



Evidence-Based Guidelines for Senior-Friendly Emergency Departments

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Inspiring Innovation and Discovery

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INTRODUCTION

Older adults constitute 63% of all hospital stays in Ontario (O’Keeffe, 2004). The physiological, psychological, and social characteristics of older adults make the needs of this population unique compared to other age groups. The current study sought to examine the existing evidence regarding senior-friendly emergency department (ED) environmental modifications. The EDs under investigation were three Hamilton Health Sciences sites. Based on the literature it was determined what modifications can be made to these sites to improve the services available for older adults. Renovations are anticipated in the near future for two of the sites under investigation. The recommendations to follow may assist in these plans.

LITERATURE REVIEW

Several databases were consulted to obtain information to guide the environmental assessments (e.g. creation of checklist) and to provide recommendations and supporting rationale. The databases searched were: AARP Ageline, AMED, CINAHL, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, EMBASE, Medline, and PubMed. The keywords used were variants of the following: senior-friendly, seniors, older adults, aged, emergency rooms/departments/ward/services, hospitals, environment, environmental design, modifications, client-centered, safety, and communication. Articles chosen to include in the annotated bibliography (to be discussed in Methods) were based on redundancy among articles obtained among the three investigators. The literature will be incorporated in the Results section. The most relevant articles are listed as key references.

METHODS

The three Hamilton Health Sciences sites under study were Hamilton General Hospital, Henderson General Hospital, and McMaster University Medical Centre (MUMC). The study consisted of three components as follows.

Annotated Bibliography

A consolidation of the literature reviewed was developed. The articles were summarized, critically appraised, and ranked on relevance to the current study.

Environmental Assessments

An environmental assessment was completed at each site. Assessments were completed in accordance with a checklist devised by the investigators. This checklist was developed based on the literature and standardized environmental assessments. It contained components of the physical (i.e. requisite chair heights), social (i.e. staff interactions), cultural (i.e. interpreter services), and institutional environments (i.e. hospital policies). With consideration of these findings a consolidation report was developed to identify common strengths and barriers of the EDs. The recommendations were classified into three categories of prioritization urgency (low, medium, high). The recommendations that were easy to implement were identified (i.e. requiring minimal resources).

Staff Experiences

The questionnaires were designed to elicit staff perceptions of strengths and barriers to senior care, through eight open-ended questions. Twenty-five questionnaires were delivered to each ED.

ANALYSIS

The information obtained from the environmental assessments was consolidated to identify consistent supports and barriers across the three sites. The investigators identified common themes regarding staff perceptions.

RESULTS

The following supports and barriers identified in the environmental assessments were consistently found across all three sites.

Senior-Friendly Aspects

Senior-friendly aspects included: security guard and interpreter availability, wheelchair accessible parking, covered entrance, automatic doors, no stairs upon entry, wheelchair availability, health information pamphlets, tables with rounded corners, and lever style taps in at least one washroom per site.

Environmental Barriers, Rationale, and Recommendations

The environmental barriers, rationale, and recommendations based on the literature cited include:

Noise: Steady background noise (i.e. overhead paging and television volume). Constant noise levels are associated with agitation in older adults with dementia (O’Keeffe, 2004). Noise should be controlled for by putting pagers on vibrate mode, if available, and putting doors on rooms with noisy equipment.

Privacy: Curtains divide treatment areas resulting in conversations possibly being overheard by others. Patients sharing personal information in a room with solid walls perceive a greater degree of privacy (Barlas, Sama, Ward, & Lesser, 2001). Doors should be used for treatment rooms instead of curtains. Alternatively, cubicle dividers as well as curtains may increase patient privacy (Barlas, et al., 2001).

Orientation cues: Clocks were not visible to patients in waiting room/treatment areas, most clocks were analogue, and no calendars were visible. Clocks and calendars help to orient patients to time (O’Keeffe, 2004). Orientation cues can be increased by means of calendars and digital clocks.

Signage: Signs were cluttered, repetitious, poorly placed, and had small font size. Limiting signage will decrease clutter and confusion (O’Keeffe, 2004). Clear signs will increase the communication process (Watson, 2001). Signs should be kept to a minimum; thus, duplicates of signs should be removed. All posted signs should be in straightforward language and large print. Perpendicular signage either hanging from the ceiling or attached to the wall should be used.

Chair quality: Some chairs lacked armrests and were covered in slippery material. Armrests assist with transferring and provide support while sitting (O’Keeffe, 2004). Non-slip fabric may prevent sliding and falls (Bakker, 2000). All chairs should have armrests that have a flat top and are located 10” above the seat height (recommended seat height, 17-19”) (O’Keeffe, 2004). The chairs should be covered in a non-slip fabric with moisture barrier to protect from incontinence.

Availability or quality of equipment: A limited number of walkers were available, some of which were broken/maladjusted. The mattresses provided minimal pressure relief and stretchers were narrow with limited lowering capabilities. It is important to have equipment in good repair and readily available to promote safe patient mobility and comfort. Several walkers and canes should be made available. All equipment should be tested on a regular basis to ensure that it is safe to use. Stretcher cushions should be equipped to provide minimal pressure relief (O’Keeffe, 2004) for older adults with poor skin integrity/incontinence who may be spending ++time in bed.. Stretchers should be able to be lowered to 18 inches high to ensure that patients who are mobile can ambulate to the washroom as needed (O’Keeffe, 2004).

Storage for belongings: Belongings were stored under the patients’ stretchers. A secure place should be identified where items can be stored (Marx & Cohen-Mansfield, 2003). This can help ensure a sense of security.

Patient communication: No auditory amplifiers were available. Auditory deficits are a common age related change (Spence, 1999). Amplifiers will help increase communication. Lack of sensory stimulation is associated with development of delirium (Inouye et al., 2000). The ED should have available devices that can assist with the patients’ ability to communicate with the staff in the ED (O’Keeffe, 2004). A pocket talker could be a viable option

Call bell accessibility: Call bell cords were thin and out of patients’ reach. They also had minimal contrast against the colour of the wall. Patients must be able to communicate with staff, especially if they are in distress. The call bells should be brightly coloured or dark to ensure contrast with the wall colour. In order for the call bells to be used properly they must be located in an area that is easy for the patient to access from their stretcher. A thick cord with a loop at the end should be used.

Floor colour scheme: There was no consistency of the floor colour. Patients with perceptual difficulties or dementia may perceive the coloured tiles to be holes in the ground. The flooring should be a solid colour (Bakker, 2000).

Washroom safety: There were faint or missing symbols on taps, lack of temperature control, and low toilet seats. Temperature should be regulated for a patient with diminished sensory ability (Stone, Ahmed, & Evans, 2000). Symbols such as a large H and a C should be placed above the appropriate taps. Alternatively, taps with sensors should be installed. Valves connecting the hot and cold water supplies can be easily fitted to the hot water outlet. If the temperature of the hot water rises above 43 degrees Celsius the cold water flow will increase immediately (Stone, Ahmed, & Evans, 2000).

Staff Experiences

Fifteen staff questionnaires were returned. Fourteen nurses and one social worker completed questionnaires. The staff consistently expressed frustration at the lack of appropriate resources for their senior patients (i.e. high stretchers, limited patient privacy, poor lighting and signage, and not enough staff).

DISCUSSION

Overall, there was consistency among the literature, the environmental assessments, and the questionnaires regarding supports and barriers. Staff responses indicate an awareness of the ED barriers. Staff consistently reported the need for more support personnel as a potential solution to environmental barriers. However, many of the recommendations may be implemented with little, or no, need for increased staff (i.e. accessibility of call bells). The suggested recommendations may benefit any user of an ED, not only senior patients. It is hoped that the suggested recommendations will be considered during renovation planning among two of the Hamilton Health Science sites.

KEY REFERENCES

- Bakker, R. (2000). Facility design: Getting it right the first time. *Nursing Homes*, 49, 68-71.
- Barlas, D., Sama, A.E., Ward, M.F., Lesser, M.L. (2001). Comparison of the auditory and visual privacy of emergency department treatment areas with curtains versus those with solid walls. *Annals of Emergency Medicine*, 38, 135-139.
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**EVIDENCE-BASED GUIDELINES
FOR SENIOR-FRIENDLY EMERGENCY DEPARTMENTS**

ANNOTATED BIBLIOGRAPHY

Note: Relevance Scheme

1=Somewhat relevant to the current study (i.e. related to older adult care in general, but not specific to emergency departments).

2=Relevant to the current study but focus may lack direct applicability to observations made in the site visits conducted.

3=Very relevant to the current study. The focus has implications for hospital care that relate directly to observations made during environmental assessments.

RESOURCES:

Bakker, R. (2000). Facility design: Getting it right the first time. *Nursing Homes*, 49, 68-71.

Keywords: *environmental barriers, economic benefits*

Relevance=3

The author discusses environmental barriers to avoid. A detailed list of guidelines for choosing furnishings is provided with focus on the bathroom environment, beds, chairs, colour usage, flooring, lighting, pathways, storage and tables. Emphasis is placed on enhancing older adults' comfort, safety, and independent functioning. The author also discusses the economic benefits of using barrier free designs when constructing environments.

Critical Appraisal: The author provides very specific guidelines to help facilities choose furnishings (i.e. measurements). The author discusses a variety of modifications, however, the psychosocial component of the environment was not addressed.

Barlas, D., Sama, A.E., Ward, M.F., Lesser, M.L. (2001). Comparison of the auditory and visual privacy of emergency department treatment areas with curtains versus those with solid walls.

***Annals of Emergency Medicine*, 38, 135-139.**

Relevance=2

Keywords: *privacy, older adults*

This study sought to determine whether patients perceive less privacy in emergency department treatment areas with curtains than in rooms with solid walls. Interviews were conducted with 108 adults. Patients interacting with medical personnel in rooms with curtains reported that they could overhear others, and others could overhear them, view them, hear personal information, and view personal parts of their bodies. They also perceived a lower overall sense of privacy than those interacting with medical personnel in walled-rooms. This study has important implications for the comfort of clients in an emergency department. Specific to older adults, this investigation showed older patients believed that they could hear others' conversations with a staff member more often than younger patients.

Critical Appraisal: Although this article raises some important issues around patient privacy, it does not discuss the feasibility of implementing a protocol to use doors as opposed to curtains in an emergency department. The emergency department is a very busy environment where patients need to be transported quickly. Curtains provide a quick means of removing barriers to transport patients. Further, installation of more rooms would suggest loss of space for more beds, and the presence of doors that would have to be made wide enough for wheelchair access. This may elicit more cost and decrease safety in the department, suggesting that solid walls may not be a feasible method of increasing perceived patient privacy.

Best, J. T. (2001). Effective teaching for the elderly: Back to basics. *Orthopaedic Nursing, 20*, 46-52. *Relevance=2*

Keywords: *older adults, patient education*

Health promotion and prevention programs are increasingly important. Health care professionals should be familiar with the normal aging process and adult learning principles to be effective educators to older patients. The article discusses factors to take into consideration when providing education, such as environmental aspects, and characteristics of the patient's physical, cognitive and affective state. Strategies are suggested, such as avoiding long teaching sessions, providing a combination of material (written, verbal, practice sessions, etc). The hospital setting can be a stressful setting for older adults. Therefore, it is of heightened importance to assess the strengths on which to focus and develop awareness of limitations of the patient to provide compensation during education sessions.

