



THE REGIONAL GERIATRIC ASSESSMENT  
PROGRAM OF OTTAWA

***Creating a Senior Friendly Physical Environment in our Hospitals***

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**Introduction**

Changing demographics indicate that seniors are now the most frequent users of hospital services, accounting for 63% of all hospital days in Ontario,<sup>1</sup> The average length of hospital stay for a senior over 75 years is 22.5 days compared to the average of 10 days for the general population.<sup>2</sup> When in hospital, seniors have the highest risk of functional decline and failure to return home<sup>3</sup>. In 2000-2001, 43% of health care costs were spent on seniors’ health care. This trend will continue to escalate over the next decades with estimates that by 2026, 21.42% of the population will be aged 65 and older while the older seniors, those over 85 years of age, are expected to increase in number by over 100%.<sup>4</sup>

Given this situation, it is essential that hospitals begin to create policies and procedures that will address the unique needs of their senior clients and caregivers.(see Table 1) It is no longer appropriate to have a “geriatric unit” within the hospital as the sole location for senior friendly care. The senior patient and caregiver are now receiving care throughout the entire hospital. In recognition of this need, the World Health Organization has identified this issue as one of the key areas of work in their document describing policy for health and ageing as” implementing ageing friendly standards e.g. “ageing friendly” health care centres.” By creating a “Senior Friendly” hospital, emergency departments, acute care and general service areas of a hospital can facilitate timely recovery and discharge to the seniors’ pre-admission living environment, thus reducing care costs.

A senior friendly hospital requires a commitment by the administration and staff to provide for the needs of the senior client in the following areas:

- Physical environment
- Process of care
- Ethics in clinical care and research
- Emotional and behavioral environment

By ensuring such a model is incorporated into the process and planning of hospital systems, a “people friendly” and client-centered facility will emerge.

The physical environment component of a senior friendly hospital has an immense impact upon the safety and functional level of the senior client. Currently, the physical environment in most hospitals creates a potential risk of harm or functional loss for the senior thus increasing length of stay and cost of care. By providing well-designed environments, the hospital can maintain and enhance the senior’s ability to function while in hospital and retain their quality of life for discharge. The minimum standards for disability as outlined in building codes do not fully meet the specific

physical environment needs of seniors. An extensive literature review has led to the compilation of guidelines that are recommended in addition to the minimum standards for barrier-free accessibility

The following guidelines can assist discussions and negotiations with hospital planners and administrators when planning additions, renovations or even redecoration of hospital facilities. Implementation of these guidelines will create a physical hospital environment that not only accommodates the needs of seniors, but also is “universally” friendly for people of all ages, education and disability levels and cultures.

• TABLE 1

<b>Changes Associated with Aging</b>			
<p>As one ages into the senior years, vision, mobility, hearing, cognition, perceptual ability, general physical ability and endurance commonly decline. Superimposed upon this normal aging process will be a variety of chronic and acute medical conditions and symptoms that increase in frequency with age, further reducing the senior’s functional ability. When planning hospital renovations or new building additions, the following factors regarding changes associated with aging need to be considered to create a senior friendly physical environment:</p>			
<b>Vision</b>	<b>Hearing</b>	<b>Physical Changes</b>	<b>Cognitive Function</b>
<ul style="list-style-type: none"> <li>• Glaucoma, cataracts, macular degeneration</li> <li>• Sensitivity to glare</li> <li>• Reduced speed of accommodation to changing light levels</li> <li>• Reduced vision in low light</li> <li>• “Yellowing” of the aging lens</li> <li>• Reduced visual acuity</li> <li>• Reduced fields of vision</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced hearing ability</li> <li>• Malfunctioning hearing aids</li> <li>• Sensitivity to high frequency noises</li> <li>• Difficulty filtering out background noise</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of muscle strength (up to 40% - 60%) , flexibility and coordination</li> <li>• Reduced balance</li> <li>• Reduced reflex /reaction time</li> <li>• Reduced dexterity and fine motor coordination</li> <li>• Increased response to environmental vibration</li> <li>• Decreased thermal response (tolerance of a lower range of room temperatures)</li> </ul>	<ul style="list-style-type: none"> <li>• Increased prevalence of dementia with age</li> <li>• Reduced memory</li> <li>• Visual perception changes</li> <li>• Reduced reasoning and abstract thinking</li> <li>• Communication changes increased susceptibility to delirium</li> </ul>

## GUIDELINES FOR A SENIOR FRIENDLY PHYSICAL ENVIRONMENT IN HOSPITALS

### Overall Environment

#### Lighting

Seniors require 30% more light for equivalent vision, and up 5 times brighter light in areas for reading and task completion

- 30-70 foot-candles indoor illumination
- Consider using natural fluorescents ,full spectrum lights(T5 and T8 lamps)
- Ensure no glare
  - Cove lighting
  - Direct illumination on vertical surfaces
  - No highly polished surfaces
- Avoid pooled lighting and shadows (sconces, table lamps)
- Provide night lighting in patient washrooms
- Ensure focussed light on signs and other wayfinding cues
- Ensure consistent levels of brightness in adjacent areas
- Create gradual changes of light levels when coming in from outdoors
  - awnings or outdoor covered entranceway
  - skylight inside entranceway
  - brighter interior light inside entranceway

