

Coláiste na hOllscoile, Corcaigh



University College Cork, Ireland  
Coláiste na hOllscoile Corcaigh



Feidhmeannacht na Seirbhíse Sláinte  
Health Service Executive



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# INCOMPLETE ADHERENCE TO BEST PRACTICE GUIDELINES FOR WARD ENVIRONMENT IN RELATION TO FALLS PREVENTION MAY INCREASE THE NUMBER OF FALLS

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# Introduction

- Many inpatient falls share common risk factors.
- The degree of *harm* caused by a fall is determined by intrinsic, extrinsic and situational factors.
- Addressing falls risk needs to be balanced against the need to promote functional independence and patient autonomy.

# Background to this environmental audit

- In a 247 bedded acute general hospital, falls accounted for 38% of reported clinical incidents.
- Over a 34 month period, 425 falls were reported on 2 medical wards.
- 98% were low harm or no harm falls as per the grading system used.
- 1.4% resulted in death and so an audit was performed.

# Aim

- To establish the inpatient falls rate in elderly medical inpatients.
- To assess the clinical and economic impact of falls.
- To understand the causes and circumstances around falls.
- To evaluate ward environment.
- To document current post fall interventions.
- To perform a cost analysis on interventions for the prevention of falls.

**A Study of Inpatient Falls in an Acute Elderly General Medical Inpatient Population  
Presented at the IGS and the EUGMS in 2007 and 2008.**

# Method

- Falls rate calculated based on total number of falls and occupied bed days for a one year period.
- Morbidity and mortality data collected prospectively.
- Cost was estimated based on that sample.
- A retrospective chart review.
- Data analysed by a statistician using SPSS.
- Multi-factorial interventions recorded.
- Ward environmental survey<sup>1</sup> carried out.
- Cost:benefit analysis performed.

*1 Preventing falls and harm from falls in older people. Best practice guidelines for Australian hospitals and residential aged care facilities. 2005 The Australian Council for Safety and Quality in Healthcare. 2005. Available at <http://www.safety and quality.org>*

# 14 Key results

## Key result number 10

Of 55 falls, where details were sufficient to allow a case analysis to be performed of the fall, 21 were found to be caused or contributed to by the ward environment on both wards. (c.40%)

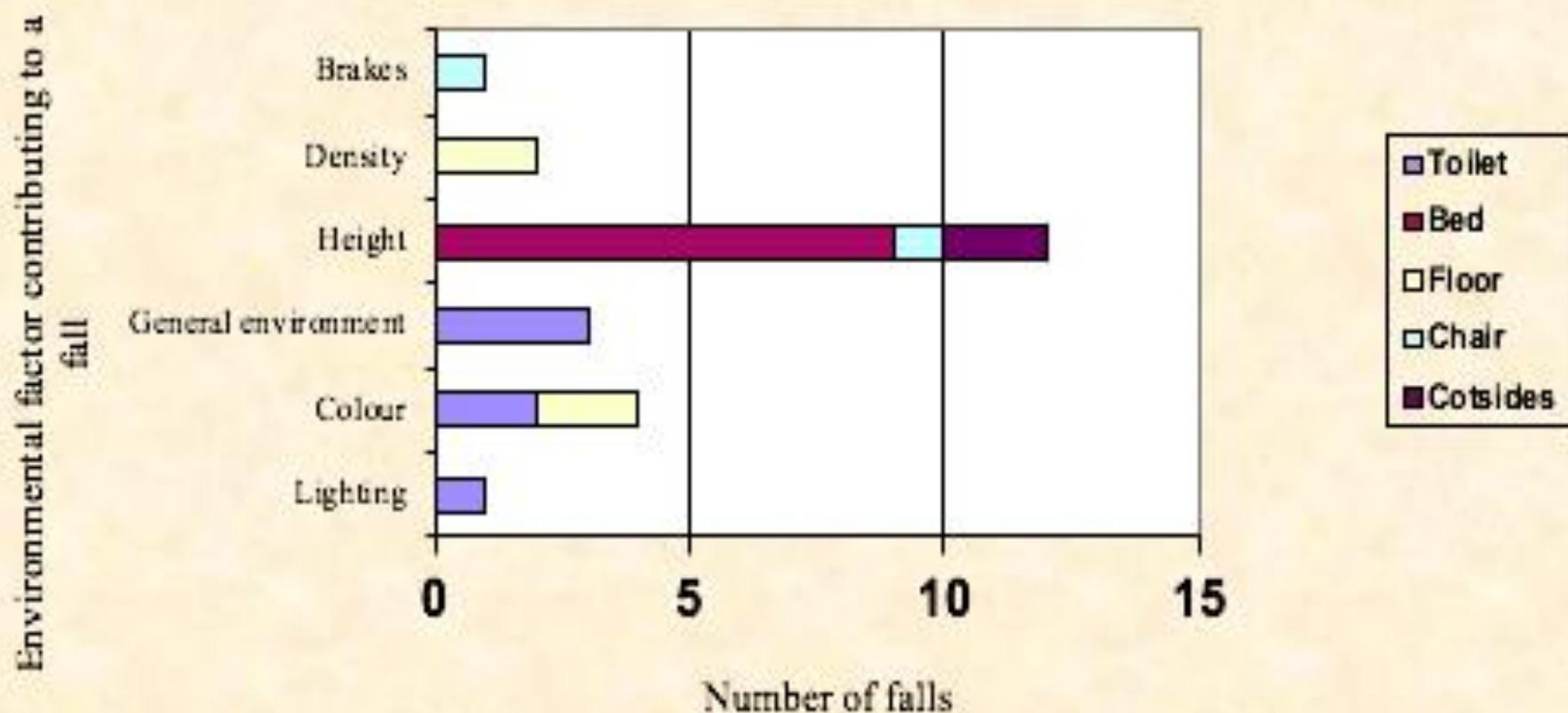
The ratio of number of falls was 1.5:1.0 between Ward 1 and Ward 2.