Critical Appraisal: This article provides an overview of the deficits that may be present in older adults, which may in turn have an effect on their intake of education provided by health care professionals. Practical strategies are offered to health professionals. Clinical reasoning is necessary in order to match the needs of the patient with the specialized aspects of the educational material.

Brawley, E.C. (2001). Environmental design for Alzheimer's disease: A quality of life issue. *Aging & Mental Health, 5*, 79-83. *Relevance=2*

Keywords: *barrier free, functional ability*

The author discusses age-related changes in older adults and the main hazards present in their environments. The author emphasizes the importance of well-designed environments. Several recommendations are provided regarding lighting, glare control, sensory stimulation, etc. The author stresses the importance of promoting a barrier free design to help optimize older adults' functional ability.

Critical Appraisal: Clear reasoning for the recommendations is discussed. The authors emphasize the possible negative impacts some environments might have on older adults. This emphasis accentuates the importance for modifications. Alternatives for each recommendation are provided to help allow for more choice. Authors did not focus on the psychosocial component of an environment.

Brawley, E.C., & Taylor, M. (2002). Strategies for upgrading senior care environments. *Nursing Homes Long Term Care Management, 50*, 28-29. *Relevance=2*

Keywords: *visual impairment, nursing environment*

The authors discuss visual changes experienced in older adults. The article provides the reader with insight on how to enhance vision in nursing home residents. Emphasis is placed on using natural light, consistent lighting levels, decreasing glare, proper positioning of windows, etc.

Critical Appraisal: The authors provide evidence and reasoning for the recommendations they suggest. Although modifications are provided, the authors do not provide alternatives in case their recommendation is not feasible. The focus is on environmental modifications in a nursing home. Most of the recommendations are broad. More specific details would help the reader gain better insight into the recommendations. Furthermore, the authors do not outwardly discuss the generalizability of their suggestions to other environments, however the reader can assume that most of the recommendations would be appropriate for other locations.

Day, K., Carreon, D., & Stump, C. (2000). The therapeutic design of environments for people with dementia. *The Gerontologist*, 40, 397-416. *Relevance=3*

Keywords: *architecture, Alzheimer's disease, nursing homes, assisted living*

This article reviews the empirical research on environmental design and dementia. The studies reviewed investigated preferred qualities of overall facility environments. Specifically, the studies explored the effects on well being related to noninstitutional character, levels of sensory stimulation, lighting levels, and design modifications for safety. Major themes in the research are discussed, as well as strengths and limitations of the existing studies.

Critical Appraisal: The authors only reviewed articles from four databases, Psych Abstracts, Medline, MAGS, and CAT. Perhaps databases such as Ageline and CINAHL might have provided them with more articles worth reviewing. Specific criteria was used when searching for article to review. The authors considered the physical environment, social environment, and the psychological impacts of environments. Authors organized the information in a clear, easy to read manner.

Fernandez, C. (2004). Geriatric care in the emergency department. *Academic Emergency Medicine*, 12, 158-159. *Relevance=3*

Keywords: *infectious disease, staff morale and retention, deconditioning*

This short article is a commentary on the state of geriatric care in the emergency department. It is written by a researcher from McMaster University, in Hamilton, Ontario. Some areas of concern cited by Fernandez include: increased risk of infectious disease in the emergency department, lower staff morale and retention, and deconditioning of emergency department-admitted patients. It is important to identify patients at triage who will require more support in the emergency department and beyond.

Critical Appraisal: This article provides a brief summary on geriatric care in the emergency department. The important issue raised here is how critical it is to identify special needs at the triage level.

Inouye, S.K., Bogardus, S.T., Baker, D.I., Leo-Summers, L., Cooney, L.M. (2000). The hospital elder life program : a model of care to prevent cognitive and functional decline in older hospitalized patients. *Journal of the American Geriatrics Society*, 48, 1697-1706.

Keywords: *cognition, delirium, functional decline, prevention*

This article describes the Hospital Elder Life Program (HELP), a model to prevent functional and cognitive decline in older adults during periods of hospitalization. Older patients who were enrolled in HELP had one or more risk factors for delirium (cognitive impairment, sleep deprivation, immobility, dehydration, vision or hearing impairment) upon admission to hospital. These individuals received HELP intervention to target these risks. The intervention included: daily time/day orientation cues, cognitive stimulation activities (e.g. word games), periodic ambulation, provision of visual aids (e.g. glasses, magnifying lenses) or hearing aids (e.g. auditory amplifiers), feeding and fluid assistance during meals, and a non-pharmacological sleep enhancement protocol. These components were delivered by staff members or volunteers involved in the program. The results showed that participants involved in HELP had a significantly lower incidence of delirium and functional decline in hospital.

Critical Appraisal: The authors recognize that HELP requires much institutional and monetary support to implement. This presents a barrier to its future use in clinical settings. This study was well designed, and its limitations are primarily identified in the feasibility of its use in different hospitals where staff must be educated on its importance and remain committed to carrying out HELP protocols on a continuous basis.

Marx, M. S. & Cohen-Mansfield, J. (2003). Hoarding behaviour in the elderly: A comparison between community-dwelling and nursing home residents. *Intergenerational Psychogeriatrics*, 15, 289-306. *Relevance=1*

Keywords: *hoarding, cognitive impairment, security*

This study examined hoarding behaviours among older adults residing in long-term care facilities and those living in the community. It was found that 25% of community-dwelling older adults, as compared to 15% of older adults living in long-term care facilities displayed a hoarding behaviour. The participant factors that were correlated with increased likelihood of hoarding include being female, physically non-aggressive agitated behaviours, a positive diagnosis of dementia, hallucinations, and the delusion of infidelity.

Critical Appraisal: Older adults with cognitive impairment are increasing in proportion to the number of hospital ED visits. Patients in the ED reside both in the community and in long-term care facilities. It is important for ED staff to be aware of the factors that influence hoarding and suspicious behaviour. This study included a large sample size. However, there was a large discrepancy in the number of participants in long-term care facilities in comparison to community-dwelling older adults. A brief description of the assessments used was provided, as well as the statistical significance or results.

Moons, P., Arnauts, H., Delooz, H.H. (2003). Nursing issues in care for the elderly in the emergency department: an overview of the literature. *Accident and Emergency Nursing*, 11, 112-120. *Relevance = 3*

Keywords: *staffing, anxiety and stress, functional assessment, education*

Due to the specific physiological, psychological, and social needs of older adults, the type and quantity of emergency care are different for this group of clients compared to individuals from different age groups. Doctors and nurses must be aware of these differences in order to provide appropriate care. This article highlights the importance of providing care specific for older adults and characteristics of this population (multi-pathology, susceptibility to iatrogenic diseases). Issues discussed include demographics. Approximately 15% of patients in emergency departments are 65 years or older, cardiovascular diseases and hip fractures are the common admitting diagnoses. In addition, studies show that older adults stay in the emergency department for 19-58% longer than patients in other age groups. Thus, *staffing* is a major concern for this group – staff must be aware of their special needs and equipped to treat them by communicating with the client and other health care providers. Another concern cited in the literature is *anxiety and stress among older patients*. Older adults may overestimate the severity of their condition and its evolution. In addition, the emergency department may be stressful to them. Another issue discussed is the *importance of conducting a functional assessment* of the client to predict possible readmission as well as assist with discharge planning. Overall, the researchers make 5 recommendations for the care of a geriatric population in an emergency department: 1) Staff education on older adult needs – providing an attentive and calm manner to reassure older clients, provide them with information about their disease, waiting times, and the reasons for the wait. 2) Adequate instruction and information on discharge guidelines in writing and verbally. 3) Obtaining information on functional status on admit from primary care providers. 4) Physical, mental, and social status of the older client should be systematically assessed. 5) The client's medication list should be reviewed to avoid polypharmacy.

Critical Appraisal: This article presents an important summary of the importance of staff and patient factors contributing to the care experience in emergency departments. The article provides demographic information on older adult users of emergency services, and illustrates how their unique needs may not be met in current emergency situations.

Nerney, M.P., Chin, M.H., Jin, L., Karrison, T., Walter, J., Mulliken, R., Miller, A., Hayley, D.C., Friedmann, P.D. (2001). Factors associated with older patients' satisfaction with care in an inner-city emergency department. *Annals of Emergency Medicine*, 38, 140-145.

Keywords: *satisfaction, care quality, waiting time, perception*

Relevance=2

This study examined older patients' satisfaction with care in a Chicago emergency department using a Likert scale. Important findings were that older adults who perceived that time spent in the emergency department was not "too long" experienced greater satisfaction with their hospital experience. In addition, patients who felt that staff clearly answered their questions regarding why tests were being done, involved them in decisions, and addressed their pain fully (studies show that analgesics are underused in the emergency department), also felt more satisfied. It was concluded that in order to improve care quality for older adults in an emergency department, staff should be more attentive to older patients' concerns, questions, pain, and perceived waiting time. *Research has indicated that perception of waiting time is a much stronger correlate of satisfaction than actual wait times.* Thus, in order to be more senior-friendly, staff should make efforts to reduce the perception of long wait times. This can be done by improving staff friendliness, updating patients on the reasons for delays, or expanding volunteer roles to ensure that individuals are comfortable.

Critical Appraisal: The authors of this study make it clear that it is perceived waiting times, as opposed to actual waiting times that influence patient satisfaction in the emergency department. There were several limitations to this study. Firstly, it was limited to one urban academic emergency department in Chicago with a predominantly African American population. Thus, results may not be generalizable to other cultural groups. Further, many patients who declined to participate in the study were either too ill, or were occupied with physicians. These participants could have provided some information that was not elicited from the sample obtained. In addition to these limitations, patients were surveyed about their experience two weeks after their release from the emergency department. This delay may have produced a recall bias.

O'Keeffe, J. (2004). Creating a senior-friendly physical environment in our hospitals. *Geriatrics Today: Journal of the Canadian Geriatric Society*, 7, 49-52.

Relevance=3

Keywords: *physical environment, senior-friendly, accessibility*

This article gives useful Canadian-based statistics to use as a motivation for creating senior-friendly hospital environments. Older adults constitute 63% of all hospital stays in Ontario. Due to the special needs of seniors, it is important for hospitals to create policies and procedures to address the special needs of this population. O'Keeffe is an occupational therapist who conducted an extensive literature review to compile a set of guidelines representative of a senior-friendly physical environment. The belief is that by creating a more senior-friendly hospital experience, older adults will have timely recovery, discharge, and care costs will be reduced.

In order to be senior friendly, a hospital should provide an appropriate physical environment, process of care, ethical approach, and positive emotional/behavioural environment. O'Keeffe highlights the importance of an appropriate physical environment to decrease functional loss and care costs involved in older adult visits.

