundational geriatric knowledge of the aging process and geriatric syndromes, skills and systematic processes needed to guide geriatric patient care that may help improve outcomes. While certain barriers or factors cannot be modified, such as workload and staffing, increasing the education provided in the orientation around the geriatric client may help improve the ED nurse's knowledge and level of care.

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Appendix A

Dear ***(insert participant's name):***

This letter is an invitation to consider participating in a project I am doing as part of my Master of Science in Nursing at Memorial University under the supervision of Dr. Ahtisham Younas. The overall goal of this practicum is to develop a learning module for emergency department (ED) nurses to improve their geriatric knowledge to guide geriatric patient care with an overall goal of improving care outcomes, quality of care, and the older person's experience.

The ED is an environment that can influence the ability to care for and address the complex needs of older adults visiting the ED. Understanding nurses' perspectives can inform the education strategy and help improve care quality.

Participation in this project is completely voluntary and will involve the completion of the attached questionnaire. It has three parts and should not take more than 10-15 minutes to complete. You can decline to answer any of the questions, and all information you provide will be kept confidential. Once questionnaires are returned, all identifying information will be removed, and they will be locked in a filing cabinet in my office and destroyed once the project is complete. There are no known or anticipated risks to you as a participant in this project.

Please return the completed questionnaire to my work email at michelle.crewe@easternhealth.ca by March 17, 2023.

Once developed, the learning module will become part of the orientation for all nurses joining the ED team and part of the yearly competency. It will benefit all ED nurses and improve the quality of care and, hopefully, outcomes for older patients in the ED.

Thank you in advance for your support with this project.

Sincerely,

Michelle Crewe BA(Hons.) BN RN ENC(C)
She/Her
Division Manager
St. Clares Emergency/SANE Program
Eastern Health
O:777-5873
C:687-5325

Appendix B Nursing Questionnaire

Part A

1. How many years have you worked as a Registered Nurse?
   - □ 2 years or less
   - □ 2-5 years
   - □ 6-10 years
   - □ more than 10 years

2. How many years of experience do you have working in the ED?
   - □ 2 years or less
   - □ 2-5 years
   - □ 6-10 years
   - □ more than 10 years

3. How would you describe the nurses' overall older adult (age > 65) knowledge/skill level?
   - □ Extremely knowledgeable
   - □ Somewhat knowledgeable
   - □ Unable to answer
   - □ Somewhat unknowledgeable
   - □ Extremely unknowledgeable

4. Have you completed any courses/modules on older adult physical assessment or care?
   - □ No
   - □ Yes, if yes, explain _____

5. Have you completed any courses/modules on older adult cognitive assessment or care?
   - □ No
   - □ Yes, if yes, explain _____

6. Do you routinely ask older patients whether they feel depressed?
   - □ Yes
   - □ No
   - □ Sometimes

7. Do you find it easy to tell whether older patients are depressed?
   - □ Yes
   - □ No
   - □ Sometimes

8. Do you routinely ask older patients questions to determine if they are having cognitive issues (i.e., dementia)?
   - □ Yes
   - □ No
   - □ Sometimes

9. Do you feel the ED nurses promote a culture of patient safety?
    - □ Always
    - □ Sometimes
    - □ Neutral
    - □ Rarely
    - □ Not at all

10. How often do ED nurses **NOT** follow organizational policies and procedures due to unit culture?
    - □ All the time
    - □ Sometimes
    - □ Neutral
    - □ Rarely
    - □ Never

11. Do you feel the current orientation period adequately prepares new ED nurses to work with older patients?
    - □ Yes
    - □ No
    - □ Unable to determine

Part B - True/False

12. Less than half of patients 75 and over present to the ED with myocardial infarction have chest pain.
    - □ True
    - □ False

13. Less than half of patients 75 and over presenting to the ED with myocardial infarction have ECG changes.
    - □ True
    - □ False

14. Septic older patients can present without elevated white blood cell count.
    - □ True
    - □ False

15. Older patients presenting with acute abdomen reliably demonstrate guarding or rebound tenderness.
    - □ True
    - □ False

16. Urinary incontinence is a normal part of aging.
    - □ True
    - □ False

Part C - Short Answer

17. In your experience, what are some of the facilitators and barriers to providing care to older patients in the ED?

_____
_____
_____
_____
_____

18. In your experience, have nurses had trouble appropriately identifying geriatric syndromes (i.e., depression, delirium, dementia, falls and syncope, urinary incontinence, malnutrition, sleeping problems, polypharmacy etc.) Can you provide an example? If not applicable, write N/A.

_____
_____
_____
_____
_____

19. What educational strategies would help nurses learn more about the normal ageing process and common geriatric syndromes? (e.g., lecture, simulation, case studies)?

_____
_____
_____
_____
_____

20. How do you learn best?

_____
_____
_____
_____
_____

21. What geriatric education topics would you like added to the ED orientation and yearly competencies?

□ Dementia □ Delirium □ Depression □ Falls
□ End of life □ Sepsis □ Hip # □ Heart failure
□ Weakness and nonspecific complaints □ Abdominal pain
□ Physical Aspects of aging
□ How medications affect older patients
□ Other (please list) _____

Thank you for your time and contribution

Appendix C: Health Research Ethics Authority (HREA) Screening Tool

Student Name: Michelle Crewe

Title of Practicum Project: Development of a Learning Module for Emergency Department Nurses to Improve Geriatric Knowledge to Guide Geriatric Patient Care.

Date Checklist Completed: March 3, 2023

This project is exempt from Health Research Ethics Board approval because it matches item number 3 from the list below.

9. Research that relies exclusively on publicly available information when the information is legally accessible to the public and appropriately protected by law; or the information is publicly accessible and there is no reasonable expectation of privacy.
10. Research involving naturalistic observation in public places (where it does not involve any intervention staged by the researcher, or direct interaction with the individual or groups; individuals or groups targeted for observation have no reasonable expectation of privacy; and any dissemination of research results does not allow identification of specific individuals).
11. Quality assurance and quality improvement studies, program evaluation activities, performance reviews, and testing within normal educational requirements if there is no research question involved (used exclusively for assessment, management or improvement purposes).
12. Research based on review of published/publicly reported literature.
13. Research exclusively involving secondary use of anonymous information or anonymous human biological materials, so long as the process of data linkage or recording or dissemination of results does not generate identifiable information.
14. Research based solely on the researcher's personal reflections and self-observation (e.g., auto-ethnography).
15. Case reports.
16. Creative practice activities (where an artist makes or interprets a work or works of art).

For more information, please visit the Health Research Ethics Authority (HREA) at https://rpresources.mun.ca/triage/is-your-project-exempt-from-review/

Appendix D: Geriatric Learning Module (GLM)

Geriatric Learning Module (GLM) for Emergency Room Nurses

Photo from Freepik.com

Developed By Michelle Crewe

May 2023

CONTENTS

INTRODUCTION

Canadian emergency departments (ED) welcome more patients over the age of 65 than any other cohort, accounting for 20% to 40% of all visits,[9] and this number is expected to increase.[24] Older adults who present to the ED are typically more complex than their younger counterparts because they tend to have multiple co-morbidities, possible polypharmacy, and atypical physiologic disease presentations. Due to the complexity of the presentation, older adults are often under-triaged,[27] which can put them at increased risk for adverse outcomes and increased morbidity and mortality.[25] ED nurses have been known to have knowledge deficits in the assessment of depression, dementia, falls, myocardial infarction, infection and urinary incontinence[46] One Canadian meta-analysis revealed that 30% of older patients seen in the ED returned within 3 months, and 10% died at 3 months.[25]

As the population ages, so does the need for increased knowledge of the unique vulnerabilities of the older population. ED nurses must recognize the progressive decline seen at the cellular level with aging to understand that this minimizes reserves and responses that older adults have to injury and disease.[22] This GLM, as part of the ED orientation, will help provide the foundational geriatric knowledge and skills to guide geriatric patient care and may help improve clinical outcomes for older patients in the ED.

This resource consists of six learning modules. The first module reviews physiological changes that occur with aging according to the anatomical system, the concept of homeostenosis and diminished physiological reserves in the older adult, and a discussion of illness versus aging. The second model discusses various geriatric syndromes, their implications, and the concept of assessing frailty at triage. The third module distinguishes between dementia, delirium and depression and discusses further the important link between delirium and sepsis. The fourth module provides an overview of trauma and falls, including fall statistics, risk factors, and geriatric considerations when triaging an older adult after a fall, while the fifth module discuss atypical illness presentation. Lastly, the sixth module focuses on how physiologic changes that occur with aging can affect how the aging body responds to medications. After completing the six modules, the educator will present three case studies which will be discussed as a group and provide the opportunity to apply the knowledge from the modules.

Each module contains various knowledge checks. Text boxes are also incorporated throughout the GLM to help present the information. Orange boxes include additional facts, green boxes include reflective questions and statements, and light-yellow boxes include links to extra learning and associated global and ED policies and protocols.

The answer key to the knowledge checks is in **Appendix A**, and the educators' case study notes are in **Appendix B** at the end of this resource.

MODULE 1: PHYSIOLOGY AND AGING

The purpose of this module is to provide an overview of the physiological changes that occur during aging by the anatomical system, the concept of homeostenosis, and to discuss the differences between aging and illness. Knowledge of underlying physiology and expected aging changes will help ED nurses distinguish what is normal and what is a warning sign.

Learning Objectives:

1. Describe physiologic changes that occur with aging
2. Distinguish between aging and illness

PHYSIOLOGICAL CHANGES OF AGING

One of the most fundamental issues about geriatric care is understanding the difference between disorders, illness, and the normal aging process.[1] Distinguishing between the normal aging process and deviances in aging is essential for the appropriate assessment and care of geriatric patients. As we age, we experience many physiological changes. Aging is characterized by progressive and predictable changes and is associated with an increased susceptibility to many diseases.[3]

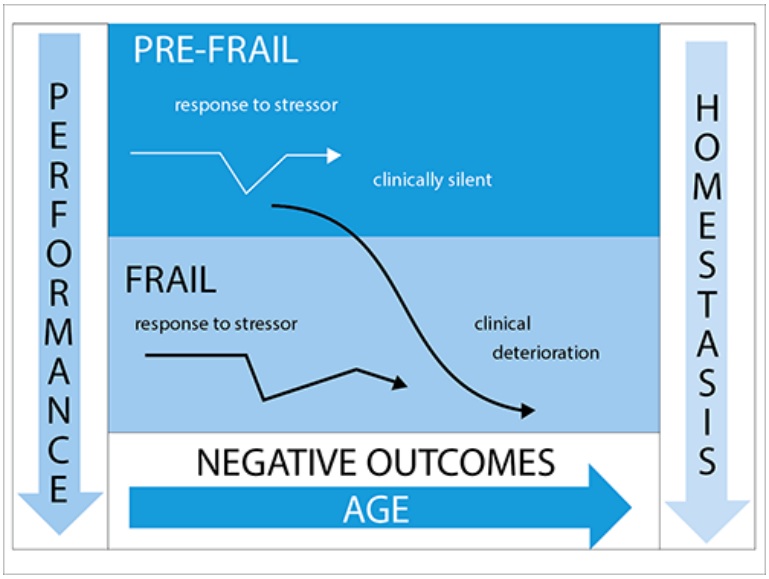
General changes in the body are related to three things:

1. **Physiological rhythms**: Rhythmic physiological processes become disorganized with age, which affects body processes such as the circadian rhythm of body temperature, plasma, cortisol, and sleep.[1,2]

2. **Loss of complexity**: Loss of complexity, a general principle of aging systems, may result in decreased physiologic function, such as cardiac and stress responses.[1,2]

3. **Homeostenosis:** A process that occurs with aging, with fewer physiologic reserves to meet homeostasis, leading to increased vulnerability when faced with an external challenge or stressor. **Homeostasis** refers to the internal self-regulating of an organism by using physiological processes to survive external challenges and maintain a steady state by regulating body temperature, blood pressure, blood glucose, pH, fluid balance, and thirst.[2] Decreased physiological reserves in older adults renders these mechanisms vulnerable.[3] It takes longer for older people to respond to homeostatic challenges and return to equilibrium than their younger counterparts. Small challenges overwhelm available reserves, and the endpoint of this process is frailty (Figure 1).[1,2,3]

Figure 1: Homeostenosis



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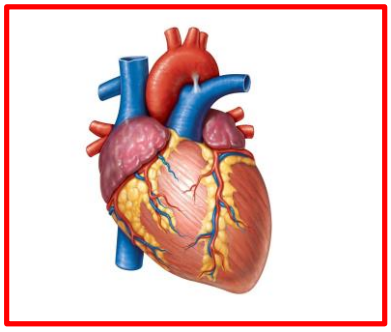
CARDIOVASCULAR SYSTEM

Significant cardiovascular changes occur with age and center around decreased system flexibility, putting older adults at an increased risk of elevated blood pressure, heart attack, stroke, and other cardiovascular diseases[1,2] due to:



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- Decreased mechanical and contractile activity
- Arterial wall thickening and vein stiffening lead to atherosclerosis and hypertension.
- Fall in stroke volume and thus cardiac output
- Thickening and stiffening of heart valves
- Thickening of the sinoatrial node and fewer pacemaker cells predispose older adults to slow and irregular heart rates.