#### Noise/Sound

High noise levels can lead to anxiety, confusion and fatigue from over stimulation and difficulty hearing that which is spoken to the senior. Background noise can create misinterpretations of what is happening in the environment

- Reduce the use of the public address system as much as possible and turn off in patient bedrooms
- Combine a visual display that scrolls slowly to inform patients in a waiting area
- Reduce background ambient noise (eg. ventilation systems, radio)
- Have hearing amplifiers available in all patient contact areas
- Reduce the number of hard surfaces and “echoes”
- Use quality acoustical ceiling and wall products
- consider heating and ventilation structure to reduce noise when installing

### Décor

- use colours at the warm end of the spectrum (blue tones are difficult to see)
- pastels and low contrast colours are difficult to see and define
- use colour to define functional areas (ie yellow hallway, green rooms, amber activity room)
- use colour contrast to highlight areas such as doors to assist wayfinding.
- Use the same colors on exit or "out of bounds" doorways as hallways to camouflage and reduce unwanted use.

### Upholstery

- Avoid visual over stimulation
- No strongly flecked patterns
- Plain fabrics with mild patterns
- Avoid very dark colours and soft pastels
- Avoid "vibrational " patterns
- Warm colours most easily seen and appreciated

### Art

- Non glare finish
- Well lit with focussed light(3-4 times brighter)
- Content with full spectrum colour especially in brighter tones
- Select pictures that are clear and realistic with definition
- Colour contrast to help define the features/objects in the picture
- Avoid the use of mirrors which may cause confusion and agitation due to visual perception changes

### Orientation/Wayfinding

- Large clocks, calendars
- Combine a visual display that scrolls slowly along with verbal calls to inform patients in a large waiting area
- Clear demarcation of different functional areas by colour, sign, physical layout, other identifying features (eg. Large distinctive picture, fish tank)
- Ensure patients can clearly "see their destination" on patient care units (ie dining room doors open, uncluttered hallways)

### Signage

Up to 80% of seniors experience some degree of difficulty with reading due to less accessibility to education earlier in this century, cultural differences, and cognitive changes. When combined with visual and perception changes, inappropriate signs and wayfinding cues can create a significant barrier to a senior's accessibility and level of function within a hospital. Alternatives to reading such as volunteers to guide within the hospital should be available for seniors.

Signs should be:

- Uncluttered with a simple message – avoid too much information on one sign
- Strong contrast of:
  - Print on sign background
  - Sign from environment background
- White on dark brown or black or black on yellow in a busy environment with "white background"
- Black on white or dark green on white for general use
- Matte, non-glare finish
- Include simple explanatory graphic
- Key locations (eg.bathroom) with signs perpendicular to the wall to facilitate identification
- Follow CSA guidelines for signage

## Safe Mobility

When considering the mobility needs of seniors, the environment needs to provide for the architectural accessibility guidelines and building codes for wheelchair/mobility device accessibility. The strength, coordination and reflex changes that occur with aging and the common diseases of aging mean many walkers and wheelchairs are assisting seniors to mobilize safely. In addition to the basic accessibility requirements, a senior friendly facility will provide the following:

### Flooring

- Quiet cushion flooring (eg. vinyl cushion tufted)
- Matte, non-slip, finish or wax
- Low pile carpeting
- Even colour – NO bold patterns that can create visual perception challenges
- Contrast baseboard or floor border to define floor edge and pathway

### Doors:

- All doors wide enough for easy clearance of wheelchair
- Threshold no more than ¼" beveled edge
- Lever handles
- Max. 8 lbs pull, 14 lbs push force
- Automatic door opening mechanisms for main entrances and hall doorways
- Seating area just inside entranceways to allow vision time to adjust to light changes
- Adequate wheelchair availability at entranceways
- Accessible parking (consider valet service)
- Covered outside entranceway with drive-up drop-off area

## Specific Functional Areas

### Bedrooms

- Visually distinctive doorways and bed area in shared room
- Direct sightline to washroom from bed
- Call bells
  - Remote voice activated is ideal
  - Ability to be fixed to bedside
  - 
  - Large, easily activated button

### Telephone

- Black phone with large white push buttons with contrast numbers/letters
- Located within easy reach of bed
- Volume control
- Suitable for use with hearing aids