Critical Appraisal: This article provides a comprehensive list of emergency department modifications that would enhance the hospital experience of older adults. Despite this valuable information, O'Keeffe does not adequately site where she obtained specific measurements (e.g. chair heights and recommendations for specific lighting levels).

Pinto, M.R., De Medici, S., Zlotnicki, A., Bianchi, A., Sant, C., & Napoli, C. (1997). Reduced visual acuity in elderly people: The role of ergonomics and gerontechnology. *Age & Ageing, 26*, 339-344. *Relevance=2*

Keywords: *ergonomic design*

This article is a commentary, which explores the challenges of aging. The main focus is on ergonomic design, more specifically, lighting, furniture, flooring, doors, and windows. The authors make recommendations for improving technological design of areas used by older adults.

Critical Appraisal: Since this article is commentary it is not considered to be high level of evidence. However, the authors all have a medical background, and one with experience in ergonomics. The recommendations that are provided are specific, with pictures to assist with the clarity. More than one recommendation for each problem is provided to allow for flexibility in choice. Financial cost for the suggestions is not acknowledged as a potential barrier for facilities attempting to modify their environment.

Spence, A. P. (1999). *Biology of human aging (2nd ed.)*. Upper Saddle River, NJ: Prentice Hall, Inc. *Relevance=1*

Keywords: *aging, physiological changes*

This book provides a detailed description of the physiological changes that occur with aging. First, theories of aging are presented. Subsequently, a chapter dedicated to each of the body's systems. An explanation of the structures involved in the systems is presented, linked with a review of their functions. The age-related changes within the system are explained, with emphasis on the most common changes. The chapter concludes by providing information on the age-related dysfunction of the system.

Critical Appraisal: This text acts as an excellent reference book. The table of contents is easy to navigate due to presenting individual systems. It is beneficial to be able to compare the age-related changes with the dysfunctional age-related changes. The diagrams presented are basic, but contain thorough information. Finally, at the end of every chapter is a bibliography that contains articles from reputable journals.

Stevens, M., D'Arcy, C., Holman, J., & Bennett, N. (2001). Preventing falls in older people: Impact of an intervention to reduce environmental hazards in the home. *Journal of the American Geriatrics Society, 49*, 1442-1447. *Relevance=1*

Keywords: *falls, home hazards, seniors*

This article evaluates the impact of an intervention to reduce fall hazards in the homes of older people. Education on fall prevention and ways to reduce identified home hazards was provided to 570 subjects age 70+. Overall, the intervention was found to have a positive impact on the population.

Critical Appraisal: Large sample size used for this study. A clear description of the study's method was provided, therefore making the study easy to replicate. The recommendations discussed in the paper were all very straightforward and easy to implement. However, more specific details would have been appropriate for some of the suggestions made (i.e. measurements of seat height).

Stone, M., Ahmed, J., Evans, J. (2000). The continuing risk of domestic hot water scalds to the elderly. *Burns*, 26, 347-350. *Relevance=2*

Keywords: *scald, burn, elderly, hot water, thermostats*

This article describes a study where the researchers visited private homes of older adults and residential care facilities to ascertain the temperature of the water. The motivation for this research was based on the high incidence of older adults who were being scalded in the community by high water temperatures. Older adults are at particular risk for burns based on their thin skin and slower reaction times to remove their hands from a heat source.

Based on objective temperature readings of water taps in the community, it was determined that water temperature should be delivered at less than 43 degrees Celsius to avoid scalding. The hot water temperatures observed in 25 homes in the current study were 35.4-74.8 degrees Celsius. These temperatures were deemed excessively hot. The authors recommend that homes and residential care facilities should be equipped with a thermostatic mixing device that helps to regulate water temperature. These “fail safe” devices are used in some hospitals in England, where the study occurs. Should water temperatures rise above 43 degrees Celsius, the flow of cold water increases instantly.

Critical Appraisal: The current study was very straightforward and objective in its methodology and provides important recommendations for the safety of older adults living in the community. This can also apply to a hospital setting.

Watson, G.R. (2001). Low vision in the geriatric population: Rehabilitation and management. *Journal of the American Geriatrics Society*, 49, 317-330. *Relevance=2*

Keywords: *visual impairment, aging, rehabilitation*

This article focuses on the common age-related adjustments in vision, the most common visual impairments related to aging, and the ensuing functional implications. The author provides the reader with information on environmental evaluations and modifications. This article also provides emphasis on the importance of social support for older adults with visual impairments.

Critical Appraisal: Authors discuss low-vision devices and provide the reader with ways to make an environment more visually accessible. Some of their recommendations need to be more specific. For example, the size of signs was suggested to be in “large print”. It would be more beneficial for the reader to have specific details about what is considered “large”. Furthermore, the feasibility of the recommendations is not discussed.

Wilber, S.T., Burger, B., Gerson, L.W., Bianda, M. (2005). Reclining chairs reduce pain from gurneys in older emergency department patients: a randomized controlled trial. *Academic Emergency Medicine*, 12, 119-123. *Relevance=3*

Keywords: *pain, comfort, waiting time*

This article discusses the concept that pain related to spending long time periods on a stretcher is a common complaint of older adults in the emergency department. The authors hypothesized that these patients may experience less pain and increased satisfaction if permitted to sit in a reclining hospital chair instead of a stretcher. Pilot work involving focus groups showed that after 2 hours of time spent on a stretcher, older adults reported discomfort. Contributing factors of this discomfort likely include thin foam mattresses and poor positioning (hips flexed between 45-90 degrees, and legs fully extended, and a view of only the ceiling) that may exacerbate chronic back problems. An alternative to the stretcher is the reclining chair. Patients can sit in these chairs with the hips and knees flexed. Using Likert scales, patients reported pain and satisfaction at specific time intervals of sitting in a reclined chair or hospital stretcher after seeing a triage nurse. It was found that clients who sat in the reclined

chairs reported less pain and increased satisfaction related to those in the stretcher group. A simple change of chair type may facilitate an improved emergency department experience in older adults using emergency services.

Critical Appraisal: One major limitation to this study was that despite randomization, the groups in this study were unequal at baseline. The chair group complained of more pain at baseline and had a longer time from arrival to randomization. This could have affected the internal validity of the study. This effect, however, may not be an issue, since the chair group had a marked reduction in pain, and the stretcher group had an increase in pain.

CONSOLIDATION OF RECOMMENDATIONS

Environmental Component	Support	Hamilton General Hospital	Henderson General Hospital	McMaster University Medical Centre
Staff	Friendly staff		X	X
	Security guard	X	X	X
	Interpreters	X	X	X
ED entrance/exit	Entrance signs	X	X	X
	Covering	X	X	X
	Ramp/surface	X	X	
	Automatic doors	X	X	X
	Parking spots	X	X	X
	Wheelchair accessible parking spots	X	X	X
	No stairs	X	X	X
	Horizontal line at the exit		X	
	Exit push buttons	X	X	
Equipment & Resources	Wheelchairs for portering	X	X	X
	Information pamphlets	X	X	X
	Commodes		X	
	Crutches and canes	X		X
Noise	Limited number of paging		X	X
	Limited area of paging	X		
	Television at a low volume		X	X
Signage	Perpendicular signs	X	X	X
	Clear signage		X	
Lighting	Natural light	X		X
	Lights dimmed at night		X	
	Blinds on windows		X	X
	Individual lights above each bed		X	
Furniture	Tables with rounded corners	X	X	X

Environmental Component	Support	Hamilton General Hospital	Henderson General Hospital	McMaster University Medical Centre
Furniture cont'd	Firm padding on chairs	X		
Washrooms	Tilted mirror	X		
	Lever style taps in most washrooms	X	X	X
	Low toilet seats	X	X	X
Other	No mirrors	X	X	X
	Variety of foods	X	X	X
	Colour contrast between baseboard and wall	X	X	X

Environmental Component	Barrier	Hamilton General Hospital	Henderson General Hospital	McMaster University Medical Centre
Artwork	Pictures on ceiling			X
	Laminated pictures ++ glare	X	X	
Noise	Constant noises	X	X	X
Privacy	Curtains	X	X	X
Orientation	No visible clocks in waiting room	X	X	X
	No calendars	X	X	X
Signage	Signage clutter	X	X	X
	Folded and curled signs	X		X
	Poor signage for waiting room washroom		X	
Seating	Slippery chair material	X	X	X
	No armrests on some chairs	X	X	X
	No cushioning on some chairs			X
	Chairs with a backrest of 90 degrees			X
	Low seat to floor height for some chairs	X		X
	Small seat depth	X		
	Large seat depth			X
	Chairs on wheels	X		
	Unstable chairs	X		
Equipment	Limited walkers	X	X	X
	No footrests on wheelchairs		X	
	Limited of blankets		X	
	Non functional breaks on commodes	X		
	Thin stretcher cushions	X	X	X
	Small stretcher width for bariatric patients	X	X	X
	Stretchers have limited lowering capability	X	X	X
Storage	Scattered equipment	X		X
	Scattered garbage bins without lids		X	

Environmental Component	Barrier	Hamilton General Hospital	Henderson General Hospital	McMaster University Medical Centre
Storage cont'd	Patients' belongings stored under stretcher	X	X	X
	Washroom used as storage			X
Psychosocial	No auditory amplifiers	X	X	X
	Inappropriate communication with patients	X		
Lighting	No overhead lights for stretchers	X	X	
	Shadows	X		X
	Fluorescent lighting in hallways (never dimmed)	X		X
	Low wattage of lights			X
Call bells	Limited patient access	X	X	X
	Thin call bell cord	X	X	X
	Minimal contrast against wall	X	X	X
	No call bell in resuscitation room or nurse present with patient in the room			X
FUNCTIONAL AREAS				
Entryway	Excess smoking within 15 feet of building	X		
	No horizontal line to prevent wandering	X		X
	Carpets posing a tripping hazard	X		
	Faint entryway markings on ground			X
Registration	High desk	X		X
Triage	High desk		X	X
Waiting Room	Low water fountain		X	
	Mats		X	
	High payphones		X	
	Glare on floor	X		X
	No solid floor colour	X	X	X
	Limited viewing by staff	X		X
Hallway	Speckled hallway		X	
	No handrails		X	X

Environmental Component	Barrier	Hamilton General Hospital	Henderson General Hospital	McMaster University Medical Centre
Washrooms	Some taps are turn style			X
	Faint or missing red and blue symbols on the taps	X	X	X
	No temperature control	X	X	X
	Toilet flushers are the same colour as the rest of the toilet		X	
	Small locks on doors	X		X
	Washroom door heavy		X	X
	Small washroom		X	X
	Doorknob to open washroom		X	
	Washroom door did not open outward			X
	Wheelchair inaccessible paper towel dispenser	X		X
	Difficult to manage paper towel dispenser			X
	Low toilet	X		X
	Limited grab bars	X		
	Small doorway			X
Food	Sandwiches made on buns			X

Environmental Assessment of the
Hamilton General Hospital Emergency Department, Hamilton Ontario
March 6, 2005

SENIOR-FRIENDLY ASPECTS OF THE ENVIRONMENT:

Environmental Component	Support	Rationale
Staff	A security guard is present at the front and rear entrance to the ED 24 hours per day.	Having a security guard present all the time, can be a helpful resource for patients who may be disoriented or need assistance. However, it is important to keep in mind that although security guards are very helpful, they may intimidate some of the patients.
	Interpreters are available (there is a list of staff who can speak different languages) for patients who do not speak English.	Having interpreters available will help promote communication in all patients who might not have English as their first language.
ED entrance/exit	The Emergency entrance is marked well by large signs that can be lit up at night	The large signs can easily be seen from the street during the day or at night for clear visibility.
	There is a covered entrance at the ED where patients can be dropped off whether they arrive by ambulance or by car.	The covering helps to keep the entrance clear from poor weather conditions. Having a dry entrance will help limit the occurrences of patient falls.
	The ramp to enter the hospital is on a gradual incline	The gradual incline provides accessibility for wheelchair users to negotiate the ramp
	The front entrance to the ED consists of 2 automatic doors that have motion sensors.	Automatic doors make it easier to enter the ED for patients who are using assistive devices, are in a wheelchair, or have limited muscle strength.
	15 minute parking spots available near the ED entrance.	Caregivers can easily assist individuals to safely enter the ED from the front door
	No stairs act as a barrier to entering the ED.	The lack of stairs upon entry will ensure that individuals using walkers or wheelchairs will have easy access to the ED.