- Baroreceptors are less sensitive to changes in blood pressure leading to a greater risk of orthostatic hypertension
- Decreased cardiovascular reserve leading to increased risk of heart failure[1,2]

Fact #1
Due to decreased cardiac output blood flow to the kidneys can be decreased by up to 50% and to the brain by 20%[2]

RESPIRATORY SYSTEM

Respiratory system changes cause a blunting of responses to internal or external environmental changes resulting in pulmonary decline.[1,2]

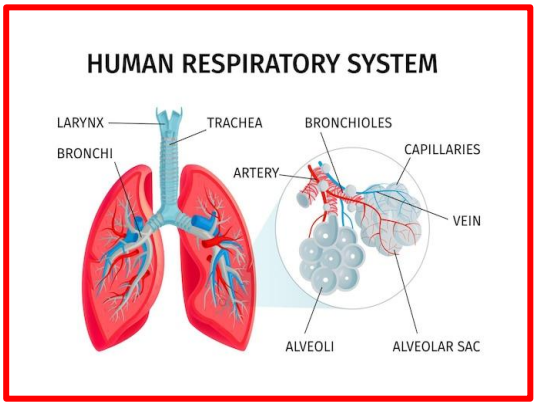
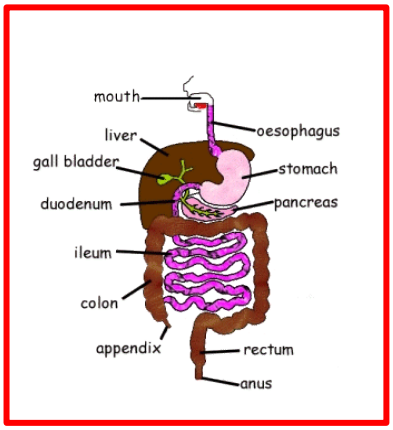


Photo from Freepik.com

- Loss of elasticity in airways and bony thorax resulting in more rigid and stiffer lungs
- Weakening of the chest wall contributes to poor lung expansion, making it more difficult to hyperventilate in response to acute metabolic acidosis
- Pulmonary function decreases as the alveoli become thinner, increasing the amount of dead space
- Vital capacity decreases due to ventilation-perfusion mismatch
- Reduced arterial oxygen tension results in decreased available oxygen[1,2]

GASTROINTESTINAL SYSTEM

As we age, smooth muscle and activity change resulting in constipation, appetite, and nutritional imbalances.[1,2]



- Gums recede, saliva production decreases, and esophageal muscle weakens, causing difficulty swallowing food
- Decreased motility results in delayed gastric emptying resulting in early fullness
- Decrease in colonic strength[1,2]

Liver:

- Liver mass decreases by 20-40%
- Reduced blood flow by up to 50%
- Altered clearance of some drugs
- Metabolizes less efficiently[1,2]

Intestines:

- Small intestines absorb less calcium and vitamin D
- Enzymes that aid in digestion decline with age
- Reduced peristalsis of the colon may cause constipation.[1,2] When constipation exists, it is usually the result of factors such as inadequate exercise, a diet low in fibre, inadequate fluid intake, and certain medications.

UROLOGIC SYSTEM

Changes in the urologic system occur from the kidneys down to the bladder. These changes affect drug metabolism, fluid balance, and blood pressure.[1,2]

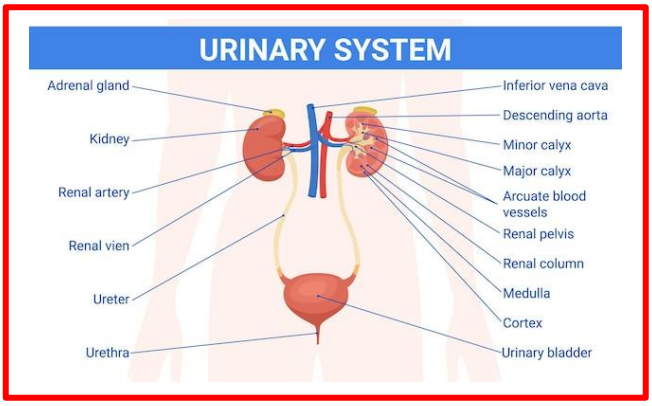


Image by macrovector on Freepik

- Decrease in glomerular filtration rate (GFR)
- Decrease ability to concentrate/dilute urine leading to albuminuria and proteinuria
- Decreased renal blood flow
- Reduced bladder capacity and increase in residual bladder volumes
- Bladder muscles weaken, causing urinary incontinence[1,2]

MUSCULOSKELETAL SYSTEM

Changes in the structure of the musculoskeletal system can place older adults at risk for weakness, immobility, falls, injuries, and pain syndromes.[1,2]

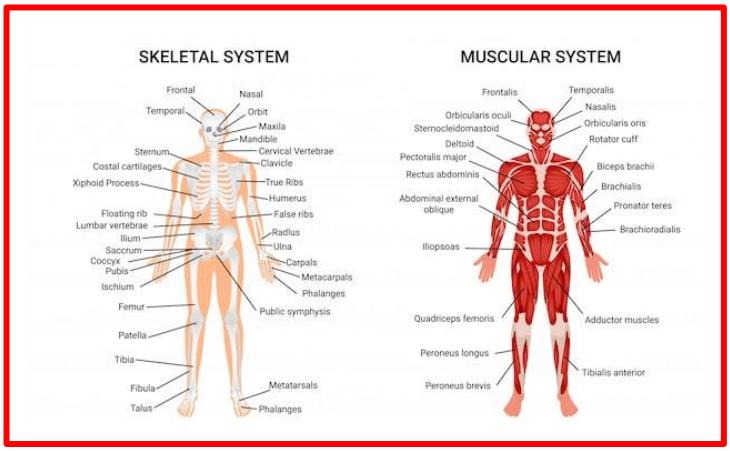


Photo from Freepik.com

- Thinning of cartilage and loss of tissue elasticity in the joints
- Decreased muscle mass and contractility
- Increased muscular fat, causing reduced muscle quality
- Increased fat relative to muscle
- Loss of bone mass[1,2]

NEUROLOGIC SYSTEM

The neurologic system experiences a decline in the production of neurohormones, which results in a slowed response to nervous system signalling centrally and peripherally. Individuals experience a 30% loss of brain mass, especially gray matter, by age 80. Individuals are at greater risk of cognitive decline with age.[1,2]

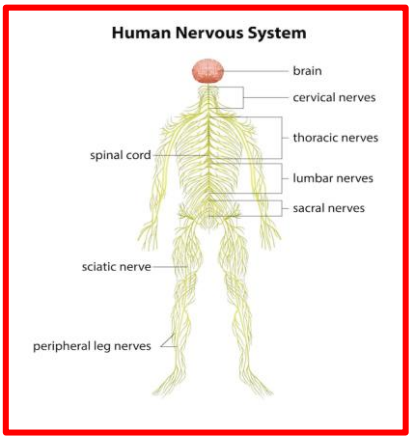


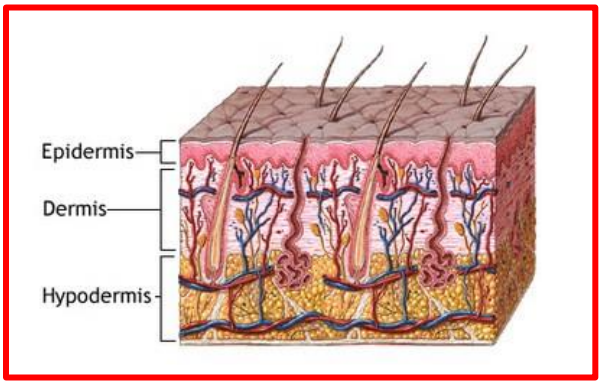
Photo from Freepik.com

- Reduced production of neurotransmitters: catecholamines, serotonin, and acetylcholine
- Reduced dopamine uptake sites and transporters
- Neurons of the central and peripheral nervous systems degenerate
- Decreased motor, sensory, and autonomic nerve fibres
- Nerve transmission rate of the brainstem and spinal cord declines
- Hypothalamus is less effective in the regulation of body temperature
- Autonomic dysregulation, which may cause an increased risk of syncope[1,2]

Fact #2:
After age 50 one loses 1% of neurons each year[1]

INTEGUMENTARY SYSTEM

Changes in the structure of the musculoskeletal system can place older adults at risk for greater risk for infection, temperature dysregulation, soft tissue injury, and longer recovery from soft tissue injuries.[1,2]



Skin

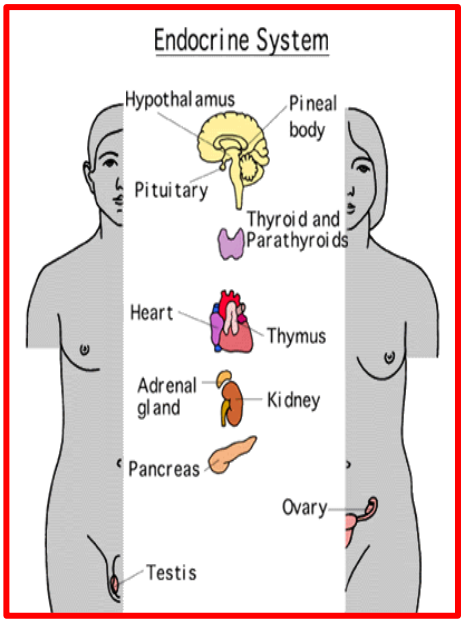
- Thinning of skin between dermis and epidermis
- Decreased elasticity- the number of elastic fibres is reduced
- Less sensitive skin sensors
- Less insulation of fatty deposits under the skin
- Prolonged healing time[1,2]

Hair

- Changes in distribution, colour and quality[1,2]

ENDOCRINE SYSTEM

Several changes occur within normal aging, notably in the pancreas and thyroid gland. Determining the effects of aging on specific glands beyond atrophy and decreased secretin can be difficult. However, there are several hormonal changes worth mentioning.[1,2]



- Estrogen levels decrease in women
- Other hormonal decreases are testosterone, aldosterone, cortisol, progesterone
- Pancreas produces less insulin, so there is less effect in maintaining blood glucose
- The thyroid gland atrophies and develop nodules, leading to increase TSH levels[1,2]

IMMUNE SYSTEM

The immune system is affected by aging in multiple ways, which can increase the risk of infection and delay illness recovery.[1,2]

- Total body water decreases with age, thus reducing blood volume
- Decreased ability of lymphocytes (both B and T cells) to work in concert to generate effective immune responses upon exposure to new antigens
- Fatty marrow replaces bone marrow, so functional reserves of bone marrow are reduced

- Increased autoimmunity
- Loss of precise regulation of inflammatory processes

Knowledge Check #1

Indicate whether the following statements are True or False

Statements		T	F
1.	Older adults may metabolize and excrete medications less efficiently than younger adults.		
2.	Bladder capacity decreases with age, which leads to frequent urination.		
3.	Older people are more likely to suffer from hyperthermia.		
4.	Physical strength declines in old age.		
5.	Kidney function is not affected by age.		
6.	Increased problems with constipation represent a normal change as people get older.		
7.	Loss of pacemaker cells contributes to ECG changes.		

AGING VERSUS ILLNESS

Nurses caring for older adults must understand the difference between aging and illness. Pure aging refers to the inevitable and irreversible decline in organ function over time, even without injury, illness, environmental risks, or poor lifestyle choices.[4] Initially, changes in organ function do not affect baseline function; the first manifestations are a reduced capacity of each organ to maintain homeostasis under stress, especially in the cardiovascular, renal, and central nervous systems (the weakest links).[4]

Older adults who present to the ED are more complex than younger patients. Diseases interact with pure aging effects to cause geriatric syndromes, particularly in weak-link systems.[4] To further complicate matters, they often present with multiple co-morbidities, polypharmacy and atypical symptoms.[3] Some atypical presentations in older adults are cardiac disease (e.g., myocardial infarction), acute abdomen, and sepsis complicated with delirium in patients with pneumonia and urinary tract infections will be discussed in **Module 5**. Infection can also be associated with falls, dizziness, syncope, confusion, urinary incontinence, weakness, and weight loss.[3,4]

Ageism refers to prejudice against people of older age and is based on negative misconceptions and stereotypes and may be conscious or unconscious.[4] When older patients report a change in health conditions or the onset of new symptoms, ED nurses must be careful not to attribute these changes to the aging process before ruling out possible health conditions first. This can be extremely challenging because older adults often have many chronic health conditions. The effects of aging must be considered during the care and triage of older adults. Nurses should take care not to:

- Mistake pure aging for disease (e.g., slow information retrieval is not Dementia)
- Mistake disease for pure aging (e.g., ascribe debilitating arthritis, tremor, or Dementia to old age)
- Ignore the increased risk of adverse drug effects on weak-link systems stressed by illness
- Forget that older adults often have multiple underlying disorders (e.g., hypertension, diabetes, atherosclerosis)[4]

Reflection #1
Do you ever unintentionally portray ageism attitudes towards the elderly?

Understanding the physical changes and geriatric-specific manifestations of disease accompanying advancing age is important to help ED nurses anticipate the care needs of the older adult in an ED setting.

Knowledge Check #2

Ageism is defined as:

A. Asking older people if they need assistance
B. Being prejudiced against older people
C. Taking advantage of older people
D. The dislike of elderly people

Fact #3:
Negative stereotypes held by health care workers tend to include the beliefs that the older adults are:

Challenging to care for
Cognitively impaired
Dependent
Depressed
Frail
Lazy
Unproductive
Sick
Weak[50]

MODULE 2: GERIATRIC SYNDROMES - FRAILTY

The purpose of this module is to define geriatric syndromes and provide an overview of their implications, discuss the triage process as it pertains to the geriatric patient and the concept of frailty as a modifier. Delivering acute care to this population in a busy ED presents unique challenges, so knowledge of the various geriatric syndromes and strategies can support the ED nurse's clinical decision-making to improve outcomes.

Learning Objectives:

1. Define the concept of geriatric syndrome
2. Identify geriatric syndromes not part of the normal aging process
3. Describe key variables of older people in the ED triage process
4. Discuss the importance of screening for frailty

GERIATRIC SYNDROMES

DEFINITION AND OVERVIEW

Geriatric syndrome is a term used for health conditions in older adults that do not fit neatly into specific disease categories, often have multifactorial causes, and cannot be attributed to organ-based disease.[1,5] They have substantial implications for the quality of care, functionality, and morbidity in older adults.[1,5] These syndromes are defined by isolating their risk factors, including age, cognitive or functional impairment, and immobility.[5]

The signs and symptoms of many of these syndromes are often the chief complaint that brings older adults to the ED. The core five geriatric syndromes typically discussed are **pressure injuries, incontinence, falls, functional decline, and delirium**.[5] However, other researchers have expanded the list to include **skin breakdown, changes in sleep, mobility problems, syncope, sensory deficits, weight loss and appetite loss, fatigue, dizziness, polypharmacy, and frailty.[1,6]**

On average, older patients have 6 diagnosable disorders. A disorder in one organ system can weaken another, exacerbating deterioration and leading to disability, dependence, and, without intervention, death.[4]

Reflection #2

Early detection of frailty, vulnerability, and recognition of atypical symptoms of a hidden disease (i.e., geriatric syndromes) may help reduce or prevent possible adverse events in the ED[7,8]

Focusing on improving your geriatric competence as an ED nurse and drawing attention to the unique features of common health conditions in older adults is crucial to your nursing practice since the ED is often the gateway to healthcare for many older adults.