The ratio of injurious falls was 1.2:1.0.

(These trends did not reach statistical significance.)

**However, all deaths occurred as the result of falls on one ward.**

## Environmental factors contributing to falls



Twenty-one out of 55 falls, (where sufficient data was available) had environmental factors identified as a primary cause of the fall.

# **THE ENVIRONMENTAL AUDIT TOOL**

# Differences between wards for an individual patient's environment

## Ward 1

Individual Environmental Checklist Section A		Surname: .....		
		First Name/s: .....		
		U.R. No .....		
		Date of Birth: / /		
		<i>(Please affix Patient ID label here if available)</i>		
Bedrooms / Ward	Please tick appropriate box	Yes	No	N/A
• Is the bed at the lowest height for safety of client (ie. so they can sit and touch the floor with their feet, with their legs at 90 degrees)?	<input checked="" type="checkbox"/>			
• Are there call bells within easy reach of client?	<input checked="" type="checkbox"/>			
• Is the mattress firm to provide support when moving in the bed?	<input checked="" type="checkbox"/>			
• Do patients have bedside lockers or tables that they can put things on safely without undue stretching and twisting?	<input checked="" type="checkbox"/>			
• Is there space for client to store any walking aids where they can reach them without getting out of bed?	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
• Do the beds have locks on castors which work easily and effectively?	<input checked="" type="checkbox"/>			
• Do patients have easy access to night-lights?	<input checked="" type="checkbox"/>			
• Is the room free of clutter?	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
• Is the room free of cords and other hazards on the floor?	<input checked="" type="checkbox"/>			
• Is the room free of loose rugs on the floor?	<input checked="" type="checkbox"/>			
Furniture	Please tick appropriate box	Yes	No	N/A
• Are chairs correct height (ie. allow the patient to have feet on ground and legs at 90 degree angle)?	<input checked="" type="checkbox"/>			
• Do chairs have sturdy armrests to assist patient getting in and out of them?	<input checked="" type="checkbox"/>			
• Is the height of chairs adjustable to cater for people of different sizes?	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
• Are chair legs straight rather than sticking out and being a hazard?	<input checked="" type="checkbox"/>			
• Are the pieces of furniture secure enough to support a patient, should they lean upon them or grab them if they lose their balance?	<input checked="" type="checkbox"/>			
• Can the patient rise/sit with ease?	<input checked="" type="checkbox"/>			
• Can the patient safely move the footstool before transferring?	<input checked="" type="checkbox"/>			
• Can the patient reach the footstool when required?	<input checked="" type="checkbox"/>			
Mobility Aids	Please tick appropriate box	Yes	No	N/A
• Brakes on wheelie frames and wheelchair are in good working order.	<input checked="" type="checkbox"/>			
• Appropriate height for client.	<input checked="" type="checkbox"/>			
• Aid is kept within easy reach.	<input checked="" type="checkbox"/>			
• Footplates of wheelchair are easy to move.	<input checked="" type="checkbox"/>			
• Patient has been educated regarding safety with aid (walker / wheelchair).	<input checked="" type="checkbox"/>			
<i>Remedial actions that need to be taken:</i> .....				
.....				
.....				
.....				

