

# Impact of the Care Environment on people with dementia

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## Home

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The needs of a person with dementia can be complex and community services are not always there to meet them...

institutional care may be the only option

## However

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- First research based design
- 'Homelike' settings
- Cluster arrangement
- Common accessible space
- Access to people and activities
- Areas of peace, quiet and privacy
- Influential

## Weiss Institute, Philadelphia Geriatric Center

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- 1980's - 16 studies in this area
- 2000 - 54+ studies

Ref: Day, K., Carreon, D., and Stump, C. *The therapeutic design of environments for people with dementia: A review of the empirical research.* 2000. *The Gerontologist*, 40(4), 397-416.

## Research

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- 'big versus small'
- 'integrated versus segregated'

## Debates

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### SCU minuses

No impact on:

- Wandering
- Cognition
- Functionality

Ref Day, K., Carson, D., and Slump, C. *The therapeutic design of environments for people with dementia: A review of the empirical research*. 2000. *The Gerontologist*, 40(4), 397-416.

### SCU pluses

- Improved quality of care and quality of life
- Improved health and behaviour
- Increased autonomy
- Improved visiting patterns
- Increased community access

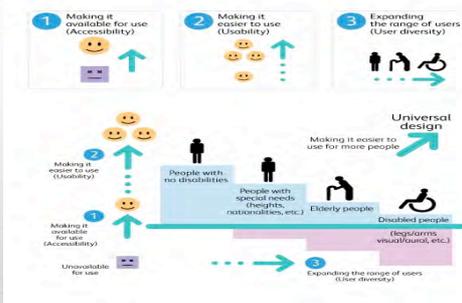
Cioffi et al, 2007; Morgan et al, 2004; Doody et al, 2001; Sicane et al, 2005)

## Integrated or segregated?

No consensus but studies suggest segregation preferable (Specialist Care Units)

- Appears to benefit cognitively intact
- Reduced behavioural disturbances
- Reduced apathy
- Improved or slow decline in mobility, communication skills, self-care skills

## Integrated or segregated?



## Design Principles & Features

- 1: Equitable Use
- 2: Flexibility in Use
- 3: Simple and Intuitive Use
- 4: Perceptible Information
- 5: Tolerance for Error
- 6: Low Physical Effort
- 7: Size and Space for Approach and Use

## Universal Design Principles

Design should:

- compensate for disability
- maximise independence
- enhance self-esteem and confidence
- demonstrate care for staff
- be orientating and understandable
- reinforce personal identity
- welcome relatives and local community
- allow control of stimuli

(Marshall et al, 1998)

## Dementia Design Principles

- Small size
- Familiar, domestic, homely
- Scope for ordinary activities
- Discreet concern for safety
- Different rooms = different functions
- Age appropriate furniture and fittings
- Safe outside space
- Signage
- Control of stimuli (especially noise)
- Visual Access

## Dementia Design Features

## REVIEW OF MARSHALL'S SCHEMA

Larger sized units associated with:

- á resident agitation levels
- á intellectual deterioration
- á emotional disturbances
- á territorial conflicts
- á space invasions
- á aggression toward other residents

Ref: Wilzans et al (1981), Teresi et al (1993), Sloane et al (1998), Morgan and Stewart (1998)

NB. There is some conflicting evidence (Zeisel et al, 2003)

## Does size matter?

Smaller sized units associated with:

- â anxiety
- â depression
- á mobility

Ref: Annerstedt, 1997; Skea and Lindsay, 1996

## Does size matter?

Dutch comparative study on the effects on people with dementia living in small group homes v's traditional nursing homes:

- i. Less help with ADLs
- ii. More social engagement
- iii. Having a greater sense of aesthetics
- iv. Being better occupied
- v. Less physical constraints prescribed

(Te Boekhorst et al. 2009)

?The later the stage of dementia – the less important the environment?

?Increased staff-resident interaction in small group living? (Fleming, 2008)

## Does size matter?

- Independent small house model
- Neighbourhood or Household model

## Small in Size

## Independent small house model

## The Green House Concept

"Intended to be a self-contained home for a group of 7-10 elders...a Green House ® blends architecturally with other homes in its neighborhood"

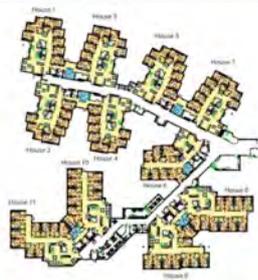
The Gerontologist, Vol. 46, No. 4, pg. 538

Plan  
Mississippi Methodist Senior Services, Inc., Tupelo, MS



Low occupancy  
Lack of corridors

Visual accessibility\*  
Kitchen at heart of home



- Paired households
- Staff efficiencies
- Shared utilities
- Internal 'street' simulation