Fact #4

Locally, ED visits of people over 65 have increased by 10% from 2012 to 2020. That is an additional 3500 people over the age of 65 visiting the ED per year.

See Table 1 for a list of geriatric syndromes. The following modules will not touch on these separately; some will be highlighted and weaved into geriatric presentations that ED nurses encounter in their day-day practice. However, it is important to know what geriatric syndromes are.

Table 1 Geriatric Syndromes

Syndrome	Description
Urinary incontinence	Urinary continence may be classified as functional, urge, stress, or a combination of categories. This condition can lead to falls, social isolation, and skin breakdown.[1]
Sleep disorders	May be due to physiologic changes in the body, medications, chronic health conditions, pain, decreased mobility, and increased napping during the day.
Delirium	An acute change in condition that primarily affects attention that cannot be accounted for by Dementia.[6,13] The most common causes of delirium are illness, medications, and fluid and electrolyte imbalances.[3]
Falls	Falls are a predictor of increased mortality in elderly patients.[6] Falls are multifactorial and can result from various issues, including medication side effects, hydration, nutrition, environmental barriers, balance disorders, muscle weakness, neuromuscular conditions, and sensory disorders,[1] cognitive impairment, and orthostatic hypertension.[6]
Weight loss and nutrient imbalances	Weight loss and nutrient imbalances can contribute to other geriatric syndromes, such as skin breakdown, frailty, and falls. Weight and nutritional alterations may occur due to taste changes with aging, medication side effects, chronic health conditions, and functional and financial barriers to obtaining food.[1]
Skin breakdown and pressure injuries	Skin breakdown places patients at greater risk for infection, functional decline, social isolation, decreased well-being, and increased mortality. Factors contributing to skin breakdown and pressure injuries include decreased nutrition, circulatory and dermatologic aging changes, fecal and urinary incontinence, decreased mobility, and chronic health conditions like diabetes.[1]

Syndrome	Description
Functional decline	Functional decline occurs as aging individuals cannot independently carry out personal care and functional activities. This may occur acutely or gradually and may be related to chronic conditions and other geriatric syndromes.[1]
Frailty	Characterized by decreased reserve and resistance to stressors, decline across multiple physiological systems causes vulnerability to adverse outcomes.[1,6] Aging changes, multiple chronic conditions, and other geriatric syndromes contribute to the development of frailty.[1,6]
Gait disorders	Gait disorders are widely variable in presentation but can all contribute to falls, decreased mobility, functional decline, skin alterations, and frailty.[1]
Sensory deficits	Sensory deficits such as hearing loss, decreased visual acuity, smell and taste alterations, and decreased sensation may put geriatric patients at greater risk for injury, nutritional decline, and decreased independence.[1,6]
Fatigue	The perception of fatigue is a common issue experienced by aging individuals, and the causes are diverse. Factors such as decreased nutrition, deconditioning, aging changes in the musculoskeletal system, sleep disorders, medication side effects, anemia, and other chronic health conditions all contribute to fatigue.
Dizziness	Dizziness is a vague symptom that ranges from true vertigo to light-headedness. Dizziness may increase fall risk and contribute to functional decline. Fluid and electrolyte imbalances, medication side effects, and chronic health conditions may cause it, sensory deficits, inadequate nutrition, and deconditioning.[1]

OLDER ADULTS AND TRIAGE

OVERVIEW OF TRIAGE

Canadian Triage and Acuity Scale (CTAS) allows ED nurses to:

- Triage patients based on severity and presenting compliant
- Ensure that the sickest patients are seen first
- Reassess patients required to wait for an assessment space[10]

CTAS – 4-step process brief (< 2 minutes)

1. Quick look
2. Presenting complaint from CEDIS (17 categories/167 complaints) (Figure 2)
3. Apply 1st-order modifiers (e.g., vital signs, level of consciousness, pain, mechanism of injury
4. Apply 2nd- order modifiers to some depending on complaint (e.g., blood glucose, quality of pain, localized weakness, visible deformity, duration of symptoms)[10]

Reflection #3

Based on what we have learned so far. What problems does this pose for the older person presenting to triage?

Figure 2 Complaint Orientated Triage (COT)

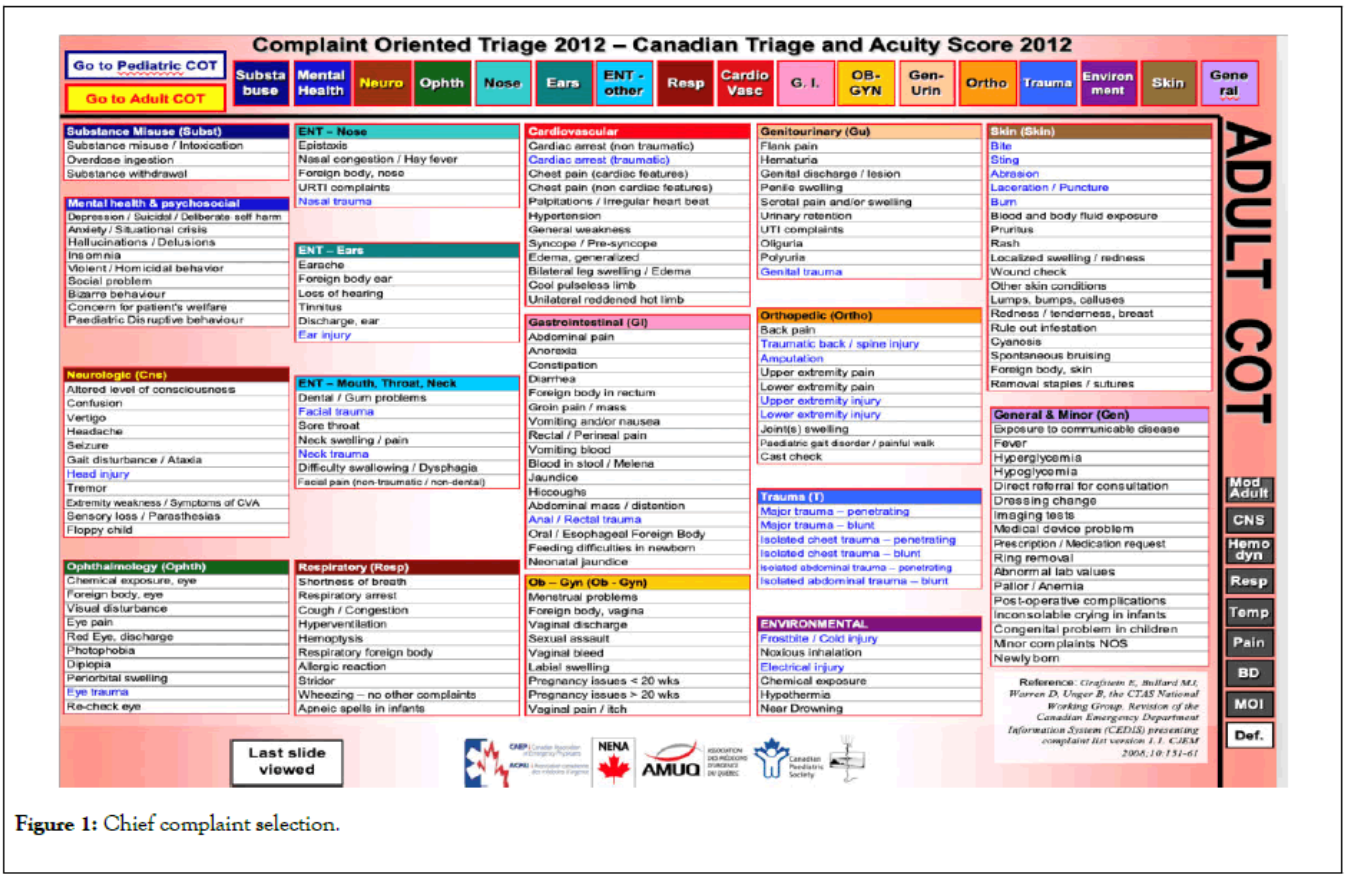


Figure 1: Chief complaint selection.

Bullard et al (2008). Revisions to the Canadian Emergency Department Triage and Acuity Scale (CTAS) adult guidelines[26] The COT PowerPoint application can be freely downloaded from the Canadian Association of Emergency Physicians website https://slideplayer.com/slide/17486357/

Reflection #4

Not all patients are as well as they appear and not all patients are as sick as they think

Let's examine why this does not work for older adults

A 76-year-old male presents to the ED with a 2-day history of SOB while walking but not at rest. Denies chest pain and has a history of hypertension (managed well with medication) and type 2 diabetes. Vital signs are as follows: Temp 36.9°C, HR 96, RR 24, BP 105/70, Sat 96%, GCS 15.

Knowledge Check #3

What are the CEDIS presenting complaint and CTAS score?

Based on CEDIS knowledge, what did you get?

CEDIS presenting compliant: ____
Did you assign the correct CTAS: ____

Geriatric Considerations:

Did you get the CEDIS presenting complaint and corresponding CTAS number correct? If you did, then you did not apply geriatric considerations. Upon further assessment, the patient's ECG showed ischemic changes and his troponin was elevated. Geriatric physiological factors and atypical presentations discussed later were not considered. The presentation was delayed.

There are several challenges to triaging older adults, which may lead to under-triage, placing some patients at increased risk. Homeostatic mechanism changes discussed in **Module 1** make vital sign interpretation more challenging.

- **Respiratory**: Due to aging lungs, a respiratory rate of greater than 27 breaths/ minute is a sensitive predictor of adverse events and identifying critically ill patients.[3,10]

- **Hemodynamic**: Aging myocardium can lead to hypertension and orthostatic hypotension even without the influence of medications. A systolic blood pressure of less than 110 mmHg often represents hypotension in the older population. The resting heart rate also increases with age.[3,10]

- **Temperature**: Due to a less robust immune system, decreased cardiac output, and decreased muscle mass, older adults often cannot mount a fever response. So subtle temperature changes, including hypothermia, may indicate a serious infection.[3,10]

Reflection #5

Enhancing awareness of physiological changes that occur with aging, geriatric syndromes and the concept of frailty can help address some of these challenges, improve your triage skills and patient outcomes.

FRAILTY – WHAT IS IT?

Frailty is a multidimensional syndrome of decreased physiological reserve and ability to resist stressors due to the cumulative decline of multiple body systems, giving rise to vulnerability.[2,6] Frailty is not normal aging and should be distinguished from disability. However, it is a strong predictor of adverse outcomes in the ED.[6] Studies show increased ED wait times lead to delayed analgesia, antibiotics, higher ICU admissions and increasing mortality rates for older adults .[10]

Holding vulnerable older patients with cognitive issues (e.g., Dementia) and multiple co-morbidities in a waiting room, with the potential for dehydration, untreated pain, increasing fatigue and immobility, can precipitate delirium.[10] To aid nurses at triage, a 2nd order modifier, **frailty,** was added to the CTAS guidelines in 2016.[10] This modifier allows triage nurses to up-triage patients normally triaged as a CTAS 4 or 5 to a CTAS 3. Unfortunately, it is not being utilized to its full capacity.

CTAS - FRAILTY MODIFIER

Any patient completely dependent for personal care Is wheelchair-bound Suffers from a cognitive impairment that limits their awareness of their surroundings or ability to appreciate time	Is in the late course of a terminal illness Is showing signs of cachexia and general weakness Is over 80 years of age unless obviously physically and mentally robust[10]
Frailty	**3**

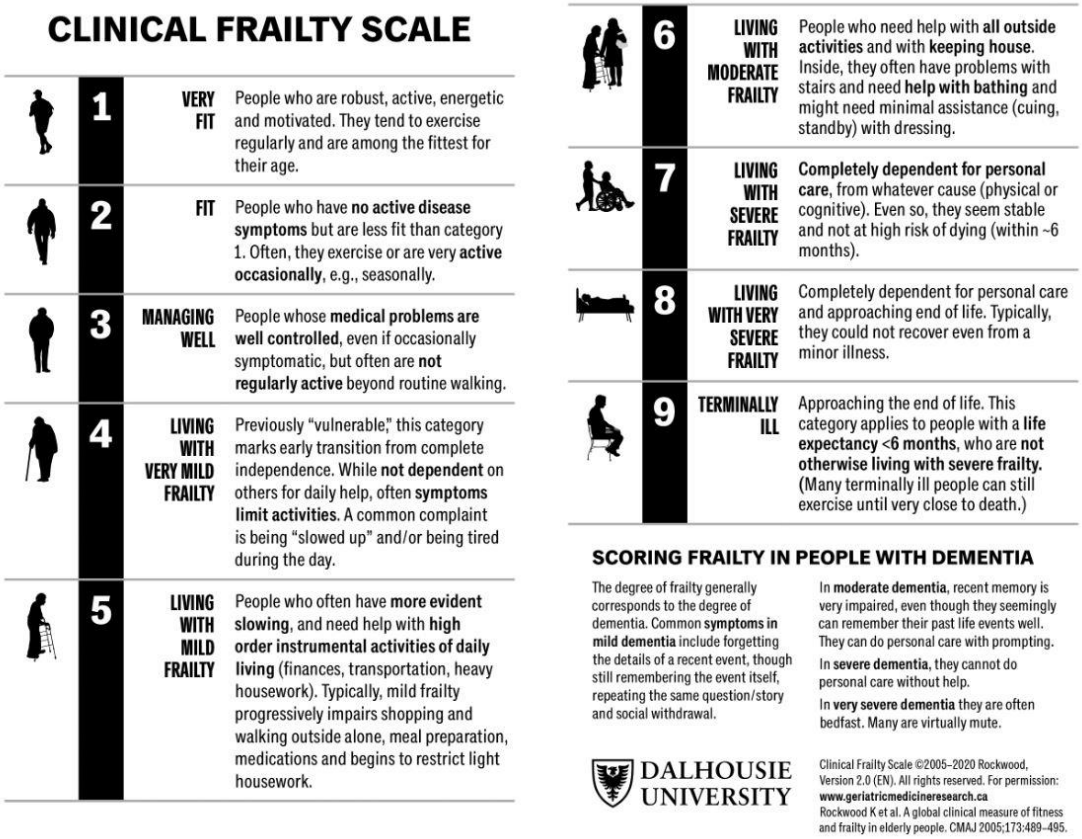
HOW TO MEASURE FRAILTY OR RISK

In addition to the frailty modifier, there are valid ways to measure frailty and risk. The Clinical Frailty Scale (CFS) and Identifying Seniors at Risk (ISAR) will be utilized in the ED in different capacities at a future date. Both will aid in identifying patients who are at risk and may need a referral to a new GeriED nurse, once implemented, or a geriatrician. ED nurses must recognize that frailty is an independent syndrome associated with high morbidity and mortality, so we must recognize and intervene.