## Ward 2

Individual Environmental Checklist Section A		Surname: .....		
		First Name/s: .....		
		U.R. No .....		
		Date of Birth: / /		
		<i>(Please affix Patient ID label here if available)</i>		
Bedrooms / Ward	Please tick appropriate box	Yes	No	N/A
• Is the bed at the lowest height for safety of client (ie. so they can sit and touch the floor with their feet, with their legs at 90 degrees)?	<input checked="" type="checkbox"/>			
• Are there call bells within easy reach of client?	<input checked="" type="checkbox"/>			
• Is the mattress firm to provide support when moving in the bed?	<input checked="" type="checkbox"/>			
• Do patients have bedside lockers or tables that they can put things on safely without undue stretching and twisting?	<input checked="" type="checkbox"/>			
• Is there space for client to store any walking aids where they can reach them without getting out of bed?	<input checked="" type="checkbox"/>			
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• Do patients have easy access to night-lights?	<input checked="" type="checkbox"/>			
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• Patient has been educated regarding safety with aid (walker / wheelchair).	<input checked="" type="checkbox"/>			
<i>Remedial actions that need to be taken:</i> .....				
.....				
.....				
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# Differences between general ward environment

## Ward 1

General Environmental Checklist Section B		Ward / Area .....		
<b>Bathrooms and Toilets</b>	Please tick appropriate box	Yes	No	N/A
<ul style="list-style-type: none"> <li>Are there properly positioned and secure handrails next to the toilet, shower and bath?</li> <li>Have floors been treated with a non-slip preparation, which has been redone in the past two years?</li> <li>Are non-slip mats used in the bath and shower?</li> <li>Are areas immediately around the bath and sink marked in contrasting colours?</li> <li>Are there raised toilet seats available which are well fitting and secure?</li> <li>Do the toilets have surrounds to provide support for people getting on and off the toilet?</li> <li>Are there receptacles for soap, shampoo and washers which are easy to reach and do not require the patients to bend over?</li> <li>Do patients have access to 'soap on a rope' to avoid dropping the soap and having to bend down and pick it up?</li> <li>Do all shower chairs have adjustable legs, armrests and rubber stoppers on the legs?</li> <li>Do commode chairs have wheels, castors and brakes that work smoothly and effectively?</li> <li>Do all shower chairs and commode chairs have seat belts or safety bars?</li> <li>Is there room for a seat in AND near the shower?</li> <li>Is the shower base step-less?</li> <li>Are call buttons accessible from sitting position in shower area?</li> <li>Are doors lightweight and easy to use?</li> </ul>				
<b>Furniture</b>	Please tick appropriate box	Yes	No	N/A
<ul style="list-style-type: none"> <li>Are chair legs straight, rather than sticking out and being a hazard?</li> <li>Is furniture secure enough to support a patient, should they lean on or grab for balance?</li> <li>Are bedside lockers or tables available to patients so that they can put things on safely without undue stretching and twisting?</li> <li>Are footstools in good repair – stoppers in good condition?</li> <li>Is space available for footstool when required?</li> </ul>				
<b>Floor Surfaces</b>	Please tick appropriate box	Yes	No	N/A
<ul style="list-style-type: none"> <li>Are carpets low-pile, firmly attached and a constant colour rather than patterned?</li> <li>Are walls a contrasting colour to the floor?</li> <li>Is non-skid wax used on wooden and vinyl floors?</li> <li>Do floors have a matt finish, which is not glary?</li> <li>Are 'Wet Floor' signs readily available and used promptly in the event of a spillage?</li> <li>Are ramps used whenever possible, rather than stairs?</li> <li>Do steps have a non-slip edging in contrasting colour to make it easier to see?</li> <li>Is routine cleaning of floors done in a way to minimise risk to patients (eg. well signed, out of hours)?</li> </ul>				