Environmental Component	Support	Rationale
ED entrance/exit cont'd	Several portering wheelchairs were available outside of the main entrance, directly located at the drop-off zone.	Portering chair availability ensures that patients with reduced mobility can safely enter the department.
	There are large yellow buttons on the wall that allow automatic exit from the ED. There are signs that indicate this.	The patients need the cognitive ability to read and process the procedure required to exit, which may prevent wandering outside of the ED.
	Upon entry to all rooms, doorways were a minimum of 32 in.	Sufficient width for wheelchair access
Lighting	There are individual lights above each bed that can be turned off at night for each patient.	Dimming the lights at night will help patients with their orientation of time and day.
Equipment & Resources	Ample seating in waiting rooms.	Opportunity for patients to sit if experiencing a lengthy wait to see a physician.
	Some examination rooms are separated by solid walls and doors, providing privacy	Solid walls improve patient privacy.
	Information pamphlets available in the hallways.	The pamphlets can help keep patients up to date with their care and provide them with valuable information.
	A variety of crutches and canes available for patients	This helps to ensure that clients with differing mobility needs can safely ambulate.
Noise	Overhead paging is not audible beyond the waiting areas.	Agitation is increased by increased noise levels in older adults with dementia.
Signage	Some signs in the hallways are perpendicular to the wall	Having signs that are visible upon approach will help patients who have impaired vision or who are easily confused or disoriented.
Lighting	Large windows in the waiting rooms and examining rooms to provide natural light.	Natural light is more appropriate for older adults than fluorescent light.
Furniture	All of the chairs in the waiting room had firm padding.	Chairs provide support to the pelvis and lower legs.
	The table in the waiting room has rounded corners.	The rounded corners may help to prevent injury.
Washroom	There is a tilted mirror in the washroom	Provides wheelchair users with access to the mirror.
	The taps in the washroom are lever style	The lever style taps are easier to manipulate for patients with decreased hand dexterity.

Environmental Component	Support	Rationale
Other	Contrast baseboard used along the wall.	Contrast helps to discriminate the walls from the floors.
	A variety of foods are available for patients.	Meals are provided to the admitted patients who sit in the ED awaiting beds. Foods are tailored to meet the patient's specific needs.
	No mirrors were hung in the hallways or the waiting room. There were small circular mirrors at ceiling height used to check around corners to avoid collisions.	Mirrors not visible to patients. This is appropriate, as mirrors are a source of confusion for patients with dementia.

Priority Codes:

*Low priority: This barrier is not an immediate area of concern. Safety is not a concern; however, patient comfort may be compromised for some users. Recommendation should be implemented if the institution has extra available resources.

** Medium priority: This barrier is of a moderate concern. Safety and comfort may be an issue for most patient users. Recommendation should be implemented as soon as the institution has the available resources.

*** High Priority: This barrier is an immediate concern. Patient safety is being compromised. Recommendation should be implemented immediately since there is a health risk to patient users.

Diagram Legend:

◆ Recommendation is simple to implement (requires minimal effort and resources) and would improve patient comfort/care significantly.

⊗ Diagram of commercially available product.

♣ Photograph from site accompanies recommendation.

ENVIRONMENTAL BARRIERS

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Artwork	The artwork in the waiting room consisted of laminated information posters with glare.	The art should consist of pictures that are covered by glare resistant glass or matte finish (O’Keeffe, 2004).	This will help those patients with visual changes related to aging, including sensitivity to glare (O’Keeffe, 2004).	*
Noise	The general noises in the ED include the following: noise from medical equipment (e.g. heart monitor) and staff talking. Overhead paging is not audible beyond the waiting areas.	A vibrating paging system should be used as an alternative to the overhead paging in the waiting room.	The decrease in noise will help control for agitation in older adults with dementia.	*
	There was ++ overhead noise in waiting room #2 from two nearby vending machines and the paging system (9 pages heard over a 30 min period in the waiting room). NOTE This environmental assessment was performed on a quiet day, so this may not be a representative description.	Keep paging to a minimum and maintain vending machine to ensure that it does not produce as much noise/remove vending machine from room and place elsewhere. The vending machine could be placed in a corner in the hallway so that it does not disrupt patient flow).	High noise levels can lead to anxiety, confusion, and fatigue from over stimulation and difficulty hearing (O’Keeffe, 2004).	*

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Privacy	Curtains divided the areas between patients in all of the treatment rooms, which has an impact on confidentiality.	Doors should be used for treatment rooms. Using cubicle dividers as well as curtains might increase patient privacy (Barlas, Sama, Ward, & Lesser, 2001). If this is not feasible, consider conducting most conversations of a delicate/private matter in the triage assessment room.	By providing solid partitions the patients' perceived privacy will improve (Barlas, Sama, Ward, & Lesser, 2001). This in turn may ensure confidentiality and increase overall communication.	*
Orientation	Throughout the department there are 3 large analogue clocks. However, they were not visible for many of the patients.	The placement of these clocks should be in the patients' line of sight, whether from a stretcher bay or hallway bed (O'Keeffe, 2004). Furthermore, it is suggested that the clocks are digital (Shulman, 2000).	Improved patient orientation and wayfinding.	** ♦
	There are no calendars accessible to patients.	Calendars should be visible ideally with the days crossed off which have passed.	As patients may be in the department for numerous days, calendars provide orientation cues (O'Keeffe, 2004).	* ♦
Signage	No signage in waiting rooms to indicate where to locate this room, or to define it as a waiting room.	Signs perpendicular to the wall would be beneficial for orientation containing light letters on a dark background (O'Keeffe, 2004).	Improved orientation and wayfinding.	*

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Signage cont'd	There are several signs in the waiting room (e.g. what to expect during an ED visit). (♣ pictures 1 & 2)	Signs should be kept to a minimum.	The cluster of signs may result in confusion in older adults with dementia	* ♦
	Some of the signs are folded, or curled at the edges, making them challenging to read. (♣ picture 3)	The signs need to be large and clear, ensuring that all patients can easily read them (Watson, 2001).	Ease of reading for all patients.	* ♦
Seating	There are two chairs in the triage assessment room. One is on rolling wheels (no armrests) and the other is stationary, but unsteady (likely to tip) with thin, desk-length armrests.	The seats should be stationary 17-19 in high; 18-20 in deep, and have armrests 10 in above the seat (O'Keeffe, 2004; Bakker, 2000).	Appropriate seating will improve patient safety.	***
	Unstable stationary chairs in the triage assessment and registration room.	Chairs should be stabilized with four points of support.	Improved stability will increase patient safety. Currently the chairs may pose a forward tipping hazard.	***
	Several chairs in the emergency department did not have armrests.	All chairs should have armrests that have a flat top and are located 10" above the seat height (recommended seat height, 17-19") (O'Keeffe, 2004).	Armrests help assist with transferring and provide support while sitting (O'Keeffe, 2004). Also, while transferring, weight can be distributed among upper and lower extremities.	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Seating cont'd	The chairs are low (h=15 ½ in) and not deep (d=16 in) with low armrests (8 ½ in from seat). Only some chairs have non-slip fabric.	The seats should be 17-19 in high; 18-20 in deep, and have armrests 10 in above the seat (O'Keeffe, 2004; Bakker, 2000). All chairs have a moisture barrier to protect from incontinence (Bakker, 2000).	Higher seats will assist patients with limited mobility to transfer from sit/stand with greater ease.	**
Equipment/ Resources	Only one standard walker available for patient use.	There should be a variety of walkers available.	A variety of walkers will meet the different ambulation needs of ED patients and encourage safe ambulation.	**
	There are three commodes available to fit over toilets (these are located in a storage area far from the patient washroom). They do not have functional brakes.	Commode should be made available in the washroom and should be in good repair.	A commode in good repair will safely raise the toilet seat height.	***
	The stretcher cushion depth is 2 ½ in and does not provide pressure relief.	Stretcher cushions should be equipped to provide minimal pressure relief (O'Keeffe, 2004) for older adults with poor skin integrity/incontinence who may be spending ++time in bed. Such a stretcher is available from Stryker Medical (⊗). The Extended Stay Stretcher may be an option.	The current cushion does not provide adequate pressure relief to older adults with compromised skin integrity/incontinence during long waiting times.	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Equipment/ Resources cont'd	Most of the ED stretchers can only lower down to 24 inches in height.	Stretchers should be lowered to 18 inches high to ensure that patients who are mobile can ambulate to the washroom as needed (O'Keefe, 2004). Step stools are provided to assist clients with getting in/out of the stretchers; however, older adults with balance issues/knee/hip problems, may find it difficult to use these stools. Currently, there is no stretcher available on the market that lowers to a height of 18 inches. The Extended Stay Stretcher from Stryker Medical, however, reaches a minimal height of 22 inches.	Lower stretchers will give patients more independence with getting out of bed to ambulate. Decreased ambulation during hospital visits has been associated with a higher incidence of delirium in older adults (Inouye, et al., 2000).	**
	The stretchers are 26 inches wide.	Wider stretchers should be made available for bariatric patients. A 34 inch wide stretcher is available from Stryker Medical (⊗) and would meet the needs of a bariatric population (holds up to 500 pounds).	Although a 26 inch wide stretcher would be wide enough for most patients, there need to be alternative stretchers for bariatric patients.	*
	The hallway contained an informative laminated poster regarding the reason for increased waiting times; however, this poster had small print and ++ glare.	Poster lamination should be non-glare.	This will help those patients with visual changes related to aging, including sensitivity to glare (O'Keefe, 2004).	* ♦