CLINICAL FRAILTY SCALE (CFS)

The CFS is a 7-point scale to quantify frailty and has been used in some ED-based Canadian Emergency Departments Team Initiative (CETI) studies.[29]

Figure 3 Clinical Frailty Scale



Used with permission (#20230601-11) Rockwood (2005). A global clinical measure of fitness and frailty in elderly people. Canadian Medical Association Journal, 173(5), 489–495. https://doi.org/10.1503/cmaj.050051[44]

IDENTIFIED SENIORS AT RISK (ISAR)

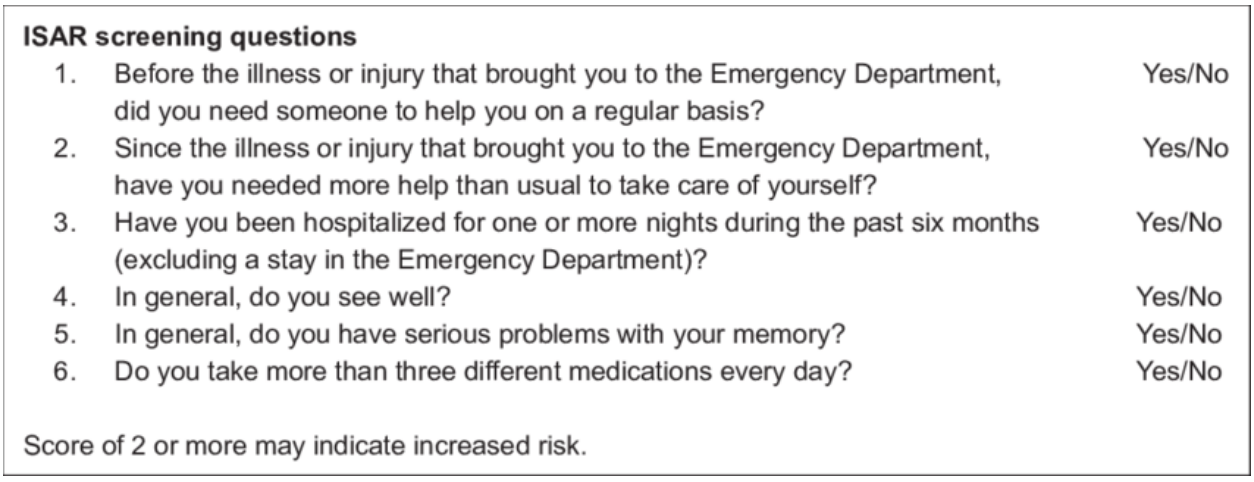
The ISAR is a 6-item screening questionnaire that can be easily administered to seniors in the ED to identify older adults at risk of adverse functional outcomes and who would benefit from further assessment and intervention.[30] In addition to predicting adverse outcomes, ISAR performs well as a screening tool to detect seniors with significant unresolved geriatric problems.[3]

It is a 2-step intervention:

- **Step 1**: The ISAR screening questionnaire is completed with seniors presenting to the ED. The screening tool can be used for ED patients aged 65 and over, not living in a long-term care institution, who meet all the following criteria: oriented to time and place, able to complete the ISAR tool alone or with help. A score of 2 or more out of 6 is usually considered the ISAR POSITIVE threshold.[29]

- **Step 2**: is for those who test positive on the ISAR. It is a brief clinical assessment to characterize the risk further, identify unmet needs, and perform a clinical intervention as indicated, either in the ED, on the ward, or following discharge from the ED.[29]

Figure 4 ISAR



ISAR screening questions

1.	Before the illness or injury that brought you to the Emergency Department, did you need someone to help you on a regular basis?	Yes/No
2.	Since the illness or injury that brought you to the Emergency Department, have you needed more help than usual to take care of yourself?	Yes/No
3.	Have you been hospitalized for one or more nights during the past six months (excluding a stay in the Emergency Department)?	Yes/No
4.	In general, do you see well?	Yes/No
5.	In general, do you have serious problems with your memory?	Yes/No
6.	Do you take more than three different medications every day?	Yes/No

Score of 2 or more may indicate increased risk.

Used with permission for education purposes Mccusker et al. (2021). The ISAR Screening Tool Manual© Identification of Seniors at Risk (ISAR): An Emergency Department Screening Tool to Identify Older Adults at Risk of Adverse Functional Outcomes. https://www.mcgill.ca/cansmart/files/cansmart/isar_-_manual_v2_en_2022-03-24.pdf [39]

MODULE 3: DEMENTIA, DELIRIUM, DEPRESSION, AND SEPIS

The purpose of this module is to highlight the differences between dementia, delirium, and depression and further identify the relationship and significance between delirium and sepsis. Geriatric patients are at increased risk for sepsis and delirium with poor outcomes. So it is important to distinguish between dementia and delirium and identify any underlying sources, such as infection-causing delirium, before the infection leads to sepsis. To complicate matters, they often have atypical presentations of infection and sepsis. Early identification of these conditions is needed to promote the best possible outcomes. The use of screening tools helps guide care and ensures that the patient receives care in a timely manner.

Learning Objectives:

1. Distinguish between dementia, delirium, and depression.
2. To identify the significance between delirium and sepsis
3. Identify factors associated with sepsis
4. Implement interventions to help with delirium and sepsis

DEMENTIA

Dementia is not a specific condition - it is a term used to describe a variety of diseases that create irreversible changes in the brain. It impairs cognitive functioning and can affect learning and memory, mood and behaviour, and the ability to conduct daily activities. It develops gradually and is progressive, but its course can vary depending on the disease.[6]

Reflection #6
Do you ever routinely ask your patients questions to assess for dementia?

TYPES OF DEMENTIA

1. Alzheimer's Disease:
   - The most common cause of Dementia
   - Caused by plaques and tangles formed by a buildup of proteins in the brain
   - Progresses slowly, beginning with mild symptoms that worsen over time[15]
2. Vascular Dementias:
   - Caused by the death of brain cells due to lack of oxygen
   - Subcortical Vascular Dementia is related to diseases of small blood vessels deep in the brain
   - Stroke-related Dementia follows a stroke or several small strokes[15]
3. Mixed Dementia:
   - When more than one type occurs at the same time and most commonly involves Vascular Dementia and Alzheimer's Disease[15]
4. Dementia with Lewy Body Disease:
   - Caused by protein deposits in the brain which cause damage and death to nerve cells
5. Frontotemporal Dementia:
   - Caused by severe shrinkage of brain tissue and nerve cell death in the frontal and temporal lobes[15]

DELIRIUM

Delirium is a multifactorial syndrome that is an acute medical emergency, and it is estimated that 10% of all older patients in ED meet the criteria for delirium.[6] Delirium is **acute brain failure**; it can leave lasting damage, including permanent neurological effects and an increased risk of death. Delirium diagnosed in the ED has been linked to 10-26% mortality rates.[11]

Characterized by:

- Acute change in baseline cognition that Dementia cannot better explain
- Acute behavioural change and inattention to their environment
- Thoughts/behaviour disturbances occurring over a period of hours or days
- Characterized by inattention, disorganized thinking, altered level of consciousness and perceptual disturbances
- Fluctuating in severity throughout the day [6,11]

TYPES OF DELIRIUM

1. Hypoactive:

- Described as "quiet" delirium and is characterized by decreased psychomotor activity
- These patients can appear depressed, sedated, or lethargic
- Hypoactive signs are the least recognized and can be mistaken for depression or Dementia[11,12]

2. Hyperactive,

- Associated with increased psychomotor activity
- These patients appear restless, anxious, agitated, and even combative.
- May experience visual or auditory hallucinations
- Hyperactive signs are the most recognized[11,12]

3. Mixed-type delirium

- Phases of hypoactive and hyperactive[11,12]

Fact #5
96% of older patients with delirium exhibit the hypoactive or mixed subtype.[11]

PREDISPOSING RISK FACTORS:

Delirium is due to the complex interplay between predisposing risk factors and the patient's vulnerability.

- Older age and increased in males
- Underlying dementia and cognitive delay
- Previous brain dysfunction/damage (e.g., epilepsy, cerebral trauma, encephalitis, meningitis, CVA, TIA)
- Substance/alcohol intoxication or withdrawal
- Multiple co-morbidities
- Polypharmacy
- Isolation – sensory deprivation
- Visual and auditory impairment
- General medical condition (e.g., GI, thyroid, renal, liver disease, CHF, sepsis, HIV)
- Urinary retention
- Immobility/ADL impairment/ restraints
- Infection
- Depression
- Constipation
- Dehydration
- Pain
- Electrolyte imbalances[11,12, 35]

Fact #6
Dementia is the most consistently observed independent vulnerability factor for delirium. Occurring 4 to 5 times more often in patients with dementia[13]

Knowledge Check #4

Circle the correct type of delirium (Hypo or Hyper) for corresponding behaviour.

Behaviours	Hypo or Hyper
Shifting attention	**Hypo or Hyper**
Slow responses	**Hypo or Hyper**
Visual or auditory hallucinations	**Hypo or Hyper**
Reduced mobility and/or movement	**Hypo or Hyper**
Motor restlessness	**Hypo or Hyper**
Agitation	**Hypo or Hyper**
Disorganized thinking	**Hypo or Hyper**
Withdrawal	**Hypo or Hyper**

DEPRESSION

Depression is more than just feeling blue; it is a mood disorder that disturbs emotional, cognitive, behavioural and somatic regulation over a sustained period.[55] In extreme cases, it can result in suicide. While depression is not a normal part of aging, older adults are at an increased risk of experiencing depression and will respond to treatment for depression.[55,56] It can be a reaction to difficult events in the lives of older adults, such as developing an illness, experiencing cognitive decline, losing a loved one, or being admitted to hospital or long-term care.[55]

SIGNS AND SYMPTOMS OF DEPRESSION

There are many signs and symptoms, and ED nurses must be attuned to the subtle signs of depression in older adults:

- Sleep disorder
- Feelings of hopelessness
- Loss of interest or concentration
- Guilt
- Overeating or loss of appetite
- Suicidal ideation
- Energy deficit
- Chronic pain
- Constipation
- Agitation, irritability[55,59]

SIGECAPS

Sleep Disorder
Interest deficit
Guilt
Energy Deficit
Concentration deficit
Appetite disorder
Psychomotor agitation
Suicidal ideation[59]

DEPRESSION ASSESSMENT TOOLS

Depression is very common among older adults in the ED, and unfortunately, it is often overlooked in older adults. The prevalence of unrecognized depression in a recent study highlighted that 45.7% of older adults with mild-moderate depression and 18.8% with severe depression went unrecognized.[61] So, do not be afraid to have the conversation. It can be difficult to identify depression, but several depression assessment tools are available for older adults. None are currently being used in the ED, but it is important to know what is available as they may be incorporated later.

Geriatric Depression Scale (GDS)

- Used for older adults without significant cognitive impairment
- Available in long and short forms 30 or 15 yes/no questions
- Provides a quantitative rating of depression
- Does not assess for risk of suicide[56,57]

Cornell Scale for Depression in Dementia

- 9-item clinician-administered instrument
- Provides a quantitative rating of depression
- Uses information from the caregiver as well as the client[58]

The ED is incorporating a suicide risk screening tool on triage for patients ages 18 and older upon arrival to the ED who:

1. Exhibit expressed/observed suicidal behaviour or ideation.
2. Present with a mental health complaint
3. Appear to have significant mood and behavioural changes or reports from others indicating a possible increased risk of suicide.
4. Anyone with a history of suicidal ideation

The **Emergency Department Safety Assessment and Follow-Up Evaluation (ED-SAFE)** is a validated, feasible tool composed of two screens to help identify patients at risk of suicide.[60] The screens work in conjunction to stratify patients with suicide risk and will help to guide emergency room practitioners in their decision.[60]

For More Information see Policy

Identification and management of the suicidal patient in the emergency room (adults)

Knowledge Check #5

Indicate whether the following statements are True or False

Statements		T	F
1.	Depression is a normal part of aging.		
2.	Depression goes untreated because it is unrecognized by healthcare providers.		
3.	The Cornell Scale for Depression can be used in patients with dementia.		

DISTINCTION BETWEEN DELIRIUM AND DEMENTIA

It is estimated that 26% of older patients in the ED have some form of cognitive impartment.[6] Since delirium and Dementia cause cognitive impairment, healthcare providers often confuse the two, especially in the ED when delirium can be masked by chronic Dementia in elderly patients. However, there are several key distinguishing features between delirium and Dementia (Table 2), and most delirium assessments capitalize upon these differences.