**Small house village, Saskatchewan**

**Household/Neighbourhood model**



Evergreen at  
Creekview, Wisconsin

- Small scale environment
- Discrete clusters
- Decentralized social and staff areas

**Evergreen at Creekview**



- Community involvement
- Welcoming for families and friends

**Castleross, Carrickmacross**



- Nursing and convalescence
- Retirement village
- Independent Living Units

**Castleross**

- Household model
- Dementia specific 'Woodlands' unit
- Kitchen at the heart
- Shop-fronted amenities



## Moorehall Lodge, Ardee



## Household model



- Dementia specific household



## Familiar, Domestic & Homelike

Homelike furnishings and fittings:

- Comfy seats & Coffee tables
- Pictures & books
- Own bed & bedroom furniture
- Fireplace & mantelpiece

Also

- Homelike eating environment
- Kitchen like home

## Features of a domestic environment

Also:

- A pleasant milieu
- Homelike eating environment
- Kitchen like home
- Light and airy
- Serene
- Unrestricted
- Inviting for friends and relatives

(Cioffi et al, 2007)

## Features of a domestic environment

- Improved Quality of Life and reduced anxiety (Reimer, Slaughter, 2004)
- Lower levels of overall aggression (Zeisel et al, 2003)
- Residents chose homelike setting over institutional setting (Cohen-Mansfield and Werner, 1998)

*\*But best results come when combined with well trained staff, positive philosophy of care and strong management (Fleming, 2008)*

## Homelike Environment – the evidence



## Everyday Activities

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- Person not a passive recipient of services
- Capable of making a contribution
- Residents viewed as partners in the care process (Khilgren, Hallgren, 1994)

## Everyday Activities

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Reimer, Slaughter et al, 2004. Study of a Special Care Facility:

- Sweeping the floor, helping in the kitchen, access to garden.

Findings:

- Less decline in ADLs (compared to control)
- Decreased anxiety
- Increased interest

## Everyday Activities – the evidence

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Wood, Harris et al, 2005.

- Actively engaged residents in personal care and food preparation
- Led to improvement in Quality of Life

\* Dependent on focused staff intervention

## Everyday Activities – the evidence

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## Safety

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Zeisel et al, 2003.

- Obvious locked doors and alarms link to depression
- Camouflaged exits and silent electronic locks – less depression

Why?

Greater sense of control, empowerment and freedom – less need to try and exit the care setting

## Walking about / exit seeking

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Best option: Access to safe outside space  
Namazi and Johnson, 1992a.

- Open (unlocked) door
- Dramatic reduction in aggression, agitation and wandering

## Walking about / exit seeking

The down side?

- Low et al, (2004) Harmful behaviours (risk taking, passive self harm) associated with better safety features
- Torrington et al (2006) Safety and health only domains associated with negative impact on Quality of Life

## Safety



## Rooms, Function and Furniture

- Familiarity
- Personalisation
- Rooms for specific function



## Rooms, Function and Furniture

- á privacy, á personalisation, á individualised space = less aggression
  - á variability in common space = less social withdrawal
- Zeisel et al, 2003

Variety of spaces in environments for pwd:

- á anxiety and depression
- á social interaction
- á way finding

Hoglund et al, 1994; Passini et al, 2000.

## Rooms, Function and Furniture

## OUTDOOR SPACES

## Gardens



- Reduce agitation & agitated behaviours (Detweiler et. al., 2008; Calkins & Connell, 2003; Namazi & Johnson, 1992a)



- Keeping active and engaged
- Exercise & Vitamin D maintain bone and muscle quality
- Main benefit is staff interaction (Cox, Burns et al, 2004)

## Outdoor Spaces

- Unobtrusive safety features
- Non-poisonous plants, trees etc.
- Enclosed garden
- Pathways – non-slip, hand rails, seating etc
- Shelter

## Outdoor spaces - Safety

## Nursing home garden, London



- Visible, easily accessible and user friendly
- Adjoining dining/sitting area
- Visible seating
- 'Halfway house' (porch or conservatory)
- Covered areas/verandah (heated?)

## How do we encourage people to go outdoors more?

- Highly prominent doorway(s) leading outside
- Access - level & barrier-free
- Comfortable 'linger' area inside door
- Comfortable 'linger' area outside door
- Easy to open doors\* (unlocked)
- Fun things to do

## How do we encourage people to go outdoors more?



 A close-up of a wooden door with a silver horizontal push bar. Two green signs with white text and arrows are mounted on the door, one on each side of the bar, both reading "Push bar to open".
 

- Improved wayfinding
- Reduction in behavioural symptoms (Bianchetti et al, 1997)

NB. Exit signs and panic bars can lead to increased attempts to leave.