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Equipment/ Resources cont'd	There was a small alcove in the room that contained a rack with ++ brochures on different health related topics. However the rack was quite large and high. To access all materials, one had to reach a height of 70 in.	Materials should be within reach for wheelchair users. A height of 32-49 inches (MS Society, 2003) would be ideal.	Educational information should be available to all clients, including older adults who may be wheelchair users.	*
	Posters on the wall were educational (e.g. what to expect from your ED visit as a patient); however, they were poorly placed in this alcove and had small print.	Posters should be placed within the patient's line of sight to ensure that information is read. Prioritize which informational material is the most pertinent for patients to be aware of and place all other information in a well organized, appropriate location. Font on posters should range from 18-25 point font, with headings and subheadings up to 72 (1 inch) (T. Harper, personal communication, May 18, 2005).	Improved organization and readability will assist with patient education and understanding of ED process.	* ♦
	There were many posters on the wall, displayed in a cluttered manner.	Posters should be more widely dispersed to limit confusion in patients with dementia. Prioritize which informational material is the most pertinent for patients to be aware of and place all other information in a well organized, appropriate location.	Improved organization and readability will assist with patient education and understanding of ED process.	* ♦

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Storage	The hallway was used as a storage area for some items- a cleaning cart, laundry, garbage, and a wheelchair. (♣ pictures 5 & 6)	Any items that do not need to be stored in the hallway should be kept in the specified storage rooms (O’Keeffe, 2004).	This will decrease tripping hazards.	*** ♦
	There is no secure place to store personal belongings. Some patients may become protective of their things, or fearful that they will lose their belongings or have them stolen. Currently, belongings are stored below the patient’s stretcher.	There should be lockers made available for the patient’s personal possessions (Marx & Cohen-Mansfield, 2003).	Ensure a sense of security among patients.	*
Psychosocial	There are no auditory amplifiers available within the ED.	The ED should have available devices that can assist with the patients’ ability to communicate with the staff in the ED (O’Keeffe, 2004). A pocket talker could be a viable option (⊗)	Lack of sensory aids is one predictor of delirium (Inouye, Bogardus, Baker, Leo-Summers, & Cooney, 2000). Auditory devices will assist with privacy, as it would not be necessary for staff to raise the volume of their voices while communicating with patients with hearing impairments.	*
	During the observation, a staff member referred to a patient’s wife as ‘sweetie’.	Age appropriate language which demonstrates respect should be used when interacting with a patient or family member.	Patient and family member will feel respected and this may improve patient-health care worker relations.	* ♦

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Lighting	There were no lights over the head of the stretcher in the patient areas for patients to control how much light they receive.	Lights should be installed on the ceilings/wall above patient beds.	Having more control over lighting will help the patients have more control over their environment (Bakker, 2000).	*
	There is ++ natural light in the waiting room and hallway; however, as lighting changes outside during the day, both shadows and glare become challenges in this ED. (♣ pictures 6 & 7)	Shadows need to be minimized with curtains/blinds.	Minimizing shadows will help to help decrease confusion in individuals with dementia or those with visual impairments (Pinto et al., 1997; Brawley & Taylor, 2002).	* ♦
	Hallway lights are not dimmed at night for patients in hallway stretchers since this is the main thoroughfare for all other patients coming into the department.	Patients may be given the option of having a nighttime mask to block out light. Electronic dimmers are also suggested to help with the transition in changes of light (Brawley, 2001).	Dimming the lights at night will help patients with their orientation of time and day.	*
Call bells	No call bells are available to patients in hallway beds. This poses a safety concern	Call bells should be available to all patients.	Improved communication via call bells with staff will increase patients' sense of comfort and improve safety.	***
	The call bell cord is thin.	A thick cord with a loop at the end should be used.	Having thicker strings will help patients with fine motor impairments. A loop at the end of the string will allow patients to access the bell without having to grasp the string.	***

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Call bells cont'd	The washroom call bell is a red button 39 in from the ground. There is no sting to pull if the patient were to fall.	A cord should be attached to the button for the patient to pull if a fall were to occur.	The client would be able to call for help if on the floor.	*** ♦
<u>FUNCTIONAL AREAS</u>				
ED Entry	The sidewalk outside of the ED has a visible non-smoking sign; however, a non-smoking policy is not enforced and there are many individuals standing outside of the main entrance smoking cigarettes.	Non-smoking policy should be enforced.	Smoking may aggravate respiratory conditions or provide a safety hazard for clients receiving oxygen treatment.	***
	No deterrent to wandering patients at exit/entry.	Horizontal lines should be used on the floor around the exit areas.	Horizontal lines may help decrease wandering in patients with cognitive impairment (Price, Hermans, & Grimley Evans, 2005).	**
	The hallway contains two carpets (one navy, and the other black) where people can wipe their shoes upon entry if the weather outside is rainy/snowy; in addition, the carpets are not well secured to the ground, posing a tripping hazard. This is a seasonal issue.	The carpets should be removed, and the floors be made non-skid if people come in with wet shoes.	<p>Carpeting may pose a problem for patients with dementia who may perceive these carpets to be holes in the ground.</p> <p>Unsecured carpeting poses a tripping hazard for all patients.</p>	***

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Registration	The nursing desk has 2 windows. One window is 36 ½ inches high and the other is 43 ½ inches high. It is unclear from any signage, which window is to be used to communicate with staff.	Clear signage as to the location patients and/or family members should proceed may help to decrease confusion and increase efficiency.	Improved patient orientation and wayfinding.	*
	The staff at the registration desk has limited viewing ability. They can only see the patients waiting in the hallway, but not in the other two waiting rooms. If a patient were to fall in the waiting room area, the staff may not be able to see them if they are around a corner.	An accessible call bell should be installed in the waiting rooms to ensure that any patient safety concerns can be addressed by a hospital staff member immediately.	Call bell installation will improve patient safety/perceived safety.	**
Waiting Room 1	No signage to indicate where to locate this room, or to define it as a waiting room.	Signs perpendicular to the wall would be beneficial for orientation containing light letters on a dark background (O’Keeffe, 2004).	Improved patient orientation and wayfinding.	*
	The floors in the waiting room have a waxy finish that may contribute to falls. In addition, the floor has ++ glare.	A non-glare finish should be used on all the floors to help individuals with visual impairments (Brawley & Taylor, 2002; Watson, 2001). A curtain could also be drawn to minimize light entry.	Excessive glare and fluctuating light levels may be confusing for an older adult or those with poor vision (O’Keeffe, 2004)	*

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Waiting Room 1 cont'd	The floors have black and white speckled tiles.	The floors should be one solid colour.	A solid colour will minimize confusion in older clients with visual impairments or dementia (Bakker, 2000).	**
	There is one call button in this room (53 in from ground); however, there is a garbage can in front of it, which makes it less accessible to wheelchair users. There is no string to pull to access the button if a patient were to fall.	Ensure that materials (wastebaskets, carts, etc) are kept clear of safety items.	Accessibility to the call bell will improve patient safety.	***
	This room had large windows to allow for natural lighting; however, this produced ++ glare and shadows at different times of the day. There were no curtains/blinds to adjust light levels.	Curtains should be hung or blinds installed to limit light entry and decrease glare.	Excessive glare and fluctuating light levels may be confusing for an older adult or those with poor vision (O'Keefe, 2004)	* ♦
Observation Suite 1	Nursing station in the observation suite is situated away from most of the patient beds. This reduces the ability for patients to be monitored on an ongoing basis.	The nursing desk should be moved to a more central location, cameras should be installed to monitor patient activity via a circuit television at the nursing desk, or convex mirrors installed at corners.	Nurses will be able to monitor patient activity for safety purposes.	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Observation Suite 1 cont'd	Each stretcher bay is equipped with a call bell; however, on the day of this assessment, patients occupied in these beds were not able to reach these bells (the attached cord was coiled and far from reach). This poses a safety concern.	Call bell should be within patient's reach and the terminal device should be large enough for the patient to see/press.	Safety purposes and flexibility for patients' functional ability.	***
Washroom	This ED only has one patient washroom that is not indicated by signage in the hallways.	Another washroom should be installed. A convenient location would be near the patient waiting rooms. There is currently no washroom for waiting room patients to use; however, a washroom is available in the ED proper for patients occupying beds.	Older adults would not be able to easily access this washroom, as it is not demarcated by signs and is located in the examination area of the ED, which is removed from the treatment areas. Currently, patients occupying beds and waiting room patients use this facility. Thus, individuals may experience long waiting times to use it during times of high patient volume.	***
	Sign on washroom door has gender identification; however, the sign had poor colour contrast. It was dark blue with slightly lighter blue male and female symbols.	Better contrast for washroom door signage via large male/female symbols and writing.	Better signage will assist with patient orientation/wayfinding	*

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Washroom cont'd	There is a small turn lock on the door.	The lock should be made larger.	A larger lock would assist those with limited dexterity.	*
	The paper towel dispenser is 55 inches above the floor.	The dispenser should be located a maximum of 47 inches from the floor (O'Keeffe, 2004).	A height of 47 inches is ideal for wheelchair users.	*
	The temperature demarcation for the taps is not made with colour. There is one small C on the cold tap, but nothing on the hot one. There is no temperature control, and this could increase the likelihood of burns.	The temperature should be regulated to avoid burns for a patient with diminished sensory ability. It is important to monitor the temperature of the sinks to ensure that patients do not scald themselves. Valve connecting the hot and cold water supplied can be easily fitted to the hot water outlet. If the temperature of the hot water rises about 43 degrees Celsius, the cold water flow will increase immediately (Stone, Ahmed, & Evans, 2000).	Temperature controlled taps would improve patient safety.	***
	The toilet height is 15 ½ in. There is no accessible raised toilet seat or commode available in the room.	Toilets should be at least 18 inches off the floor. This could be achieved by a raised toilet seat or use of a commode over toilet, or by adding a versa frame (⊗)	18 in is an optimal height to help individuals with limited range of motion, poor balance to use the toilet. (O'Keeffe, 2004).	**◆
	A diagonal grab bar is located to the left of the toilet. There is no support on the right side of the toilet.	A versa frame could be installed.	Additional support would assist patients who have compromised balance.	*

Environmental Assessment of the
Henderson Hospital Emergency Department, Hamilton Ontario
March 31, 2005

SENIOR-FRIENDLY ASPECTS OF THE ENVIRONMENT:

Environmental Component	Support	Rationale
Staff	Emergency Department (ED) staff members were friendly during their communication with the patients.	Having good communication skills increases the ease of service delivery.
	A security guard is present at the front and rear entrance to the ED 24 hours per day.	Having a security guard present all the time, can be a helpful resource for patients who may be disoriented or need assistance. However, it is important to keep in mind that although security guards are very helpful, they may intimidate some of the patients.
	Interpreters are available (there is a list of staff who can speak different languages) for patients who do not speak English.	Having interpreters available will help promote communication in all patients who might not have English as their first language.
ED entrance/exit	The Emergency entrance is marked well by large signs.	The large signs can easily be seen from the street at day or at night.
	There is a covered entrance at the ED where patients can be dropped off whether they arrive by ambulance or by car.	The covering helps to keep the entrance clear from poor weather conditions. Having a dry entrance will help limit the occurrences of patient falls.
	The cement surface at the entrance is in good repair (smooth).	A smooth surface makes it easier to use a wheelchair upon entry. Also, the smoothness of the gravel will help limit the occurrences of patient falls.
	The front entrance to the ED consists of 2 automatic doors that have motion sensors.	Automatic doors will make it easier to enter the ED for patients who are using assistive devices, are in a wheelchair, or have limited muscle strength.
	15 minute parking spots available near the ED entrance.	Caregivers can easily assist individuals to safely enter the ED from the front door.