Table 2 Differences Between Delirium and Dementia

Characteristic	Delirium	Dementia
Onset	Begins suddenly with a marked starting point	Slow, gradual, uncertain start point
Duration	Days to weeks	Usually, permanent
Cause	Usually, another condition (.g., infection)	Usually, chronic brain disorders (e.g., Alzheimer's)
Course	Usually, reversible	Slowly progressive
Attention	Greatly affects attention.	Unimpaired until the condition is severe
Orientation to time and place	Varies	Impaired
Speech	Slow, incoherent, inappropriate	May have difficulty finding correct words
Memory	Varies	Affects memory loss, particularly with recent events

Source Huang, J. (2023). Overview of Delirium and Dementia. Merck Manual, Professional Version[13]

BRIEF CONFUSION ASSESSMENT METHOD (bCAM)

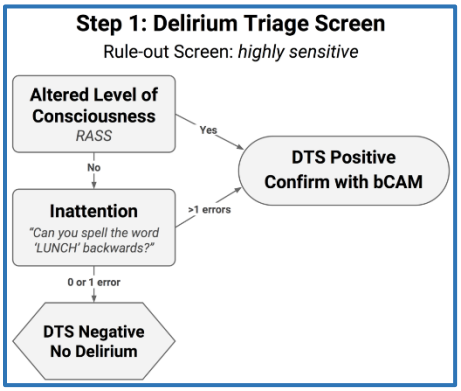
The business of the ED and the length of most delirium assessments means that they are time-consuming and often not feasible to complete. A 2-step approach to delirium surveillance to improve delirium detection that includes the Delirium Triage Screen (DTS) and the Brief Confusion Assessment Method (bCAM). These are both validated tools to assess delirium in the ED and can easily be incorporated into the ED nurses' triage assessment.[51]

Figure 5 DTS

Step 1: The Delirium Triage Screen (DTS) (Figure 5)

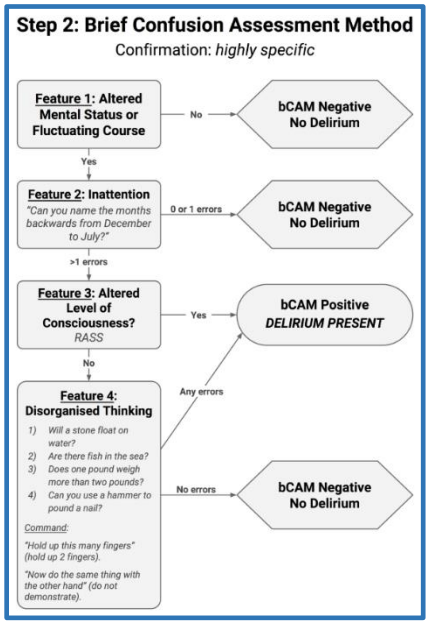
Perform a rapid rule-out (< 1 minute), highly sensitive delirium screen to rule out delirium

- If the DTS result is negative, then delirium is ruled out.
- If the DTS result is positive, move on to step 2, the confirmatory delirium assessment



Used with permission, courtesy of Vanderbilt University, Nashville, TN.[39] http://eddelirium.org/contact-us/

Figure 6 bCAM



Step 2: Brief Confusion Assessment Method (bCAM) (Figure 6)

Consists of four features:

1. Altered mental status or fluctuating course
2. Inattention
3. Altered level consciousness
4. Disorganized thinking

A patient must have features 1 and 2 and either feature 3 or 4 to meet the criteria for delirium.[14,31]

Used with permission, courtesy of Vanderbilt University, Nashville, TN.[39] http://eddelirium.org/contact-us/
Han et al. (2013).[51] Diagnosing Delirium in Older Emergency Department Patients: Validity and Reliability of the Delirium Triage Screen and the Brief Confusion Assessment Method. Annals of Emergency Medicine, 62(5), 457–465. https://doi.org/10.1016/j.annemergmed.2013.05.003

Delirium is a medical emergency, and it is important to '**think delirium**' first when caring for older adults. The ED nurse should always be vigilant for changes that could indicate onset. Delirium should be routinely screened for older ED patients since early detection and management improve outcomes. Since delirium is not static, it fluctuates, so geriatric patients should be screened upon initial assessment on triage and every 2 hours while in ED.[3]

For More Information see Policy

Confusion Assessment Method (CH-1316)

If positive CAM is identified at any time notify doctor to initiate the Adult Delirium Order Set (CH-0755); the order set initiates baseline investigations into the cause of delirium

Provide brochure - Delirium: Information for Clients and Families

If delirium is identified during triage, it is necessary to establish some potential root causes to help initiate medical directives to avoid patient care delays.

Questions to help guide the triage and care of the patient with potential delirium:

1. Are there any new medications or recent dosage changes?
2. Is there a history of alcohol use?
3. Is there a history of Benzodiazepine use?
4. Are there signs of dehydration?
5. Does the patient appear to be in pain and unable to articulate it?
6. Are they experiencing urinary retention?
7. Are they constipated?
8. Are there signs of infection? If yes:
    - Urinalysis to rule out urinary tract infection
    - Chest x-ray to rule out pneumonia
    - Draw a CBC, electrolytes, urea, creatine, blood cultures, and lactate if indicated.

NURSING CONSIDERATIONS AND MANAGEMENT STRATEGIES

NONPHARMACOLOGICAL:	**PHARMACOLOGICAL:**
Reorientation Minimize use restraints Minimize use of indwelling catheters Avoid excessive stimulation Calm environment Family presence Visual/hearing aids Be cognizant of continence and constipation issues	Avoid problematic medications such as benzodiazepines, antipsychotics, opioids, muscle relaxants, and anticholinergics. In agitated patients, if medications such as antipsychotics are necessary, start 'go low and slow'[3] Medications will be discussed further in **Module 6**

Knowledge Check #6

Indicate whether the following statements are True or False

	Statements	T	F
1.	Nonpharmacological approaches are key to preventing delirium.		
2.	Delirium can be viewed as acute brain failure.		
3.	There are two types of delirium.		
4.	Hyperactive delirium is the most frequent type.		
5.	Patients should be screened every 6 hours while in the ED.		
6.	26% of older patients in the ED have some form of cognitive impartment.		

Knowledge Check #7

A patient is pulling at her IV and is trying to get out of bed. How can the nurse manage her acute agitation?

- Consider and treat physiological causes such as shock, hypoxia, electrolyte imbalances, and hypoglycemia
- Provide one-to-one orientation and redirection from a family member or staff.
- Administer Benzodiazepines
- Administer antipsychotics
- If a patient or staff member is threatened, consider pharmacological treatment

The rest of the focus for this module is on the relationship between delirium and sepsis and identifying sepsis in older adult adults because they often present atypically with delirium from associated infections. Sepsis is often the cause of morbidity and mortality in the older population; they are predisposed to sepsis due to co-existing co-morbidities and other risk factors.[36]

SEPSIS

HIGH-RISK FACTORS FOR SEPSIS

- Co-morbidities (e.g., cancer, diabetes, obesity, renal and lung disease
- Repeated and prolonged hospitalizations, diabetes,
- Functional limitations
- Endocrine deficiency – such as hypoadrenalism, hypothyroidism and hypogonadism alter the sepsis response
- Increased risk of colonization by gram-negative organisms, which may be multi-drug resistant
- Weakened immune system[36]

A lower threshold and a higher degree of suspicion are needed to diagnose sepsis in the older patient because the initial clinical picture may be atypical, and aging increases the risk of a sudden deterioration in sepsis to severe sepsis and septic shock.[36] The focus will be on signs and symptoms of infections, especially lungs or urinary tract, one of the most common precipitants of delirium,[3] and possibly sepsis leading to 2 medical emergencies (e.g., delirium and sepsis).

SYSTEMATIC INFLAMMATORY RESPONSE SYNDROME (SIRS)

- Body's exaggerated response to a stressor (i.e., infection, trauma, surgery)
  - Releases cytokines (acute-phase reactants)
- Dysregulation of the reactants (cytokine storm)
  - Large inflammatory cascade that can cause end organ damage or death
- Sepsis – SIRS with a suspected source of infection
- Severe sepsis – Sepsis with one or more end organ failures
- Septic Schick – Hemodynamic instability despite intravascular volume depletion[36]

Image by Freepik

In addition to a weakened immune system that predisposes older adults to an increased rate of sepsis, there are also alterations in the body's response to sepsis. Older adults cannot mount the typical SIRS, leading to more severe presentations of infection. People over 65 are 13 times more likely to be hospitalized with sepsis, and 63% are admitted to the ICU.[45] It is considered a medical emergency that requires rapid diagnosis and treatment.

DIFFERENCES IN OLDER ADULT

- Aging and sepsis severely affect the coagulation cascade: An increase in plasma levels of fibrinogen, factor VII, factor VIII, factor IX, and other clotting factors puts older adults at increased risk of thrombosis and thromboembolism.

- Abnormal cytokine response leads to more prolonged inflammation compared to younger patients.[36]

Typical Signs and Symptoms

- Change in mental status
- Confusion and disorientation
- Shortness of breath, tachypnea
- Tachycardia
- Fever, shivering
- Extreme pain
- Clammy or sweaty skin
- Elevated WBC
- Elevated lactic acid[3,36]

VS

Signs and Symptoms in Older Adults

- Elevated WBC and fever are not reliable indicators.
- May not always have a fever with an infection; if present, may already be in severe sepsis.
- Infections present atypically as falls, confusion, delirium, urinary incontinence, change in functional status, anorexia, and weakness[3,36]

Indwelling Urinary Catheter (IUC) use increases the risk of catheter-acquired urinary tract infections and can lead to more complicated infections (i.e., sepsis, prostatitis in males, pyelonephritis).[38] In addition to urinary tract infections, older adults are more susceptible to the noninfectious side effects of IUCs, including falls from tethering, delirium, urethral trauma, and pain.[37] Consider alternate methods.

Restraint use that causes limited mobility can increase the risk of delirium. Consider alternative methods

For More Information

Appropriate use of Indwelling Urinary Catheters (IUC) in Older Adults in the Emergency Department - 310-ER-RG-010

Least Restraint Policy PRC-080

Knowledge Check #8

What is sepsis?

- ○ An infection in the blood
- ○ A contagious disease
- ○ The body's extreme response to an infection
- ○ A localized infection (i.e., cellulitis lower leg)

Adults older than 65 are ____ times more likely to be hospitalized with sepsis than younger adults.

- ○ 5
- ○ 20
- ○ 27
- ○ 13

Which of the following are high-risk factors for sepsis?

- ○ Repeated and prolonged hospitalizations, diabetes,
- ○ Functional limitations
- ○ Weakened immune system
- ○ All the above

MODULE 4: FALLS, FRACTURES, AND TRAUMA

The purpose of this module is to provide an overview of trauma and falls, including fall statistics, risk factors, and geriatric considerations when triaging an older adult after a fall. Falls can result in an injury to the head, spine, chest, pelvis, hip, and upper extremities.[18] Given the prevalence and severity of head trauma and hip fractures, they will be the focus of this module and will end with a discussion of the current ED fall risk policy.

Managing trauma is challenging even for the younger patient – but managing trauma in the older population comes with some extras! Fall rates and the risk of injury from falling increase with age and are one of the main reasons older adults visit the ED. A patient presenting with a low energy trauma (LET) (e.g., fall from standing) is often under-triaged, leading to increased mortality and morbidity.[22] What happened first? Was the fall a result of tripping or some underlying medical issue that caused them to fall?

Learning Objectives:

1. Recognize the prevalence of falls in older adults
2. Identify risk factors of falls in older adults
3. Incorporate geriatric considerations into the triage process for a patient presenting with a fall
4. Discuss age-related charges in pain assessment following a fracture

FALLS OVERVIEW

Falls are a significant geriatric problem, are multifactorial in their cause, and have multiple consequences.[28] Among Canadian seniors, falls are the leading cause of injury-related hospitalizations.[17] The most common injuries resulting from falls in the older adult are lacerations, traumatic brain injury, and fractures, especially of the hip.[17]

The ED's goal is to simultaneously identify the causes and consequences of a fall. Special emphasis is placed on identifying life-threatening acute medical conditions that may have led to the fall, such as syncope or delirium. Risk factors for potentially available falls, including high-risk medications, treatable medical conditions, and remediable environmental hazards, should be aggressively sought.[18]

STATISTICS

- 20% to 30% of Canadian seniors fall every year; that is 1 in 3
- 2 of every 3 patients who fall are assessed in the ED
- It increases to 50% for those over 80
- 10-15% of falls cause severe injury
- 2% of older adults presenting to the ED with a fall die from complications[6,17]

Falls are multifactorial – can be the symptom of another disease or issue:

- Infections
- Acute illness
- Neurological disorders
- Age-related physiological changes
- Alcohol and medication side effects
- Increased postural sway
- Syncope due to dysrhythmia, orthostatic hypertension, hypoxia, anemia, or hypoglycemia [6]

RISK FACTORS

- Musculoskeletal changes (i.e., arthritis, decreased muscle mass muscle)
- Central nervous system changes (slower nerve conduction, slower reflex response)
- Cognitive impairment
- History of falls
- Underlying gait disorder or balance disorder
- Visual and hearing impairment
- Excessive alcohol use
- Depression
- Drugs – There is increasing recognition that certain medications contribute to falls in seniors.[17]
    - Polypharmacy (5 or more drugs)[23]
    - Antiplatelet (i.e., aspirin, clopidogrel, ticagrelor)
    - Anticoagulant (i.e., warfarin, heparin, Lovenox)
    - Anti-hypertensive (i.e., beta blockers, diuretics)
    - Benzodiazepines
    - Anti-depressants
    - Hypo glycemic
    - Hypnotics
    - Laxatives
    - Opioids
    - Anti-arrhythmic[6,17]

TRIAGING FALLS IN OLDER ADULTS

When an older patient presents with a fall, one of the most important jobs of a triage nurse, after assessing airway, breathing, and circulation, is to determine if the patient tripped and fell or had an event that caused them to fall.[28]

To help avoid under-triaging when patients present with a fall, the triage nurse should keep the following in mind:

Triage should include	Questions ???