**Signage**

- Easy to read
- Large enough for those with VI (size, colour contrast)
- Pictorial plus written words
- Easy to see colours
- Contrast with surroundings
- Correct height (low down)
- Consistency (same signs or cues)

 A yellow arrow-shaped sign pointing to the left. Inside the arrow, there is a small illustration of a dining table with four chairs. To the right of the illustration, the words "Dining Room" are written in black text.
 

**Signage**

 A yellow sign with a dark grey silhouette of a woman's head and shoulders. Below the silhouette is a red and white toilet icon. The words "Female Toilet" are written in black text on the sign.
 

- Should indicate function of room
- Pictures can help cue people to what the room or area is for. Use recognisable images - eg. an image of a toilet will help cue someone to the function of the room better than an image of a man/woman.

**Signage**

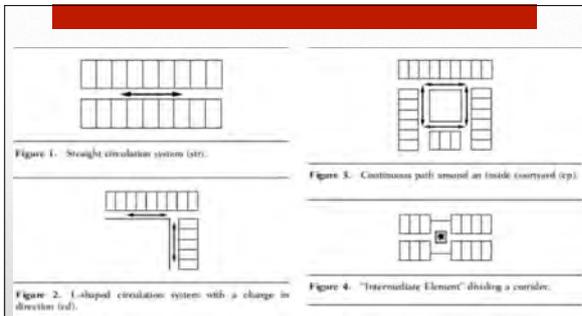
 A yellow sign with a black border. On the left, the word "Bedroom" is written in black text above a smaller box containing the name "Mary Bruce". On the right, there is a magnifying glass icon with a white daisy flower inside it.
 

**Signage**

**Objects for orientation**

 Two photographs of memory boxes. The top one is a white box filled with various small objects like a yellow flag, a blue object, and a green object. The bottom one is a white box filled with several small photographs.
 

- Memory boxes can act as prompts
- Personally significant memorabilia effective with people with a moderate dementia (Namazi, Rosner et al. 1991)
- Photographs of person in their youth? (Nolan, Mathews et al. 2002)



**Wayfinding Research**

Marquardt & Schmeig (2009) findings:

- Increase no. residents in living area = á disorientation
- Straight circulation system = easiest for residents
- Where direction changes – having only one kitchen/dining/living area as a reference point aids orientation
- If accessed via kitchen/living/dining area – outdoor space is better located by residents
- Importance of direct visual access to all patient relevant areas regardless of circulation system



**CONTROL OF STIMULI**

People with dementia:

- Problems with high levels of stimulation
- Less able to 'screen out' unwanted stimuli
- á confusion, anxiety, agitation

Less verbal aggression where sensory input controlled and understandable (Zeisel et al, 2003)

**Control of Stimuli**



**Control of Stimuli**

**Noise**



Noise is sound that is loud or unpleasant or that causes disturbance  
 Noise can cause stress, anxiety and general unhappiness  
 Good acoustics are important to well-being

## Noise

- Locate residents away from noise producing areas (e.g. kitchens, delivery points, refuse collection)
  - Use noise insulating materials
  - Regularly maintain noise-producing equipment
  - Understand environmental factors that contribute to intrusive noise
  - Regularly assess and accommodate for vision & hearing loss
  - Regularly assess the effect of noise levels on PWD
- Alzheimer Knowledge Exchange*

## Light



- Not just about reducing stimuli
- Caution needed with light
- Reducing light can impact on safety & wayfinding

## Benefits of Bright Light

Ceiling mounted luminaires

- in restless behaviour
- in feelings of depression
- Improved sleep
- Delay in cognitive decline

(Fleming, 2008; van Hoof et al., 2009ab.)



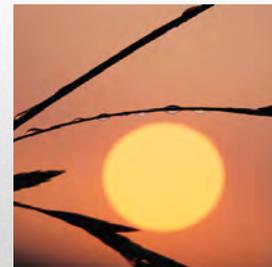
## Benefits of Daylight

- Vitamin D
- Circadian rhythm
- Seasonal Affective Disorder (SAD)

Therapeutic effects:

- Reduced stress
- Reduced analgesic use
- Shorter hospital stays
- Happier staff and patients

(Ulrich, 2002)



Positives:

- Increase in research in this area
- Some arguments already won – e.g. single rooms
- Strong evidence for lower numbers of people in a space, visual accessibility and improved lighting

Negatives:

- Lack of innovation in Irish nursing home design?
- Research equivocal in some areas e.g. gardens
- More (rigorous) research needed

## Summary

**“DESIGN MAKES GOOD CARE EASIER. IT DOES NOT MAKE IT HAPPEN.”**

(MARSHALL, 2001)

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