## Ward 2

General Environmental Checklist Section B		Ward / Area .....		
<b>Bathrooms and Toilets</b>	Please tick appropriate box	Yes	No	N/A
<ul style="list-style-type: none"> <li>Are there properly positioned and secure handrails next to the toilet, shower and bath?</li> <li>Have floors been treated with a non-slip preparation, which has been redone in the past two years?</li> <li>Are non-slip mats used in the bath and shower?</li> <li>Are areas immediately around the bath and sink marked in contrasting colours?</li> <li>Are there raised toilet seats available which are well fitting and secure?</li> <li>Do the toilets have surrounds to provide support for people getting on and off the toilet?</li> <li>Are there receptacles for soap, shampoo and washers which are easy to reach and do not require the patients to bend over?</li> <li>Do patients have access to 'soap on a rope' to avoid dropping the soap and having to bend down and pick it up?</li> <li>Do all shower chairs have adjustable legs, armrests and rubber stoppers on the legs?</li> <li>Do commode chairs have wheels, castors and brakes that work smoothly and effectively?</li> <li>Do all shower chairs and commode chairs have seat belts or safety bars?</li> <li>Is there room for a seat in AND near the shower?</li> <li>Is the shower base step-less?</li> <li>Are call buttons accessible from sitting position in shower area?</li> <li>Are doors lightweight and easy to use?</li> </ul>				
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# Differences between general ward environment

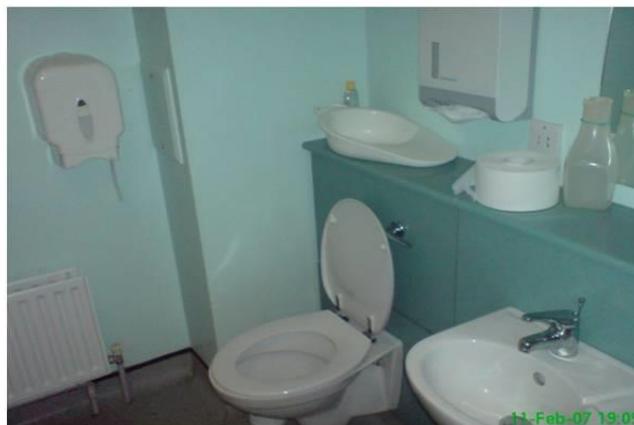
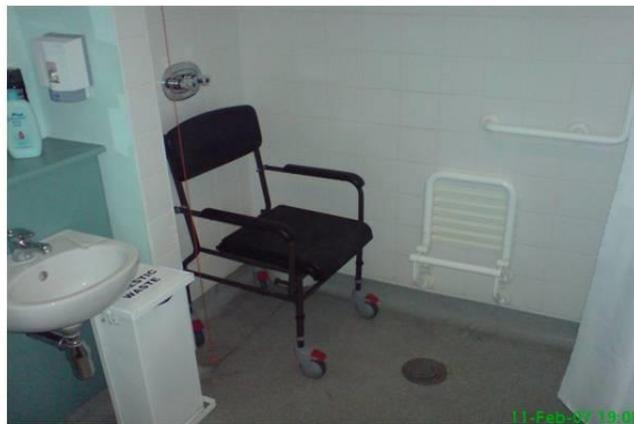
## Ward 1