• Context of the fall
  • Location and activity of the patient at the time of the fall
• Vital signs
  • Postural vitals
  • Glucose if diabetic
  • Check for extremity weakness (e.g., signs of stroke)
• Associated symptoms
  • Presyncope
  • Chest pain or palpitations
  • Dizziness
  • Loss of conscious
• Determine changes in cognitive function
• Assess for injuries and deformities
• Full medication history
• Underlying chronic diseases or
• Neurological problems
• History of alcohol use[18]
	• How did the injury occur? Can you describe the fall? Where were they, and what happened?
	• Did you trip and fall? Or did you feel faint or pass out and fall?
	• Did you hit your head?
	• Were there any witnesses?
	• Do you have any underlying medical conditions? (e.g., Parkinson's or chronic musculoskeletal pain, or neurological deficits from a previous stroke)
	• Do you drink alcohol? If so, how much?
	• What medications do you take? Are any of those new, or have there been any dosage changes recently?
	• Did you sustain any injuries?

FALLS AND HEAD TRAUMA

Falls from ground level are also the most common cause of traumatic brain injury in geriatric patients and a common cause of death.[19] Brain injury such as a subdural hematoma can occur without signs of head injury, so any change in baseline cognition or other neurologic function in an elderly patient suggests the diagnosis until proven otherwise.

Knowledge Check #9

Mini Case Study:

An 82-year-old male presents to triage with his daughter after a fall with a laceration to the right side of his head. You have completed your triage, and besides the laceration, he does not appear to have any other deformities or injuries, and the bleeding is controlled with pressure. He complains of a headache and cannot remember falling. According to his daughter, he has no underlying cognitive issues. His vital signs are T 36.3, HR 90 RR 20, BP 105/60, GCF 14 PERL 3mm. He had a history of hypertension and a cardiac stent 10 months ago and is taking the following medications: ASA, clopidogrel, metoprolol, atorvastatin and NTG PRN.

What is the CTAS number?

Here are the main things a triage nurse should be concerned about: Provide the rationale.

- He cannot recall the event:
- He is taking an antiplatelet, clopidogrel:
- He has had a recent cardiac stent:
- His BP is 106/60:

Reflection #7

As part of your routine assessment of an elderly patient who presents with a fall do you:
Ask about alcohol consumption
Ask about previous falls
Screen for visual impairment
Check for orthostatic hypotension

NURSING CONSIDERATIONS AND MANAGEMENT STRATEGIES

- Vital signs are unreliable indicators of traumatic events
- Limited cardiac reserves, so they need to be assessed more frequently because they can decompensate quickly
- Requires frequent reassessment of bleeding and circulation, especially if on an antiplatelet
- Cerebral atrophy allows significant blood to collect in the cranium prior to neurological changes

- Beta-blockers and antihypertensives blunt the normal tachycardic response to hemorrhagic shock by lowering HR and preventing vasoconstriction compensation.
- Decreased respiratory reserve and require frequent reassessment of their breathing status.

FALLS AND HIP FRACTURES

If a patient experiences a hip fracture resulting from a fall, the goals of care are pain management and the prevention of complications. Compared to other fractures, a hip fracture has more dire consequences for the patient. Research suggests that falls directly cause 95% of all hip fractures, leading to death in 20% of cases.[17]

RISK FACTORS

▪ Poor vision ▪ Frailty[28] ▪ Medication side effects ▪ Trip hazards ▪ Previous hip fracture	▪ Osteopenia ▪ Osteoporosis ▪ Decreasing mobility of skeletal joints ▪ Cognitive impairment[6]

CO-MORBIDITIES AND FRACTURE RISKS

The physiologic changes of aging combined with co-morbidities put the older adult at an increased risk for fractures such as:

- **Neurologic** (multiple sclerosis, Parkinson's)
- **Pulmonary** (COPD, pulmonary fibrosis with steroid use)
- **Cardiac** (dysrhythmias leading to syncope or altered mental status)
- **Skeletal** (osteopenia, osteoporosis)
- **Endocrine** (inflammatory bowel disease)
- **Renal** (chronic kidney disease, renal insufficiency)
- **Gastrointestinal** (celiac disease)
- **Rheumatological** (Rheumatoid arthritis)
- **Oncologic** (cancer with bony metastases)

PAIN MANAGEMENT – THINGS TO KEEP IN MIND

- Older patients are much more likely to be under-treated for pain[34]
- Less than 50% of older patients received analgesia for their pain
- Untreated pain is strongly associated with delirium, more so than opioids that are reluctantly prescribed.[19]

How to best manage pain

- Self-report is the most reliable if the older adult is able
- Consider using the Pain Assessment in Advanced Dementia (PAINAD) if the patient has Dementia – a validated scale useful in assessing pain in patients with Dementia or who are aphasic and cannot vocalize their pain[21]
- Nonpharmacological techniques are the safest
- If using medications, consider the risks, as some may have altered pharmacokinetics
- Start low and go slow when administering pain medications[20]

For More Information

For more information on the development and psychometric evaluation of the Pain Assessment in Advanced Dementia (PAINAD) scale See Warden et al. (2003).[21]
https://doi.org/10.1097/01.JAM.0000043422.31640.F7

Score	Pain assessment
1-3	Mild pain
4-6	Moderate pain
7-10	Severe pain

A PAINAD calculator is available
https://www.mdcalc.com/calc/3701/pain-assessment-advanced-dementia-scale-painad

While ED nurses do not prescribe pain medications, they advocate for their patients and should understand the appropriate choices for older adults. There are no ED-based guidelines on acute pain management in elderly patients, but the general rule of thumb is below. Medications and the Beers criteria will be discussed further in **Module 6**.

The nurse should evaluate the effectiveness and anticipate any adverse reactions.

- **Acetaminophen** should be the first line of analgesia and should be prescribed at regular intervals
- **Ketorolac** is to be avoided due to its higher risk for gastric ulcers.
- **NSAIDs** should be used with caution because they can cause cardiovascular and gastrointestinal disease, increased bleeding risk, and acute kidney injury
- **Opiates** are the standard of care for older patients with severe, acute pain, but they can cause respiratory depression, confusion, fall risk, and constipation
    - Doses should be reduced by 25-50%
    - Hydromorphone is safer because it does not have active metabolites that require renal clearance (as morphine does).[6,28]

FALL RISK PROTOCOL

Previous falls put older patients at increased risk of having another fall.[28] After presenting to the ED with a fall risk, ensure that the rest of the staff know the patient's increased risk for falls and that the patient is placed on the fall risk protocol according to policy. The patient tracking board identifies the fall risk when placed in bed space.

For More Information

Falls Prevention in the ED - 310-ER-QUAL-100

Knowledge Check #10

Fill in the blanks with the most appropriate response

Fill in the Blanks	
1.	List 3 risk factors for hip fractures: 1. _____ 2. _____ 3. _____
2.	_____ is the first drug of choice when providing pain relief for older adults?
3.	What is the motto when administering pain medications to older adults? _____
4.	Less than _____ of older patients received analgesia for their pain.
5.	Compared to other fractures, a _____ fracture has more dire consequences for the patient.
6.	Untreated pain is strongly associated with _____

MODULE 5: ATYPICAL ILLNESS PRESENTATION

The purpose of this module is to help ED nurses recognize that weakness and other nonspecific complaints in older patients often obscure the underlying serious medical condition.[40] Under recognition of atypical presentations and confounding symptoms of co-morbidities can lead to under-triage and increase the risk of adverse outcomes.

Knowledge of underlying physiology and the expected aging changes will help the ED nurse distinguish between what is normal and what is a warning sign.[3] The ED nurse should be alert to an atypical presentation of disease by picking up on those subtle cues or vague complaints that geriatric red flags, such as weakness, dizziness, confusion, falls, and functional decline, and comments like "just not right." Sometimes these are all real symptoms that are often the only clues to serious life-threatening conditions.[40]

Learning Objectives:

1. Identify reasons why older adults present atypically
2. Recognize that weakness and other nonspecific complaints often indicate serious illness in the older adults
3. Understand that atypical presentation and confounding symptoms can lead to under triage
4. Incorporate geriatric considerations into the triage process to identify nursing interventions

REASONS FOR ATYPICAL PRESENTATION

Older people will present with vague complaints, so it is important to dig deeper to find the reasons they are presenting so as not to miss something potentially serious and delay care inadvertently.

POOR HISTORIANS

- Sensory impairment, such as hearing loss. Speak slowly in an even tone of voice or use a pocket talker.
- Cognitive impairment – They may have trouble giving a good history because they cannot tell when the pain started, especially if they have short-term memory loss.
- Multiple active problems - They may have many aches and pains, medications, and doctors, and it can be challenging to decipher between them all.
- Have inadequate social support – They sometimes have poor social support or no one around to notice slow incremental changes or distinguish between new and chronic ones.[43]

VAGUE OR MULTIPLE COMPLAINTS

- Vague complaints like **"Feeling a bit weak"** or **"Just not right** often mean a change from normal and can indicate something potentially serious.[40]
- The ability to localize a problem or symptoms decreases with age.[43]

SELF-DIAGNOSIS

- Older people often arrive in the ED convinced they have the same problem as last time or put things off because they think they are a normal part of aging.[40,41]

Reflection #8

Hanging your hat on a previous diagnosis or issue is a dangerous error when triaging an older adult patient and can lead to adverse outcomes

DELAYED PRESENTATION OR UNDERREPORTING

- Older people may delay coming to the ED and endure symptoms for longer because of stoicism, decreased pain receptor sensitivity, social isolation, and cognitive impairment. So, they may be sicker than they look.[43]

POLYMORBIDITY

- Older people often have several chronic conditions that mimic or exacerbate each other. A patient presents with **"weakness."** Which chronic diseases are making them weak?

- Older patients are not presenting as one patient with one problem and should be assessed and triaged in the context of all their problems.[43]

POLYPHARMACY

- A common reason for older people to present to the ED is the adverse effects of their medication.

- Medications can cause symptoms that mimic disease, interact with other drugs to cause symptoms and interact with diseases to cause symptoms[6,43]

VARIABLE VITALS

Older people may not become febrile, tachycardic, or hypotensive when they should

- Due to physiological changes in the central and cardiovascular systems, tachycardia may be minimal or absent with physiologic stress.[40]
- The immune system produces fewer inflammatory markers. A fever may be a late response to infection (if at all). An infection can often exist with a normal or low temperature.[40]
- The peripheral pipes become stiff or less elastic. Hypotension may not develop until much later in a hypovolemic or septic situation.
- Medications can also alter vital signs. Many older people are on beta-blockers, so mounting a tachycardia may not be possible. Also, many older people take acetaminophen daily for aches and pains, masking a fever.[42]

Knowledge Check #11

Indicate whether the following statements are True or False

Statements		T	F
1.	Older patients have fundamental physiologic differences that must be considered when evaluating them in the ED.		
2.	Making assumptions is best avoided in the ED when evaluating older patients based on previous identical symptoms to prior illnesses.		
3.	Older patients often present later to the ED than younger patients and often present sicker from simple illnesses.		

Weakness and Nonspecific Complaints

Triage and assessment should include

- Vital signs -
  - Postural vitals
  - Glucose if diabetic
  - Check for extremity weakness (e.g., signs of stroke)
- List of underlying chronic diseases
- Obtain full medication history – including any new medications or any recent dosage changes.
- Get collateral information from family or caregiver if present, check EMS record and Meditech

Questions to ask yourself

- Could low blood pressure be causing the weakness?
- Could the weakness be a symptom of low heart rate, dehydration or electrolyte imbalance?
- Is the patient on any medication that could alter their heart rate or BP?
- Are there any other medications that could lead to lower cardiac output.[40]

Knowledge Check #12

Older patients can present atypically for a variety of reasons. Which of the following factors contribute to complicated history taking in older adults? Select all that apply.

- ○ Hearing loss
- ○ Cognitive impairment
- ○ Multiple co-morbidities which can be difficult to keep track of
- ○ Poor social support to provide collateral information

Which strategies will help obtain a thorough history from older adults in the ED?

- ○ Ask family members, if present, to obtain their version of events
- ○ Read the EMS report
- ○ Examine the patient's health records
- ○ All the above

ATYPICAL ILLNESS PRESENTATION

MYOCARDIAL INFARCTION (MI)

- May have atypical or asymptomatic presentation resulting in delayed treatment.
- Delayed presentations can result from stoicism, denial, alternation in pain perception, cognitive impairments, or inactivity hindering the detection of exertional angina and heart failure.
- Classic retrosternal chest pain and diaphoresis are often absent.
- Fatigue, dyspnea, and nausea may be the only signs.
- The most common sign is dyspnea, sometimes accompanied by anxiety and confusion.
- Pain can be poorly localized to the throat, abdomen, and shoulder[3,41,42]

Fact #7
Less than half of all patients over 75 presenting with MI have ECG changes

SEPSIS

- The signs of infection can be subtle
- Normal signs of infection, such as elevated white blood cell count and fever, are often absent
- If an older adult has a fever, they may already be in a state of sepsis
- Infections are often present with falls, confusion, incontinence, change in functional status, or weakness than fever.[3,41,42]

Urinary Tract Infection:

- Often present themselves as confused or falls
- Typical signs of urinary frequency and urgency are not always present
- Older adults have more infections due to bladder emptying problems and increased residual bladder volumes
- Urosepsis in older adults can cause greater morbidity than in younger adult[3,41,42]

Pneumonia:

- Can present as weakness, confusion, poor appetite, inability to perform activities of daily living
- Diaphragmatic weakness can predispose geriatric patients to hypoxemia and hypercapnia when they are in situations requiring sustained increases in ventilation
- Classis signs of productive cough, fever/rigours, and chest pain are often missing[3,42]

ACUTE ABDOMEN

- Can present as mental status changes (i.e., confusion, agitation, lethargy), tachypnea, constipation, poor appetite
- Fever and tachycardia are often absent with acute abdominal disease
- Classis signs of appendicitis, such as left lower quadrant pain, fever, nausea and vomiting, are usually absent

- Abdominal pain is often absent or vague due to fewer peripheral sensory nerve cells. An altered sense of pain often means that they do not present to ED until the disease is quite advanced (i.e., until the appendix has ruptured)[3,33,42]

DEHYDRATION

- Can present with marked changes in mental status: memory, reasoning, and attention
- The primary adult symptom is thirst

Knowledge Check #13

Fill in the blanks with the most appropriate response

Fill in the Blanks	
1.	This classic sign is often absent when older adults present with a Myocardial Infarction _____
2.	Abdominal pain is often absent or vague due to fewer _____ cells.
3.	If an older adult has a fever, they may already be in a state of _____
4.	The primary adult symptom of dehydration is _____

MODULE 6: MEDICATION AND OLDER ADULTS

The purpose of this module is to provide a brief overview of how physiologic changes that occur with aging can affect how the aging body responds to medications. Specifically, the physiological effects on pharmacokinetics, pharmacodynamics, polypharmacy, and the most common high-risk medication. There is also an overview of the main high-risk, low-benefit medications.