Environmental Component	Support	Rationale
ED entrance/exit cont'd	Wheelchair accessible parking spots available in front of the ED (x 2).	This will help meet the need of wheelchair users.
	No stairs act as a barrier to entering the ED.	The lack of stairs upon entry will ensure that individuals using walkers or wheelchairs will have easy access to the ED.
	At the exit from the waiting room there is a wide horizontal line on the floor.	Having a line on the floor at the exit may act as a deterrent from wandering out of the ED.
	There are large yellow buttons on the wall that allow automatic exit from the ED. There are signs that indicate this.	The patients need the cognitive ability to read and process the procedure required to exit, which may prevent wandering outside of the ED.
Equipment & Resources	Several portering wheelchairs were available outside of the main entrance, directly located at the drop-off zone.	Porting chair availability ensures that patients with reduced mobility can safely enter the department.
	Three stable commodes were located that fit over the toilet and have functional brakes.	Safe commodes will assist those who are limited with their mobility and require higher toilet seats.
	Information pamphlets available in the hallways.	The pamphlets can help keep patients up to date with their care and provide them with valuable information.
Noise	There was limited overhead paging during the assessment- 1 page in 1½ hours. NOTE This environmental assessment was performed on a quiet day, so this may not be a representative description.	The limited paging will help decrease disorientation or distress that some patients might feel.
	The television was at a minimal, yet audible volume in the waiting room.	The limited television volume will help decrease disorientation or distress that some patients might feel.
Signage	The signage within the ED communicated straightforward messages with a dark blue background and white letters or symbols for maximum contrast. The font size was appropriate.	Having well designed signs will help patients who have impaired vision or who are easily confused or disoriented.
	Some signs in the hallways are perpendicular to the wall	Having signs that are visible upon approach will help patients who have impaired vision or who are easily confused or disoriented.

Environmental Component	Support	Rationale
Lighting	The lights in the hallway are dimmed at night, so that every second panel of lights is turned off.	Dimming the lights at night will help patients with their orientation of time and day.
	There are individual lights above each bed that can be turned off at night for each patient.	Dimming the lights at night will help patients with their orientation of time and day.
Furniture	The table in the waiting room has rounded corners.	The rounded corners may help to prevent injury.
Washrooms	Lever style taps are available in all of the washrooms.	The lever style taps are easier to manipulate for patients with decreased hand dexterity.
Other	No mirrors were hung in the hallways or the waiting room. There were small circular mirrors at ceiling height used to check around corners to avoid collisions.	A limited number of mirrors will help to decrease patient agitation in individuals with dementia. The mirrors on the ceiling help staff monitor patients in various areas.
	A variety of foods are available for patients. Changes are currently taking place to ensure that high-protein and high-energy food is available for patients who are frail or malnourished.	Adequate food available meets the specific dietary needs of older adults.
	Contrast baseboard used along the wall.	Contrast helps to discriminate the walls from the floors.

Priority Codes:

*Low priority: This barrier is not an immediate area of concern. Safety is not a concern; however, patient comfort may be compromised for some users. Recommendation should be implemented if the institution has extra available resources.

** Medium priority: This barrier is of a moderate concern. Safety and comfort may be an issue for most patient users. Recommendation should be implemented as soon as the institution has the available resources.

*** High Priority: This barrier is an immediate concern. Patient safety is being compromised. Recommendation should be implemented immediately since there is a health risk to patient users.

Diagram Legend:

- ◆ Recommendation is simple to implement (requires minimal effort and resources) and would improve patient comfort/care significantly.
- ⊗ Diagram of commercially available product.
- ♣ Photograph from site accompanies recommendation.

ENVIRONMENTAL BARRIERS

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Artwork	The artwork in the waiting room consisted of laminated information posters with glare.	The art should consist of pictures that are covered by glare resistant glass or matte finish (O’Keeffe, 2004).	This will help those patients with visual changes related to aging, including sensitivity to glare (O’Keeffe, 2004).	*
Noise	A constant humming could be heard while in the triage room and while sitting in the Room 1 hallway chairs. This hum was coming from the refrigerator in the triage room.	This background noise should be limited by putting a door in this room (O’Keeffe, 2004).	The decrease in noise will help control for agitation in older adults with dementia.	*
Privacy	Curtains divided the areas between patients in all of the treatment rooms, which has an impact on confidentiality.	Doors should be used for treatment rooms. Using cubicle dividers as well as curtains might increase patient privacy (Barlas, Sama, Ward, & Lesser, 2001). If this is not feasible, consider conducting most conversations of a delicate/private matter in the triage assessment room.	By providing solid partitions the patients’ perceived privacy will improve (Barlas, Sama, Ward, & Lesser, 2001). This in turn may ensure confidentiality and increase overall communication.	*
Orientation	There was no clock available in the waiting room.	A digital clock should be placed in the waiting room (O’Keeffe, 2004).	To reduce agitation and increase orientation.	* ♦
	Throughout the department there are 3 large digital clocks. However, they were not visible for many of the patients.	The placement of these clocks should be in the patients’ line of sight, whether from a stretcher bay or hallway bed.	This will help increase orientation in clients.	* ♦

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Orientation cont'd	There are no calendars accessible to patients.	Calendars should be visible ideally with the days crossed off which have passed.	As patients may be in the department for numerous days, calendars provide orientation cues (O'Keeffe, 2004).	* ♦
Signage	Poor signage for the waiting room washroom.	Perpendicular signage either hanging from the ceiling or attached to the wall should be used for male and female washrooms.	Signage that is perpendicular to areas makes it easier to observe upon approaching (O'Keeffe, 2004).	**
	There were several signs at the triage desk.	The duplication of signs should be removed.	Limiting signage will decrease clutter and confusion (O'Keeffe, 2004).	* ♦
Seating	The chairs in the waiting room were covered in a bronze material that is slippery.	The chairs should be covered in a non-slip fabric.	Changing the material to non-slip fabric will help prevent individuals from sliding off the chair and falling (Bakker, 2000).	**
	Several chairs in the emergency department did not have armrests.	All chairs should have armrests that have a flat top and are located 10" above the seat height (recommended seat height, 17-19") (O'Keeffe, 2004).	Armrests help assist with transferring and provide support while sitting (O'Keeffe, 2004). Also, while transferring, weight can be distributed among upper and lower extremities.	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Equipment/ Resources	There are 2 standard walkers and 1 adjustable cane available for the patients. One of the walkers needed tools to adjust the height and had been adjusted so the front height did not match the rear height of adjustment.	Several walkers and canes should be made available. All equipment should be tested on a regular basis to ensure that it is safe to use.	In order for patients to be mobile, and to ambulate to the washroom, appropriate and safe equipment is required.	**
	Two wheelchairs were found around the ED. One did not have footrests.	The hospital wheelchairs should have footrests for patients who arrive by car and do not possess the ability to self-propel the wheelchair.	If someone is pushing the wheelchair for the patient they need footrests to avoid injury if they are not capable for flexing their knees while in motion.	**
	A limited number of blankets are available for patients.	An adequate supply of blankets should be available at the patients' bedside or at the end of their bed to ensure that they are comfortable.	Older adults have a lower body temperature, particularly if they are inactive in the ED (Spence, 1999). Also, there may be a draft from the open automatic doors for those patients located in close proximity to the front of the ED.	* ♦

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Equipment/ Resources	The stretcher cushion depth is 2 ½ in and does not provide pressure relief.	Stretcher cushions should be equipped to provide minimal pressure relief (O’Keeffe, 2004) for older adults with poor skin integrity/incontinence who may be spending ++time in bed. Such a stretcher is available from Stryker Medical (⊗). The Extended Stay Stretcher may be an option.	The current cushion does not provide adequate pressure relief to older adults with compromised skin integrity/incontinence during long waiting times.	**
	The stretchers are 25 ½ inches wide and consequently may be unstable or uncomfortable for bariatric patients.	Wider stretches should be made available for bariatric patients. A 34 inch wide stretcher is available from Stryker Medical (⊗) and would meet the needs of a bariatric population (holds up to 500 pounds).	Wider stretchers will help to increase comfort and stability in bariatric patients.	*
	Most of the ED stretchers can only lower down to 26 inches in height.	Beds should be lowered to at least 18 inches high (O’Keeffe, 2004). Step stools are provided to assist clients with getting in/out of the stretchers; however, older adults with balance issues/knee/hip problems, may find it difficult to use these stools. Currently, there is no stretcher available on the market that lowers to a height of 18 inches. The Extended Stay Stretcher from Stryker Medical, however, reaches a minimal height of 22 inches.	This will ensure that patients who are mobile can ambulate as needed. By having lower beds, patients who are shorter will be able to make full contact with the floor (O’Keeffe, 2004).	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Storage	Currently patients' belongings are stored under their stretcher.	A secure place should be identified to the patients where items can be stored (Marx & Cohen-Mansfield, 2003).	Patients are reminded to have their loved ones take any valuable possessions home. However, if patients are at times in the ED for several consecutive days they may have some items that they require.	*
	Garbage bins are scattered in the hallways without lids.	Garbage bins should be stored in appropriate places or tight lids should be used.	This will help decrease contamination.	*** ◆
	The hallway was used as a storage area for some items- a cleaning cart, laundry, garbage, and a wheelchair.	Any items that do not need to be stored in the hallway should be kept in the specified storage rooms (O'Keeffe, 2004).	This will decrease tripping hazards.	*** ◆
Psychosocial	There are no auditory amplifiers available within the ED.	The ED should have available devices that can assist with the patients' ability to communicate with the staff in the ED (O'Keeffe, 2004). A pocket talker could be a viable option (⊗)	Lack of sensory aids is one predictor of delirium. Auditory devices will assist with privacy, as it would not be necessary for staff to raise the volume of their voices while communicating with patients with hearing impairments.	*
Lighting	There were no lights over the head of the stretcher in the patient areas.	Lights should be installed above the stretchers.	Having more control over lighting will help the patients have more control over their environment (Bakker, 2000).	*