### Light switches

- For personal areas – bedside console with clear labels and large buttons

<p><b>Hallways</b></p> <ul style="list-style-type: none"> <li>• Clear, unimpeded pathways wide enough for wheelchair/ walker and caregiver in each direction (larger than minimum wheelchair access standard)</li> <li>• Avoid shiny surface with glare</li> <li>• Avoid long hallways without visual interruption</li> <li>• Seating areas at regular intervals along long hallway</li> <li>• Hand railings in hallways to assist walking (1.5” diameter with 2” hand clearance – “easy grip” rounded style)</li> <li>• Handrails extend beyond top and bottom landings</li> </ul>	<p>steps</p> <ul style="list-style-type: none"> <li>• use conventional (7” risers; 11” treads) that will be expected</li> <li>• highlight step edge with contrast colour (yellow)</li> </ul> <p>ramps – avoid if possible But if required</p> <ul style="list-style-type: none"> <li>• 5% - 8% slope</li> <li>• rest area every 30 feet</li> <li>• mark top and bottom with yellow strip</li> </ul>
<p><b>Waiting Areas</b></p> <ul style="list-style-type: none"> <li>• Quiet small waiting areas without multiple stimuli which allow confidential conversation for the hearing impaired</li> <li>• Combine visual and auditory cues in large waiting areas (ie. large electronic number sign to call next patient)</li> </ul>	<ul style="list-style-type: none"> <li>• Full turning radius (as per building codes) for wheelchairs/walkers plus space for caregiver to maneuver the wheelchair in seating areas and between seats</li> </ul>
<p><b>Washrooms</b></p> <ul style="list-style-type: none"> <li>• Large enough for wheelchair/walker and caregiver access in accessible stalls in public washrooms (larger than minimum code)</li> <li>• Patient room washrooms with full wheelchair turning radius</li> <li>• All toilets with minimum of one non-slip grab bar – 45 degree at side of toilet</li> <li>• Accessible toilet paper dispenser (19 “ height, at the side and slightly to front of toilet) with paper not “hidden” within dispenser</li> <li>• High toilets (18”) available in some public regular stalls</li> <li>• Toilets in patient rooms with space for over-toilet commode</li> </ul>	<ul style="list-style-type: none"> <li>• Auto flush- or flush lever extending beyond toilet cover</li> <li>• Auto on/ off sink faucets with controlled water temp or lever faucet handles</li> <li>• Sinks with open area beneath and pipes insulated</li> <li>• Tilting or low mirror</li> <li>• Both auto air and easy access towel dry mechanisms</li> <li>• Ensure dispenser is not above a sink or counter (minimum 20” forward reach), max 47 “ from floor</li> <li>• Non-slip, non-glare cushion floor (avoid ceramic)</li> <li>• Showers <ul style="list-style-type: none"> <li>• Walk-in with surround grab bars, room for bath chair/commode</li> <li>• Edge of sloped floor towards drain clearly defined with contrast strip and tactile cue</li> <li>• Non-slip floor surface (avoid ceramic)</li> </ul> </li> </ul>

<b>Furniture</b>	
<p><b>Tables</b></p> <ul style="list-style-type: none"> <li>• Sturdy 4 legged</li> <li>• Rounded corners,</li> <li>• Edges defined with contrasting colour borders</li> <li>• Matte tabletop</li> <li>• Contrast table settings to assist with depth perception</li> </ul> <p><b>Beds</b></p> <ul style="list-style-type: none"> <li>• Electric adjustable height to 18" low</li> <li>• Controller with "simple" technology and large easily identified buttons</li> <li>• Pressure relieving mattress</li> <li>• Avoid side railings that fold down to the floor</li> </ul> <p><b>Bedside tables</b></p> <ul style="list-style-type: none"> <li>• On glides instead of wheels</li> <li>• Lever handles for easy glide drawers</li> </ul>	<p><b>Chairs</b></p> <ul style="list-style-type: none"> <li>• Seat -18-19 in. high, 18-20 in. deep with firm cushion</li> <li>• Arms extended to front chair edge, 10 in. above seat height</li> <li>• Lumbar support</li> <li>• Non-slip easily cleaned fabric</li> <li>• Clearance under front of seat to allow feet under front edge</li> <li>• Stable/tip-free</li> <li>• Minimal back recline and backwards seat tilt</li> <li>• Chair legs able to be fit with blocks to further raise seat height</li> </ul>
<p><b>OTHER FACTORS</b></p> <ul style="list-style-type: none"> <li>• Large print for all written materials provided (minimum 14 font) with simple nonserif characters</li> <li>• Hearing amplifiers should be available for use with clients by ALL staff</li> <li>• Volunteer guides to accompany seniors to their destination within a facility instead of relying on verbal directions</li> <li>• Consider nutrition needs of seniors (diabetic, low salt food in vending machines and gift stores)</li> </ul>	

### **Conclusion**

Although the barrier-free accessibility guidelines and building codes currently in place provide for basic access needs, the specific needs of seniors are not fully addressed by these standards. Further research is required to develop senior friendly minimum standard guidelines to be used in addition to the standards already in place, and to validate those presented here as a starting point.

With the provision of a senior friendly physical environment in our hospitals, the risk of deterioration of function due to accident, delirium and immobility can be reduced. This will provide an optimal environment for maintaining the senior's pre-admission level of function during his/her rehabilitative stay and thus facilitate a timely discharge to his/her previous living situation. To fully address the complex and unique needs of

senior clients in hospital, change is also required in the process and interventions of seniors' clinical care. Given the increasing number of seniors using our hospitals and the need for efficient use of healthcare dollars, creation of a senior friendly hospital environment is a first step toward reducing length of stay and the maintenance of the senior's pre-admission quality of life.

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