Most older people come to the ED already taking five or more medications for their chronic disease management.[48] While ED nurses do not prescribe, they need to be cognizant that an adverse effect of some medication generates many ED visits, whether due to the addition of at least one new drug or dose. Having the knowledge and asking the right questions during triage will guide the nurse in assessing the patient's risks.

Learning Objectives:

1. Explain how normal physiologic changes affect pharmacokinetics, pharmacodynamics, and the issue of polypharmacy.
2. Recognize high-risk medication classes.
3. Introduction to the Beers criteria

PHARMACOKINETICS

- Changes that affect the level of drug concentration in the body or **what the body does to the drug**[32,48]
- Involves absorption, distribution, metabolism, and elimination[48]

ABSORPTION

- Besides a few exceptions, absorption does not change significantly with aging.[48]

DISTRIBUTION

- With age, we lose muscle mass and total body water and gain fat**,** so aging significantly affects distribution.
    - When a drug is water soluble, the distribution in the older body is much less, and the serum concentration of that drug will be greater than expected. Drugs can reach toxin levels in the blood (e.g., Digoxin or Hydrochlorothiazide, Penicillin, Sotalol, Lithium)[32]
    - When a drug is fat soluble: the distribution in the older body is greater, and the serum concentration of the drug will be less than expected (e.g., Midazolam or Diazepam, Verapamil; Quetiapine, Propranolol and Amiodarone).[35]
- As we age, albumin levels decrease, which results in higher drug concentrations of protein-bound drugs (i.e., warfarin, phenytoin, diazepam, and ibuprofen)

METABOLISM

- The liver is responsible for the metabolism of most drugs
- The liver maintains all its enzyme systems with aging but at a decreased function and is more easily challenged by adding new drugs.
- This could end up causing a higher serum concentration of both.[32,48]

Fact #8
Glomerular filtration decreases by 10% per decade after 20 years of age.[48]

ELIMINATION

- The kidney is the main organ of elimination and changes significantly with aging.
- Renal mass and blood flow to the kidney decrease steadily from age 30. Renal clearance is generally reduced by 50% in older adults.[48]
- Creatinine is not a good indicator of renal function in older patients due to the loss of lean body mass/muscle.

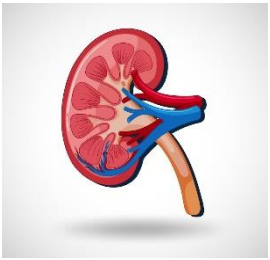
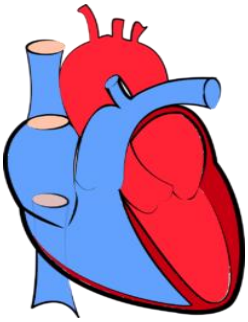


Photo from Freepik.com

PHARMACODYNAMICS

- Changes that affect the way a patient responds to the drug or **what the drug does to the body**[48]
- The effects of the drugs are the greatest on two important systems:

CARDIOVASCULAR SYSTEM



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Aging in the CV system causes older people to have stiff pumps and pipes. So, it is more difficult to increase cardiac output, and orthostatic effects will be more dramatic.

Any medication that influences the heart, the pipes, or the rate (e.g., digoxin, loop diuretics, beta-blockers – will likely produce a weak and dizzy patient. They can prevent the increased heart rate expected with hypovolemic shock, pain, or stress.[32]

CENTRAL NERVOUS SYSTEM (CNS)

Older people have fewer cells and neurotransmitters. So, the CNS is more sensitive to even subtle medication changes. Any medication that has a psychotropic effect, like ranitidine or dimenhydrinate, will tend to cause an acute confused state (delirium).[32]

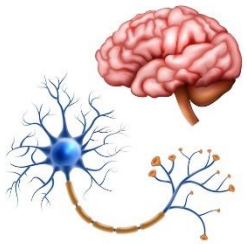

Photo by macrovector on Freepik

Knowledge Check #14

The ER doctor prescribed medication for an 80-year-old that is primarily eliminated by the kidneys. While looking up the patient's bloodwork, you notice that the patient has an elevated creatinine. As an ER nurse, what should you do?

- ○ Give the medication without question.
- ○ Ask the doctor if they want to consider a renal dose (50% of the recommended dose)
- ○ Ask the doctor to prescribe a different medication.

Which of the following affects the distribution of medication in older adults? Circle all that apply.

- ○ Loss of muscle mass
- ○ Increase in total body water
- ○ Albumin levels decrease
- ○ All the above

Which drugs affect the older adult cardiovascular system and prevent the increased heart rate expected with hypovolemic shock, pain, or stress? Circle all that apply.

- ○ Digoxin
- ○ Warfarin
- ○ Metoprolol
- ○ Lasix (loop diuretic)

POLYPHARMACY

- Multiple medications (5 or more), including over the counter (OTC) and prescription medications. [23]

  - All the drug molecules compete for the few remaining hepatic molecules to metabolize them. The addition of any new drug can upset that equilibrium.
  - 25% of Canadian adults over the age of 65 take at least 10 medications per day; this increases to 40% over the age of 85.[47]
  - A potentially inappropriate medication (PIM) where the risk outweighs the benefits is associated with an increased risk of falls and adverse outcomes.[6]
  - PIM use in older ED patients is highly prevalent[49]
  - Polypharmacy or medication-related problems often present atypically.

HIGH-RISK MEDICATIONS

- Medications are necessary to manage chronic disease, an inevitable part of aging and health-promotion
- Medications most prescribed in the ED setting that ED nurses should be aware of are those considered high-risk but low-benefit [47,48]

Benzodiazepines

Not a good drug of choice for older people

Most **agitation** in older patients is not about anxiety but untreated pain or undiagnosed delirium.

Treat the pain and find the underlying cause.

Benzos have a significant frontal lobe effect, so treating an agitated person with lorazepam will merely produce a drowsy, disinhibited patient causing a fall.[48]

Opioids

Use is associated with falls causing fractures; two that should be avoided are:

Codeine: a weak analgesic with a strong side effect (nausea/constipation) for which 10% of the population does not have the enzyme to convert this pro-drug to morphine.

Meperidine: may cause delirium, impaired mental performance, and confusion.[48]

NSAIDs Anti-inflammatory

All members of this class have deleterious effects on renal blood flow and can tip renal impairment of old age into acute on chronic renal failure. Use it with caution.

They exacerbate hypertension.

They have gastritis-causing effects, worsened in older people with decreased gastric emptying and lower gastric ph.[48]

Anticholinergic

In a population which is naturally acetylcholine deficient, drugs that block acetylcholine should be avoided, such as diphenhydramine, dimenhydrinate, cyclobenzaprine, and hydroxyzine, unless needed emergently.

These medications can cause delirium, urinary retention, and constipation.[32,48]

Risks of Adding New Meds

- When an older patient takes many different medications, there is a risk of additive effects.
- Treating adverse effects of one medication with yet another new medication.[48]

Examples for ED nurses to be aware of include the following:

- Treating the itch caused by opioids with diphenhydramine
- Treating nausea caused by opioids with dimenhydrinate
- Treating gastritis caused by NSAIDs with an H1 blocker
- Treating the cough caused by an ACE Inhibitor with codeine
- Treating nausea and urinary incontinence of cholinesterase inhibitors (e.g., Aricept) with anticholinergic (dimenhydrinate)

BEERS CRITERIA

- A guide developed as a tool to assist healthcare providers in improving medication safety in older adults
- It is a widely used method in current practice to identify PIM in older adults.
- It is particularly useful when applied to the older patient in the ED.[6,48]

For More Information

Pocket Gide to American Geriatrics Society Beer's criteria.

https://www.ospdocs.com/resources/uploads/files/Pocket%20Guide%20to%202015%20Beers%20Criteria.pdf

Knowledge Check #15

A 72-year-old lady presents with neck pain and stiffness after a motor vehicle accident sustained the day before. The doctor diagnosed the patient with a neck strain. Her only medical history is osteoarthritis, and she takes no medications. Considering the patient's age, what might you expect the doctor to order for pain relief? Select all that apply.

- ○ Acetaminophen
- ○ Cyclobenzaprine
- ○ Diazepam
- ○ Ibuprofen – short course

NURSES ROLE IN IMPROVING GERIATRIC CARE

Emergency departments are the point of entry into the healthcare system, and triage nurses are the gatekeepers of that entry point. An older patient visiting the ED is an important opportunity to screen and recognize the signs and symptoms of impending but preventable decline in their health and independence.[52]

ED nurses offer a unique perspective on caring for older adults in the ED, and the care of the older patient will never improve without the engagement of nursing.[53] So, what is your role in improving care for older adults in the ED? As front-line care providers, you can:

- Seek out and educate yourself on geriatric best practices
- Keep yourself knowledgeable, skilled and up to date on how to best care for older adults
- Bring forth ideas for improving care as well as your perspective when things fail
- Advocate for even small-scale interventions that may have a large impact
- Advocate for more evidence-based protocols to help prevent, detect, and manage geriatric syndromes
- Advocate for more geriatric screening tools

The impact of increased screening and assessment for geriatric health issues in the ED is substantial.[52] As an ED nurse, you have the power to implement change. It is believed that educating yourselves and becoming more proficient in conducting geriatric assessments and using geriatric screening tools will aid in detecting cognitive impairment, sepsis, atypical presentation, and polypharmacy. Ultimately helping to improve health outcomes for older adults. As a nurse of Newfoundland and Labrador, you have a professional obligation to provide safe and competent care to your patients.[54]

CASE STUDIES

Case Study 1

A 78-year-old man presents to the ED with a 3-day history of weakness, falls, and confusion. The patient states he has had a 3 to 4-day history of periods of confusion, forgetfulness, frequent repetition, agitation, and trouble walking. He fell 2 days ago while getting out of bed and again this morning. A quick look showed a bruise to his left knee and left hip. He could not get up after falling this morning and needed help from his wife. He has been feeling weak and lethargic over the past few days. He is usually alert and oriented to person, place, and time. Fearful that he was having a stroke, his wife called 911.

Vital signs: Temp 36.2°C; HR 78; RR 22; BP 160/80; SpO_2 95% on room air

Medical history: hypertension, MI, and benign prostatic hypertrophy

Medications: hydrochlorothiazide 50 mg OD; terazosin 10 mg OD; aspirin 81 mg OD

1. **What are your main concerns? What are some causes for presenting symptoms?**
2. **Guided by current medical directives, what tests would you initiate after triage?**
3. **What diagnostic tests would you expect the ED physician to add?**

Results will be provided once questions 1-3 are discussed.

The patient's CBC is within normal limits. His sodium level is low, at 130 mmol/L, but all other electrolyte levels are within normal ranges. His troponin is negative. His ECG shows an old MI but no new changes. The CT of his head is negative. X-ray of his left hip shows no fracture. His routine and microscopic urine test show a UTI.

Continued Discussion

4. **What physiologic changes are contributing to the patient's illness? Vague symptoms? Falls?**
5. **Besides age, what else in his history can explain the reason for the UTI presentation?**

Case Study 2

An 82-year-old woman who lives in a long-term care facility. The nursing staff noticed that the patient had not slept well for several days and seemed easily fatigued. She was not eating. She did not seem to be her usual, happy self. She was not participating in the social activities in the facility. She seemed a bit more confused than usual. She was transported to the ED for further investigation. The patient is alert but slow to respond to questions. She can state her name but is disoriented about the day, date, month, and year and does not know where she is. She denies chest pain but is vague about discomfort in her upper abdomen. Her abdomen is soft and non-tender, and bowel sounds are present in all 4 quadrants. There is no history of nausea or vomiting. She states that she does not wish to eat. Fine crackles are noted bilaterally to her chest, and she has had a sporadic nonproductive cough, which is worse at night. She becomes short of breath with little exertion. Slight peripheral edema is noted in the lower legs.

Vital signs: Temp 36.4°C; HR 76; RR 18; BP 170/82; SpO_2 94% on room air

Medical history: Dementia, osteoarthritis, CHF, hypertension, and dyslipidemia

Medications: donepezil 5 mg OD; acetaminophen 650 mg QID; ramipril 5 mg BID; furosemide 40 mg OD; metoprolol 50 mg BID; atorvastatin 20 mg OD; aspirin 81 mg OD; and docusate sodium 100 mg OD

1. **What are your main concerns? What are some causes for presenting symptoms?**
2. **Guided by current medical directives, what tests would you initiate after triage?**
3. **What diagnostic tests would you expect the physician to add:**

Results will be provided once questions 1-3 are discussed.

Her bloodwork and urine are unremarkable, and her ECG shows NSR. A bCAM assessment is negative for delirium. The abdominal X-ray is dictated as normal, but her chest X-ray shows she is in CHF.

Continued Discussion

4. **What physiologic changes are contributing to the patient's illness? Vague Symptoms?**

Case Study 3

A 79-year-old woman who lives alone arrives via an ambulance. The report from EMS is about a lady who was found by her home care worker this morning more confused than normal, soaked in urine and a wet dressing on her lower left leg, and unable to stand up from her chair. The report also indicated that she vomited twice yesterday, is lethargic, complains of weakness and chills, and is slightly SOB. The patient is alert to person and place, unsure of the date (GCS 14) and follows verbal commands. She can normally converse, but today is having trouble answering questions. The home worker states that she is not normally incontinent. Further examination shows that her skin is dry and warm to the touch except for discharge on the lower leg, and pulses are strong in her extremities. Once the dressing is removed, the wound is noticed to be red and angry looking, with a strong odour coming from it.