Lighting	Please tick appropriate box	Yes	No	N/A
• Is lighting in all areas at a consistent level so that patients are not moving from darker to lighter areas and vice versa?				
• Do staircases have light switches at the top and bottom of them?				
• Do patients have easy access to night-lights?				
• Are all light switches accessible by patients (ie. not too high or too big to reach)?				
• Are the hallways and rooms well-lit (75 watts)?				
• Is glare absent from windows?				
• Are all switches marked with luminous tape for easy visibility?				
Passageways	Please tick appropriate boxes	Yes	No	N/A
• Are all passageways kept clear of clutter and hazards?				
• Are firm and colour-contrasted handrails provided in passageways and stairwells?				
• Is there adequate space for mobility aids?				
• Is there adequate storage space for equipment?				
• Are ramps used whenever possible, rather than stairs?				
• Do steps have a non-slip edging in a contrasting colour?				
• Is there enough room for two people with frames to pass each other safely?				
Lifts	Please tick appropriate box	Yes	No	N/A
• Do doors close slowly so that patients do not have to hurry?				
• Are buttons easily accessible to avoid reaching and balance problems?				
• Are floor signs at eye level to prevent stretching the neck?				
• Are handrails provided for support in case of a sudden jolt?				
External areas	Please tick appropriate box	Yes	No	N/A
• Are pathways even, with a non-slip surface?				
• Are pathways clear of weeds, moss and leaves?				
• Are steps marked with a contrasting colour and non-slip surface?				
• Are there handrails beside external steps and pathways?				
• Are there any overhanging trees, branches and shrubs?				
• Are there sensor lights that provide light and alert staff if a patient wanders outside at night?				
• Are there sufficient numbers of outdoor seats for regular rests?				
Security of environment	Please tick appropriate box	Yes	No	N/A
• Are all exits from the facility secure, to prevent confused patients leaving?				
• Are there clear walking routes both inside and outside where patients can wander safely without becoming lost?				
• Does the layout of the facility, or allocation of rooms, allow staff to be fully aware of patients who may disturb other patients or take things from other patients' rooms?				
<i>Remedial actions that need to be taken:</i> .....				
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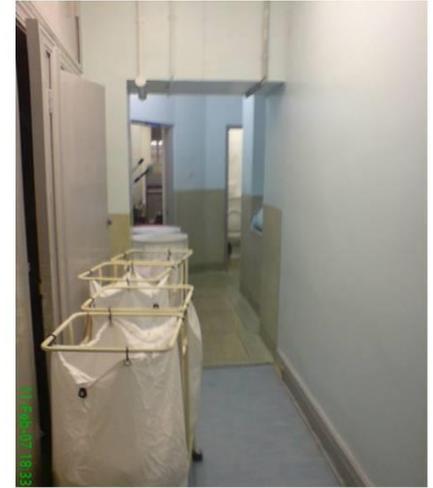
## Ward 2

Lighting	Please tick appropriate box	Yes	No	N/A
• Is lighting in all areas at a consistent level so that patients are not moving from darker to lighter areas and vice versa?				
• Do staircases have light switches at the top and bottom of them?				
• Do patients have easy access to night-lights?				
• Are all light switches accessible by patients (ie. not too high or too big to reach)?				
• Are the hallways and rooms well-lit (75 watts)?				
• Is glare absent from windows?				
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<i>Remedial actions that need to be taken:</i> .....				
.....				
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.....				

# Ward 1 photographs



# Ward 2 photographs



# Results

- There were no differences between both wards in terms of patient dependency, bed numbers, staffing or policies.
- The layout of Ward 1 promotes patient independence. Conversely, patients are more reliant on nursing staff for toileting due to poor availability of toilets on Ward 2.
- Increased supervision on Ward 2 has been suggested as the explanation for the lower incidence of falls.
- It was noted that a greater number of injurious falls were sustained in Ward 1 than Ward 2.
- The floor in Ward 1 is concrete covered in linoleum. Ward 2 has linoleum covered timber flooring, which has been associated with a significantly lower rate of injuries<sup>2</sup>.
- We offer this as an explanation for the lower incidence of injurious falls on Ward 2.

# Conclusions

- One of the over-riding concerns was that of the flooring in Ward 1. This has since been modified with a more absorbent underlay.
- Equipment and environmental changes within each ward and in particular within the toilet areas have now been looked at.
- Key pieces of equipment required included two adjustable height beds (to 12 cm from the floor) for each ward and adjustable height chairs.

# Ward environment is important in relation to falls rates

- A *partial* change to a modern ward environment may actually increase both the number and severity of inpatient falls.