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Call bells	There are beige call bells with red buttons for the patients to alert staff and are wrapped up in a coil above the patients' beds.	The call bells should be brightly coloured or dark to ensure contrast with the wall colour. In order for the call bells to be used properly they must be located in an area that is easy for the patient to access from their stretcher. Staff should clearly communicate the purpose of the call bell and ensure through demonstration that patients are able to reach their call bell (Best, 2001).	With aging, contrast becomes difficult to distinguish. Accordingly, if the call bells have a distinct colour providing more contrast with the wall, the patients will be able to use them with greater ease. Also, if the bells are easily accessible they will be readily available for patient use.	***
	The call bell cord is thin.	A thick cord with a loop at the end should be used.	Having thicker cords will help patients with fine motor impairments. The loop at the end of the string will allow patients to access the bell without having to grasp the string.	***
	The call bell cord is wrapped around the grab bar in the washroom (♣ picture 1).	The call bell cords should be hanging freely for patients to access.	In order for the call bells to be used properly they must be located in an area that is easy for the patient to access should they fall.	*** ♦

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
<u>FUNCTIONAL AREAS</u>				
Triage	The triage desk is 51 inches high.	The desk should be lowered to a height of 39 inches (MS Society, 2003).	The lowered desk height will assist in the communication with patients who use a wheelchair.	*
Waiting Room	There is a fountain available in the waiting room. It is at a height of 42" and the spout is 4" from the exterior edge of the fountain. Directly adjacent to the fountain is a small partition wall that would make it difficult for a person using a wheelchair to access. The on handle is a round grooved handle that may pose to be a challenge to use for those with visual impairments or dexterity difficulties.	The handle should be lever style (O'Keeffe, 2004). It is recommended that a sleeve of disposable cups be attached to the wall.	The lever style handle will assist patients with decreased finger dexterity and hand function. The disposable cups will help maintain hydration in patients as well as family members (O'Keeffe, 2004).	*
	There were 2 large navy blue mats located in front of the registration and triage desk.	The mats should be a similar colour to the floor (Bakker, 2000). The mats should be carefully adjoined to the floor to avoid tripping (Bakker, 2000).	The contrast in the floor may be threatening for a patient who has compromised depth perception.	***

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Waiting Room	There are 2 payphones and 3 taxi phones available in the waiting room. The height needed to insert a coin is 54". The middle of the handles for the taxi phones is at a height of 62".	The payphones should be at a height between 32 and 49" (Multiple Sclerosis Society of Canada, 2003).	The telephones should be at an optimum position to ensure that patients in wheelchairs will be able to access them (Pinto, De Medici, Zlotnicki, Bianchi, Sant, & Napoli, 1997).	*
	The floors in the waiting room are white with random green tiles.	The floor should be one solid colour (Bakker, 2000).	Patients with perceptual difficulties or dementia may perceive the green tiles to be holes in the ground (Bakker, 2000).	**
Hallway	The flooring in the west hallway is a dark speckled green-black tile (♣ picture 2). The east hallway has a light green tile with occasional white tiles in a pattern (♣ picture 3).	The flooring should be a solid colour (Bakker, 2000).	This style of tiles may be difficult to walk on for those individuals with visual impairments or perception difficulties.	**
	There are no handrails in the emergency department.	A handrail should be secured to the wall opposite to the side that houses the hallway stretchers. These handrails should be 1.5 inches in diameter with 2 inch hand clearance and a rounded style for easy grip (O'Keeffe, 2004).	Handrails will help assist with ambulation.	*

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Washrooms (general recommendations for all ED washrooms)	Some of the toilet flushers are the same colour as the rest of the toilet.	The toilet flushers should be a different colour than the toilet, to assist individuals with visual impairments. Automatic flushers are recommended. If this is not possible, it is recommended that the flush levers extend beyond the toilet cover for easy access (O’Keeffe, 2004).	By having contrast between the toilet flushers and the toilet tank, patients with impaired colour discrimination will have easier ability to locate flusher handle.	*
	Faint red and blue symbols indicate which tap is hot and which is cold.	Symbols such as a large H and a C should be placed above the appropriate taps. Alternatively, taps with sensors should be installed.	Symbols may help decrease confusion in individuals who have impaired colour discrimination. Taps with sensors would alleviate having to regulate hot and cold water.	***
	The hot water taps in washrooms reach a hot temperature.	Valves connecting the hot and cold water supplies can be easily fitted to the hot water outlet. If the temperature of the hot water rises above 43 degrees Celcius the cold water flow will increase immediately (Stone, Ahmed, & Evans, 2000). Alternatively, taps with sensors should be installed.	The temperature should be regulated to avoid burns for a patient with diminished sensory ability (Stone, Ahmed, & Evans, 2000). Taps with sensors would alleviate having to regulate hot and cold water.	***

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Treatment Room #2 Washroom	There is a folding wooden door to the washroom that is difficult to open and close (♣ picture 4).	A straight door that opens outward should be used (Bakker, 2000).	If a patient were to fall in the washroom, a door that opens outward will ensure that health care workers can assist.	***
Waiting room washroom (female)	Currently the washroom is very small, as there is a divider (a stall) upon entrance (♣ picture 5).	There should be a sign indicating the location of a wheelchair accessible washroom.	This will ensure that patients in need of an accessible washroom will be able to find one.	*
	The washroom door is heavy.	A lightweight door should be installed.	This will assist patients who have limited muscle strength.	**
Hallway washroom	There is a doorknob to open this door.	Either an automatic door opener should be used or lever handles should be implemented.	Using an automatic door opener or lever handles will help individuals with poor dexterity or limited grip strength (O'Keefe, 2004).	*

Environmental Assessment of the
McMaster University Emergency Department, Hamilton Ontario
March 23, 2005

SENIOR-FRIENDLY ASPECTS OF THE ENVIRONMENT:

Environmental Component	Support	Rationale
Staff	Emergency Department (ED) staff members were friendly during their communication with the patients.	Good communication skills increase the ease of service delivery.
	A security guard is present at the front and rear entrance to the ED 24 hours per day.	Having a security guard present all the time, can be a helpful resource for patients who may be disoriented or need assistance. However, it is important to keep in mind that although security guards are very helpful, they make intimidate some of the patients.
	Interpreters are available (there is a list of staff who can speak different languages) for patients who do not speak English.	Having interpreters available will help promote communication in all patients who might not have English as their first language.
ED entrance/exit	The Emergency entrance is marked well by large signs.	The large signs can easily be seen at day or at night.
	There is a partly covered entrance at the ED where patients can be dropped off whether they arrive by ambulance or by car.	The covering helps to keep the entrance clear from poor weather conditions. Having a dry entrance will help limit the occurrences of patient falls.
	The front entrance to the ED consists of 2 automatic doors that have motion sensors.	Automatic doors will make it easier to enter the ED for patients who are using assistive devices, are in a wheelchair, or have limited muscle strength.
	15 minute parking spots available near the ED entrance.	Caregivers can easily assist individuals to safely enter the ED from the front door.

Environmental Component	Support	Rationale
ED entrance/exit cont'd	Wheelchair accessible parking spots available in front of the ED (x 2).	This will help meet the need of wheelchair users.
	No stairs act as a barrier to entering the ED.	The lack of stairs upon entry will ensure that individuals using walkers or wheelchairs will have easy access to the ED.
Equipment & Resources	Several wheelchairs for portering were available outside of the main entrance, directly located at the drop-off zone.	Porting chair availability ensures that patients with reduced mobility can safely enter the department.
	Information pamphlets available in the waiting room.	The pamphlets can help keep patients up to date with their care and provide them with valuable information.
	A variety of crutches and canes are available for patients.	Patients who require assistance with mobility will have increased independence with the use of a mobility aid.
Noise	There was limited overhead paging during the assessment. NOTE This environmental assessment was performed on a quiet day, so this may not be a representative description.	The limited paging will help decrease disorientation or distress that some patients might feel.
	The television was at a minimal, yet audible volume in the waiting room.	The limited television volume will help decrease disorientation or distress that some patients might feel.
Signage	Some signs in the hallways are perpendicular to the wall.	Signs that are visible upon approach will help patients who have impaired vision or who are easily confused or disoriented.
Lighting	There are large windows in the treatment area.	The natural light will help patients with their orientation of time and day.
	There are blinds on all the windows.	The blinds will decrease the amount of glare increasing patients' ability to clearly see what is taking place in the department.
Furniture	The table in the waiting room has rounded corners.	The rounded corners may help to prevent injury.
Washrooms	Lever style taps are available in all of the washrooms.	The lever style taps are easier to manipulate for patients with decreased hand dexterity.

Environmental Component	Support	Rationale
Other	No mirrors were hung in the hallways or the waiting room. There were small circular mirrors at ceiling height used to check around corners to avoid collisions.	A limited number of mirrors will help to decrease patient agitation in individuals with dementia. The mirrors on the ceiling help staff monitor patients in various areas.
	A variety of foods are available for patients. Changes are currently taking place to ensure that high-protein and high-energy food is available for patients who are frail or malnourished.	Adequate food available meets the specific dietary needs of older adults.
	There is colour contrast between the baseboard and wall.	The contrast will assist patients with visual impairment in discriminating the wall from the floor.

Priority Codes:

*Low priority: This barrier is not an immediate area of concern. Safety is not a concern; however, patient comfort may be compromised for some users. Recommendation should be implemented if the institution has extra available resources.

** Medium priority: This barrier is of a moderate concern. Safety and comfort may be an issue for most patient users. Recommendation should be implemented as soon as the institution has the available resources.

*** High Priority: This barrier is an immediate concern. Patient safety is being compromised. Recommendation should be implemented immediately since there is a health risk to patient users.

Diagram Legend:

◆ Recommendation is simple to implement (requires minimal effort and resources) and would improve patient comfort/care significantly.

⊗ Diagram of commercially available product.

♣ Photograph from site accompanies recommendation.