Vital signs: Temp 37.2°C; HR 114; RR 24; BP 117/62; SpO_2 95% on room air.

Medical history: Dementia, peripheral vascular disease, hyperlipidemia, obesity, chronic venous stasis, anemia, CHF, hypertension, coronary artery disease

Medications: Candesartan 16 mg OD; furosemide 40 mg OD; metoprolol 50 mg BID; atorvastatin 20 mg OD; aspirin 81 mg OD; Atrovent MDI 17mcg 2 puffs BID; and a multivitamin OD

1. **What are your main concerns? What are some causes for presenting symptoms?**
2. **Guided by current medical directives, what tests would you initiate after triage?**
3. **What diagnostic tests would you expect the physician to add:**

Results will be provided once questions 1-3 are discussed.

Chest X-ray and urine are unremarkable, and wound culture is pending. ECG shows sinus tachycardia, and she is slightly tachypneic. Lactic acid is 4.1 mmol/L, WBC 15.7 ul, and the bCAM is positive for delirium. The doctor diagnosed the patient with sepsis and delirium.

Continued Discussion

4. **What physiologic changes are contributing to the patient's illness?**

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APPENDIX A: KNOWLEDGE CHECK ANSWERS

Knowledge Check #1

Indicate whether the following statements are True or False

	Statements	T	F
1.	Older adults may metabolize and excrete medications less efficiently than younger adults.	T	
2.	Bladder capacity decreases with age, which leads to frequent urination.	T	
3.	Older people are more likely to suffer from hyperthermia.	T	
4.	Physical strength declines in old age.	T	
5.	Kidney function is not affected by age.		F
6.	Increased problems with constipation represent a normal change as people get older.		F
7.	Loss of pacemaker cells contributes to ECG changes.	T	

Knowledge Check #2

Ageism is defined as:

A. Asking older people if they need help
B. Being prejudiced against older people
C. Taking advantage of older people
D. The dislike of elderly people

Knowledge Check #3

What are the CEDIS presenting complaint and CTAS score?

Based on CEDIS knowledge, did you get?

CEDIS presenting compliant: SOB
Did you assign the correct
CTAS: 3

Knowledge Check #4

Circle the correct type of delirium (Hypo or Hyper) for corresponding behaviour.

Behaviours	Hypo or Hyper
Shifting attention	**Hypo or Hyper**
Slow responses	**Hypo or Hyper**
Visual or auditory hallucinations	**Hypo or Hyper**
Reduced mobility and/or movement	**Hypo or Hyper**
Motor restlessness	**Hypo or Hyper**
Agitation	**Hypo or Hyper**
Disorganized thinking	**Hypo or Hyper**
Withdrawal	**Hypo or Hyper**

Knowledge Check #5

Indicate whether the following statements are True or False

	Statements	T	F
1.	Depression is a normal part of aging.		F
2.	Depression goes untreated because it is unrecognized by healthcare providers.	T	
3.	The Cornell Scale for Depression can be used in patients with dementia.	T	

Knowledge Check #6

Indicate whether the following statements are True or False

	Statements	T	F
1.	Nonpharmacological approaches are key to preventing delirium	T	
2.	Delirium can be viewed as acute brain failure	T	
3.	There are two types of delirium.		F
4.	Hyperactive delirium is the most frequent type	T	
5.	Patients should be screened every 6 hours while in the ED.		F
6.	26% of older patients in the ED have some form of cognitive impartment	T	

Knowledge Check #7

A patient is pulling at her IV and is trying to get out of bed. How can the nurse manage her acute agitation?

- ○ Consider and treat physiological causes such as shock, hypoxia, electrolyte imbalances, and hypoglycemia
- ○ Provide one-to-one orientation and redirection from a family member or staff.
- ○ Administer Benzodiazepines
- ○ Administer antipsychotics
- ○ If a patient or staff member is threatened, consider pharmacological treatment

Knowledge Check #8

What is sepsis?

- ○ An infection in the blood
- ○ A contagious disease
- ○ The body's extreme response to an infection
- ○ A localized infection (i.e., cellulitis lower leg)

Adults older than 65 are ____ times more likely to be hospitalized with sepsis than younger adults.

- ○ 5
- ○ 20
- ○ 27
- ○ 13

Which of the following are high-risk factors for sepsis?

- ○ Repeated and prolonged hospitalizations, diabetes,
- ○ Functional limitations
- ○ Weakened immune system
- ○ All the above

Knowledge Check #9

Mini Case Study:

An 82-year-old male presents to triage with his daughter after a fall with a laceration to the right side of his head. You have completed your triage, and besides the laceration, he does not appear to have any other deformities or injuries, and the bleeding is controlled with a towel. He complains of a headache and cannot remember falling. According to his daughter, he has no underlying cognitive issues. His vital signs are T 36.3, HR 90 RR 20, BP 105/60, GCF 14 PERL 3mm. He had a history of hypertension and a cardiac stent 10 months ago and is taking the following medications: ASA, clopidogrel, metoprolol, atorvastatin and NTG PRN.

What is the CTAS number? 2

Here are the main things a triage nurse should be concerned about: Provide the rationale.

- He cannot recall the event: A change in consciousness is an early indicator of neurological injury
- He is taking an antiplatelet, clopidogrel: A geriatric patient, especially one taking clopidogrel, is considered high risk for head trauma or brain bleed after a fall.
- He has had a recent cardiac stent: Given his cardiac history, one must consider the possibility that the patient had a cardiac event.
- His BP is 106/60: Given his history of hypertension, his systolic BP is low and concerning.

Knowledge Check #10

Fill in the blanks with the most appropriate response

Fill in the Blanks	
1.	List 3 risk factors for hip fractures: **Poor vision** **Frailty** **Medication side effects** **Trip hazards** **Previous hip fracture**
2.	**Acetaminophen** is the first drug of choice when providing pain relief for older adults.
3.	What is the motto when administering pain medications to older adults ? **"low and go slow."**
4.	Less than **50%** of older patients received analgesia for their pain.
5.	Compared to other fractures, a **hip** fracture has more dire consequences for the patient.
6.	Untreated pain is strongly associated with **Delirium.**

Knowledge Check #11

Indicate whether the following statements are True or False

	Statements	T	F
1.	Older patients have fundamental physiologic differences that must be considered when evaluating them in the ED.	T	
2.	Making assumptions is best avoided in the ED when evaluating older patients based on previous identical symptoms to prior illnesses.	T	
3.	Older patients often present later to the ED than younger patients and often present sicker from simple illnesses.	T	

Knowledge Check #12

Older patients can present atypically for a variety of reasons. Which of the following factors contribute to complicated history taking in older adults? Select all that apply.

- ○ Hearing loss
- ○ Cognitive impairment
- ○ Multiple co-morbidities which can be difficult to keep track of
- ○ Poor social support to provide collateral information

Which strategies will help obtain a thorough history from older adults in the ED?

- ○ Ask family members, if present, to obtain their version of events
- ○ Read the EMS report
- ○ Examine the patient's health records
- ○ All the above

Knowledge Check #13

Fill in the blanks with the most appropriate response

Fill in the Blanks	
1.	Often when older adults present with a Myocardial Infarction, this classic sign is absent r**etrosternal chest pain.**
2.	Abdominal pain is often absent or vague due to fewer peripheral sensory nerve cells.
3.	If an older adult has a fever, they may already be in a state of **sepsis.**
4.	The primary adult symptom of dehydration is **thirst**

Knowledge Check #14

The ER doctor prescribed medication for an 80-year-old that is primarily eliminated by the kidneys. While looking up the patient's bloodwork, you notice that the patient has an elevated creatinine. As an ER nurse, what should you do?

- ○ Give the medication without question.
- ○ Ask the doctor if they want to consider a renal dose (50% of the recommended dose)
- ○ Ask the doctor to prescribe a different medication.

Which of the following affects the distribution of medication in older adults? Circle all that apply.

- ○ Loss of muscle mass
- ○ Increase in total body water
- ○ Albumin levels decrease
- ○ All the above

Which drugs affect the older adult cardiovascular system and prevent the increased heart rate expected with hypovolemic shock, pain, or stress? Circle all that apply.

- ○ Digoxin
- ○ Warfarin
- ○ Metoprolol
- ○ Lasix (loop diuretic)

Knowledge Check #15

A 72-year-old lady presents with neck pain and stiffness after a motor vehicle accident sustained the day before. The doctor diagnosed the patient with a neck strain. Her only medical history is osteoarthritis, and she takes no medications. Considering the patient's age, what might you expect the doctor to order for pain relief? Select all that apply.

- ○ Acetaminophen
- ○ Cyclobenzaprine
- ○ Diazepam
- ○ Ibuprofen - short course

APPENDIX B: CASE STUDY NOTES

Case Study 1

1. **What are your main concerns? What are some causes for presenting symptoms?**

   You might be worried about a neurologic event, such as a transient ischemic attack or stroke. There is also the possibility of a cardiac event, such as congestive heart failure (CHF) or angina. Hyponatremia or hypokalemia due to diuretic use is another possibility. Alternatively, the patient's sudden change in function and falls could be a sign of infection.

2. **Guided by current medical directives, what tests would you initiate after triage?**

   - CBC, electrolytes, urea, creatinine, and glucose
   - Troponin level
   - Urine analysis for routine and microscopic testing and culture and sensitivity
   - Electrocardiogram (ECG)

3. **What diagnostic tests would you expect the physician to add:**

   - Hip x-ray
   - Computed Tomography (CT) of head

4. **What physiologic changes are contributing to the patient's illness? Vague symptoms? Falls?**

   Changes in homeostasis and diminished physiologic reserves are key factors in his vague symptoms. The brain's increased sensitivity and altered homeostatic response may be causing his confusion and falls. His falls could be caused by blood pressure changes that his cardiovascular system cannot accommodate (his diuretic predisposes him to orthostatic hypotension). Diuretic use could also affect fluid and electrolyte balance through impaired sodium concentration and water conservation in the kidneys. Decreased bladder tone (with potential urinary urgency when the bladder becomes overfull) and increased residual volumes in the bladder/decreased bladder emptying due to prostatic enlargement may be causing him to rush to the bathroom, thus leading to opportunities to trip and fall.

5. **Besides age, what else in his history can explain the reason for the UTI presentation?**

His history of benign prostatic hypertrophy can lead to increased residual bladder volume, and decreased bladder emptying may contribute to the current UTI.

Conclusion

The ED nurse should not be fooled by the absence of an elevated white blood cell count or fever; in older adults, infections often present with falls, confusion, change in functional status, or weakness rather than fever.

Case Study 2

1. **What are your main concerns? What are some causes for presenting symptoms?**

There could be a gastrointestinal cause for her anorexia and weakness, such as constipation or malignancy. It could be the progression of her Dementia and why she is not sleeping well, participating, eating, or potentially delirium. Alternatively, she could have congestive heart failure (CHF), causing anorexia, difficulty sleeping, and confusion.

2. **Guided by current medical directives, what tests would you initiate after triage?**

- CBC, electrolytes, urea, and creatinine)
- Liver function tests
- Troponin
- Urine analysis
- ECG
- Cognitive assessment (e.g., CAM - screening for delirium)

3. **What diagnostic tests would you expect the physician to add:**

- Chest X-ray
- Abdominal X-ray

4. **What physiologic changes are contributing to the patient's illness? Vague Symptoms?**

Homeostatic challenges and diminished physiologic reserves are contributing to vague symptom expression. Decreased cardiovascular reserves lead to a lower threshold for heart failure. Sclerosing and thickening of heart valves lead to decreased cardiac output and reduced stroke volume. Alterations in the contractility of the myocardium also contribute to heart failure. Hypertension can lead to increased afterload, thus increasing the demands on an aging myocardium.

Conclusion

Inactivity may hinder the detection of heart failure in older adults with a comorbid illness, such as osteoarthritis. Exertional dyspnea is less obvious if the patient is inactive; nurses must be attuned to more subtle clues, such as shortness of breath while repositioning the patient. Dependent edema is less readily noticed if the patient is in bed most of the time. Cognitive impairment and alterations in pain perception have likely contributed to the patient's vague descriptions of her discomfort.

Case Study 3

1. **What are your main concerns? What are some causes for presenting symptoms?**

The patient has an obvious wound, and the presentation is concerning for infection. Due to urinary incontinence and SOB, other sources of infection should also be considered, like UTI and pneumonia. She also has a history of CHF, so given that she is SOB, that will need to be ruled out. Given what we learned, due to the acute change in baseline mental status, urinary incontinence and infection, it is dangerous to assume that we are only dealing with an infection, so it is very important to rule out delirium. The acute onset of mental change is a key hallmark of delirium.

2. **Guided by current medical directives, what tests would you initiate after triage?**

- CBC, electrolytes, urea, creatinine, glucose, and lactate
- Blood cultures
- Urine analysis for routine and microscopic testing and culture and sensitivity
- Electrocardiogram (ECG)

3. **What diagnostic tests would you expect the physician to add:**

- Chest X-ray
- Wound culture

4. **What physiologic changes are contributing to the patient's illness?**

Despite the lack of increased temp, the patient is tachycardic and tachypneic. When an older patient is tachycardic, they may already be in sepsis. Due to a less robust immune system, decreased cardiac output, and decreased muscle mass, older adults often cannot mount a fever response. So subtle temperature changes, including hypothermia, may indicate a serious infection. The BP is 'normal' but concerning because most older adults have higher systolic blood pressures for adequate perfusion due to arterial stiffening, so a systolic of 118 may be hypotensive for the patient. The patient has multiple risk factors for both delirium and sepsis: infection, Dementia, and Multiple co-morbidities. The acute onset of mental change is a key hallmark of delirium and sepsis.

Conclusion

A lower threshold and a higher degree of suspicion are needed to diagnose sepsis in the older patient. The initial clinical picture may be atypical, and aging increases the risk of an older adult deteriorating to severe sepsis or septic shock. Furthermore, the nurse should always **'think delirium.'**