ENVIRONMENTAL BARRIERS

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Artwork	There are pictures on the ceiling above the beds.	Keep the ceiling free of any artwork.	The artwork on the ceiling may invoke confusion for patients with dementia (O’Keeffe, 2004).	*
Noise	There was a constant beeping of pagers.	Place pagers on vibrate mode, if available.	The decrease in noise will help control for agitation in older adults with dementia (O’Keeffe, 2004).	*
Privacy	Curtains divided the areas between patients in all of the treatment rooms, which has an impact on confidentiality (♣ picture 1).	Doors should be used for treatment rooms. Using cubicle dividers as well as curtains might increase patient privacy (Barlas, Sama, Ward, & Lesser, 2001).	By providing solid partitions the patients’ perceived privacy will improve (Barlas, Sama, Ward, & Lesser, 2001). This in turn may ensure confidentiality and increase overall communication.	*
Orientation	There were no clocks available in the waiting room or treatment room.	Digital clocks should be placed in the waiting room and treatment room (O’Keeffe, 2004).	Clocks reduce agitation and increase orientation.	* ♦
	There are no calendars accessible to patients.	Calendars should be visible to the patients, ideally with the days crossed off which have passed.	As patients may be in the department for numerous days, calendars provide orientation cues (O’Keeffe, 2004).	*

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Signage	There were several signs at the triage desk, some folded over obscuring their clarity (♣ pictures 2 & 3).	The duplication of signs should be removed. All posted signs should be in common language and large print. Font on posters should range from 18-25 point font, with headings and subheadings up to 72 (1 inch) (T. Harper, personal communication, May 18, 2005).	Limiting signage will decrease clutter and confusion (O’Keeffe, 2004). Clear signs will increase the communication process (Watson, 2001).	* ♦
Seating	Chairs in the waiting room were covered in a slippery fabric.	The chairs should be covered in a non-slip fabric with moisture barrier to protect from incontinence.	Changing the material to non-slip fabric will help prevent individuals from sliding off the chair and falling and prevent permanent soiling (Bakker, 2000).	**
	Chairs in the triage waiting room did not have a cushion.	All chairs should be purchased with cushions or have cushions inserted.	Cushions are necessary to provide support to the pelvis and thighs (Pedersen, 2000).	* ♦
	Several chairs in the emergency department did not have armrests.	All chairs should have armrests that have a flat top and are located 10” above the seat height (recommended seat height, 17-19”) (O’Keeffe, 2004).	Armrests help assist with transferring and provide support while sitting (O’Keeffe, 2004). Also, while transferring, weight can be distributed among upper and lower extremities.	**
	Chairs had a backrest of 90 degrees.	All chairs should have a backrest with an angle slightly greater than 90 degrees (approximately 100 degrees).	Older adults may have less flexibility in their hips making it difficult to tolerate 90 degree positioning (Pederson, 2000).	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Seating cont'd	The seat to floor height of chairs varied from 15 ½ inches to 18 ½ inches.	Chairs should have a seat to floor height of 17-19 inches.	A height of 18 inches is the standard height for ease of getting in and out of chairs (Bakker, 2000).	**
	The seat depth of chairs varied from 17 ½ inches to 21 inches.	Chairs should have a seat depth of 18 inches.	A seat depth of 18 inches is standard in providing necessary back support while leaving sufficient space at the popliteal fossa (O'Keefe, 2004; Bakker, 2000).	**
Equipment/ Resources	The stretchers are 29 ½ inches wide.	Wider stretchers should be made available for bariatric patients. A 34 inch wide stretcher is available from Stryker Medical (⊗) and would meet the needs of a bariatric population (holds up to 500 pounds).	Although a 29 1/2 inch wide stretcher would be wide enough for most patients, there needs to be alternative stretchers for bariatric patients.	*
	The stretcher cushion depth is 2 ½ in and does not provide pressure relief.	Stretcher cushions should be equipped to provide minimal pressure relief (O'Keefe, 2004) for older adults with poor skin integrity/incontinence who may be spending ++time in bed. Such a stretcher is available from Stryker Medical (⊗). The Extended Stay Stretcher may be an option.	The current cushion does not provide adequate pressure relief to older adults with compromised skin integrity/incontinence during long waiting times.	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Equipment/ Resources cont'd	Most of the ED stretchers can only lower down to 25 inches in height.	Stretchers should be lowered to 18 inches high to ensure that patients who are mobile can ambulate to the washroom as needed (O'Keefe, 2004). Step stools are provided to assist clients with getting in/out of the stretchers; however, older adults with balance issues/knee/hip problems, may find it difficult to use these stools. Currently, there is no stretcher available on the market that lowers to a height of 18 inches. The Extended Stay Stretcher from Stryker Medical, however, reaches a minimal height of 22 inches.	Lower stretchers will give patients more independence with getting out of bed to ambulate. Decreased ambulation during hospital visits has been associated with a higher incidence of delirium in older adults (Brown, Friedkin & Inouye, 2004).	**
	There are limited walkers available for patients.	Several walkers should be made available. All equipment should be tested on a regular basis to ensure that it is safe to use.	In order for patients to be mobile, and to ambulate to the washroom, appropriate and safe equipment is required.	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Storage	Patients' belongings are stored under their stretcher.	A secure place should be identified (i.e. lockers, locked drawer) to the patients where items can be stored (Marx & Cohen-Mansfield, 2003).	Patients are reminded to have their loved ones take any valuable possessions home. However, if patients are at times in the ED for several consecutive days they may have some items that they require.	*
	Equipment is scattered throughout the hallways and treatment rooms.	Items that can be stored out of sight should be placed in closets or storage rooms.	Equipment that is properly stored will not pose a barrier to patients' mobility and will ensure that patients do not have unnecessary access to equipment.	**
	The hallway was used as a storage area for some items- a cleaning cart, laundry, garbage, and a wheelchair.	Any items that do not need to be stored in the hallway should be kept in the specified storage rooms (O'Keeffe, 2004).	This will decrease tripping hazards.	*** ◆
Psychosocial	There are no auditory amplifiers available within the ED.	The ED should have available devices that can assist with the patients' ability to communicate with the staff in the ED (O'Keeffe, 2004). A pocket talker could be a viable option (⊗)	Lack of sensory aids is one predictor of delirium. Auditory devices will assist with privacy, as it would not be necessary for staff to raise the volume of their voices while communicating with patients with hearing impairments.	*

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Lighting	A maximum of 40 watts is used for lights over the treatment beds.	Light bulbs with a wattage of 100- 150 should be installed over treatment beds.	Patients with visual impairment will have greater independence with tasks with increased light intensity (Sunnybrook Reference).	*
	The natural light creates shadows in the department.	Blinds should be used to decrease the amount of shadows at particularly bright times of the day.	Shadows should be minimized to help decrease confusion in individuals with dementia or those with visual impairments (Pinto, et al. 1997; Brawley & Taylor, 2002).	*
	The hallways are lit with fluorescent lights which are on at all times.	Neodymium oxide and incandescent lights should replace the fluorescent lights.	The fluorescent lighting is harsh and flickers, which can lead to headaches and eyestrain (Watson, 2001).	*
Call bells	The call bell cord is thin and provides minimal contrast with the wall colour.	A dark colour, thick cord with a loop at the end should be used.	A darker colour will assist patients with decrease visual acuity to locate the call bell. Thicker cords will help patients with fine motor impairments. The loop at the end of the string will allow patients to access the bell without having to grasp the string.	***

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
	There is no call bell or was no nurse present in the resuscitation room on the day of the assessment, despite a patient being present.	A call bell should be installed in the resuscitation room that can be easily accessed by the patient.	Patients must be able to communicate with staff, especially if they are in distress.	***
<u>FUNCTIONAL AREAS</u>				
Entryway	The paint on the ramp is fading and may not be visible at night (♣ picture 4).	Repaint the ramp area with yellow paint.	The brighter colour will assist patients in locating the ramp, particularly for patients with visual impairment.	*◆
	No horizontal lines are located at the exit.	A thick horizontal line should be marked on the floor at the exit.	Horizontal lines decrease the amount of wandering in patients with dementia (Price, Hermans, & Grimley Evans, 2005)	*
Registration	The triage desk is 41 ½ inches high.	The desk should be lowered to a height of 39 inches (MS Society, 2003).	The lowered desk height will assist in the communication with patients who use a wheelchair.	*
Waiting Room	The staff at the registration desk have limited viewing ability. They can only see some of the patients waiting in the waiting room. If a patient were to fall in the waiting room area, the staff may not be able to see them if they are around a corner.	An accessible call bell should be installed in the waiting rooms to ensure that any patient safety concerns can be addressed by a hospital staff member immediately.	Call bell installation will improve patient safety/perceived safety.	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
	The floors in the waiting room have a waxy finish that creates a glare.	A non-glare finish should be used on all the floors to help individuals with visual impairments (Brawley & Taylor, 2002; Watson, 2001).	Excessive glare and fluctuating light levels may be confusing for an older adult or those with poor vision (O’Keeffe, 2004)	*
	The floors in the waiting room are white with black tiles (♣ picture 5).	The floor should be one solid colour.	Patients with perceptual difficulties or dementia may perceive the black tiles to be holes in the ground (Bakker, 2000).	**
Hallway	There are no handrails in the emergency department.	A handrail should be secured to the wall opposite to the side that houses the hallway stretchers. These handrails should be 1.5 inches in diameter with 2 inch hand clearance and a rounded style for easy grip (O’Keeffe, 2004).	Handrails will help assist with ambulation.	*
Washrooms (general recommendations for all ED washrooms)	The taps are turn style.	Lever style taps should be installed.	Lever style taps are easier to manoeuvre for patients with limited strength or dexterity issues.	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Washrooms cont'd	Faint red and blue symbols indicate which tap is hot and which is cold.	Symbols such as a large H and a C should be placed above the appropriate taps. Alternatively, taps with sensors should be installed.	Symbols may help decrease confusion in individuals who have impaired colour discrimination. Taps with sensors would alleviate having to regulate hot and cold water.	***
	The hot water taps in washrooms reach a hot temperature.	Valves connecting the hot and cold water supplies can be easily fitted to the hot water outlet. If the temperature of the hot water rises above 43 degrees Celcius the cold water flow will increase immediately (Stone, Ahmed, & Evans, 2000). Alternatively, taps with sensors should be installed.	The temperature should be regulated to avoid burns for a patient with diminished sensory ability (Stone, Ahmed, & Evans, 2000). Taps with sensors would alleviate having to regulate hot and cold water.	***
	Small locks are used on the doors.	Larger locks should replace the small locks.	A larger surface area for adjusting the lock will assist patients with dexterity issues.	*
	The doors in most washrooms do not open outward, if needed.	A latch should be installed that allows the washroom door to open outward in case of emergency.	The outward opening door is necessary in the event that a patient falls against the doorway.	**

Environmental Component	Barrier	Recommendation	Rationale	Prioritization
Washroom cont'd	Toilet seats are 15 inches above the floor (♣ picture 6).	Toilet seats should be 18 inches above the floor (O'Keefe, 2004). A separate washroom should be designated for pediatric patients.	A decrease in hip flexion makes it difficult to rise from a lower toilet seat height.	**
	Paper towel dispensers are difficult to manage (♣ picture 6).	Dispensers with sensor detectors should replace the current dispensers.	Sensor detectors are easier to manage for patients with decreased upper body strength.	**
Female Waiting Room Washroom	The door to the washroom is very heavy.	The hinge operating the door should be made looser. Alternatively, an automatic door should be installed.	The door would pose a challenge to patients using a wheelchair or those with decreased muscle strength.	**
	The doorway is 26 inches wide.	A sign should be located outside the washroom directing patients to an accessible washroom.	Most patients in wheelchairs will not be able to access this narrow door. It is necessary to provide clear direction as to where they can proceed to.	**
Male/Female Washroom in ED	Washroom is used as a storage area, creating a barrier for accessible use (♣ picture 7).	Staff should be reminded to not use the washroom as a storage area. Environmental staff should monitor the washroom for clutter while cleaning.	Items being stored in the washroom likely impede the accessibility of the washroom and may also act as an increased risk for falls.	**
Male/Female Washroom in Treatment Room	The paper towel dispenser is 51 ½ inches above the floor (♣ picture 6).	The paper towel dispense should be moved to a height of 47 inches above the floor (O'Keefe, 2004).	A height of 47 inches will more easily allow a patient using a wheelchair to access the dispenser.	*
Food	The sandwiches that are offered to patients are made on buns.	Sandwiches should be made on bread and cut into halves.	Buns may be difficult to eat for patients with dentures or patients with limited jaw strength.	*◆

