

Eastham, Amy Jayne and Cox, Diane (2017) Dementia-friendly wards: a review of the literature and pilot study of patient interaction and daily activity engagement. *International Journal of Health Governance*, 22 (1). pp. 25-36.

Downloaded from: <http://insight.cumbria.ac.uk/id/eprint/2424/>

***Usage of any items from the University of Cumbria's institutional repository 'Insight' must conform to the following fair usage guidelines.***

Any item and its associated metadata held in the University of Cumbria's institutional repository Insight (unless stated otherwise on the metadata record) may be copied, displayed or performed, and stored in line with the JISC fair dealing guidelines (available [here](#)) for educational and not-for-profit activities

**provided that**

- the authors, title and full bibliographic details of the item are cited clearly when any part of the work is referred to verbally or in the written form
  - a hyperlink/URL to the original Insight record of that item is included in any citations of the work
- the content is not changed in any way
- all files required for usage of the item are kept together with the main item file.

**You may not**

- sell any part of an item
- refer to any part of an item without citation
- amend any item or contextualise it in a way that will impugn the creator's reputation
- remove or alter the copyright statement on an item.

The full policy can be found [here](#).

Alternatively contact the University of Cumbria Repository Editor by emailing [insight@cumbria.ac.uk](mailto:insight@cumbria.ac.uk).

# **Dementia Friendly' Wards: Patient interaction and daily activity engagement**

## **Abstract**

**Purpose:** The aim of this practice based mixed methods small-scale study, was to explore the design features of a 'dementia friendly' acute ward environment and, staff views on the implications of daily activity engagement for patients with dementia.

**Design:** Eight staff members of the multidisciplinary team who work full time on an acute 'dementia friendly' ward completed semi-structured questionnaires. Thematic analysis explored responses to the open-ended questions, and a further environmental assessment tool rated features of the 'dementia friendly' ward design, on promoting aspects of wellbeing in patients with dementia.

**Findings:** Six overarching themes were found. These included: contrasting ward colours; clear ward signage; positive staff interaction; memorabilia, and activity rooms and items, had a positive influence on patient interaction, wellbeing and engagement in daily activities. The audit scores were rated highly for various aspects of the ward design. These included: the ward design promoting patient interaction, wellbeing, mobility, orientation, continence, eating and drinking, and calm and security.

**Practical implications:** This study supports staff perceived views of the positive influence that 'dementia friendly' design may have for patients with dementia. Both the physical design modifications of the ward and staff interaction were highlighted as positively influencing patient wellbeing, and daily activity engagement. Staff members also felt that they needed to balance the clinical ward priorities, with the contextual requirements of patients with dementia, to establish an effective 'dementia friendly' ward.

**Research Implications:** This practice based small-scale study highlights the importance that a 'dementia friendly' ward environment may have on patient engagement and wellbeing, from a daily activity perspective. Further research into the key aspects of design that enable meaningful daily activity engagement is required.

## **Introduction**

There are an estimated 800,000 people in the UK living with a diagnosis of dementia, a figure expected to increase to over two million by 2033 (Alzheimer's Society, 2014). Dementia is used to describe a variety of brain-related conditions and diseases that lead to progressive deterioration in memory and brain function (Maier-Hein et al. 2015). Mood disturbances and problems with communication and reasoning are also hallmark symptoms of dementia, which may further disenable the skills required to maintain function and carry out meaningful daily activities (Age UK, 2013).

UK government health policies such as 'Living well with dementia: a National Dementia Strategy' have highlighted the growing disparities present in the health care provided for people with dementia (Department of Health, 2009). Recent inquiries lend support to these claims, suggesting that acute services geared towards fast and effective responses to assessment, diagnosis, and treatment, may lead patients to become more overwhelmed, confused, and activity deprived (Heath et al. 2010).

The growing need to improve dementia care, in acute hospital settings, has further been endorsed by the 'Improving care for people with dementia' strategy (Department of Health, 2013). This policy draws attention to the current methods and campaigns for organisations and the general public, to develop 'dementia friendly' communities; with the focus now being transferred to organisations, commissioners and professionals, to form 'dementia friendly' hospitals throughout the UK (Dementia Action Alliance, 2013).

Consequently, the aim of this study was to gain further insight into the implications of a 'dementia friendly' acute ward environment on various aspects of activity engagement, in patients with dementia. It was anticipated that this would help to promote a daily activity specific rationale for 'dementia friendly' ward environments.

## **Literature Review**

### **What is a 'dementia friendly' hospital ward?**

A 'dementia friendly' ward is specifically a ward environment that has been designed and adapted to take into account the complex care needs and environmental requirements of those with dementia (Dementia Action Alliance, 2013). Wards that have not incorporated these design features tend to have limited colour schemes, signage, activities, visual memorabilia, little or no personalised bed areas, and generic bed covers, curtains.

Supportive design principles, endorsed by the Kings Fund (2014), identify five overarching features that combine to determine a 'dementia friendly' ward environment. These include an environment that promotes familiarity, legibility, wayfinding, orientation and meaningful daily activities. The expected outcomes of these design features include a reduction in agitation and distress, an ease in decision making, and the encouragement of independence and social interaction (The Kings Fund, 2014). Facilitating environments are thought to promote an increase in activity engagement, and therefore, health and wellbeing for persons with dementia (College of Occupational Therapists, 2014, Waller et al. 2016).

### **Impact of the physical design of the environment in dementia**

Design features of the physical environment have been identified as an important therapeutic resource to promote wellbeing and functionality among people with dementia (Day et al. 2000). However, hospital environments can be challenging places for people with mental health problems. Factors such as an unfamiliar design layout, poor signage, limited access to facilities, and non-contrasting colour schemes, may lead to disorientation, and a reduction in the person's mobility and activity engagement on the ward (Chaabane, 2007).

Marquardt (2011) proposed that 'familiarity, legibility, distinctiveness, accessibility, comfort, and safety' seem to have a major influence on the wayfinding abilities of people with dementia. Distinctive and unambiguous environmental cues, such as views of nature, views to natural light and outside areas could also enhance orientation. A previous study by Benson (2002) also found that warm colours promoted a welcoming and familiar feel, whereas, pale non-contrasting colours may promote a sterile and intimidating environment. Hodges et al. (2007) suggested that contrasting colours on the walls and floors enable orientation, navigation, mobility and promoted independence. Marquardt et al. (2014) further highlighted that design interventions such as legible signage to beds and toilets, furnishing and correct lighting, may facilitate orientation and navigation. However, their study concluded that these cannot fully compensate for an adverse architectural design. Instead, a simple, clear and visually accessible layout of the ward, with 'geometrically simple rooms, are structural prerequisites to successful orientation and wayfinding' in dementia friendly environments.

### **Impact of positive social environments in dementia**

While the social environment has been found to influence a person's volition to engage in daily activities, it is thought that dementia creates even further changes in the person's lived experience that highlight the potency of the environmental impact (Heath et al. 2010). An observational study explored the volition for everyday activities (termed occupations) in eight older people with dementia, in an assisted living unit (Raber et al. 2010). They concluded that all types of interaction (researcher, staff, and family) had a pervasive impact on the volitional behaviour of those with dementia. This study highlighted the importance of person-centred, staff interaction, in encouraging residents with interactive and social occupations (Raber et al. 2010). However, Yates-Bolton et al. (2012) proposed that implementing these findings may be more difficult in acute hospital settings, due to the fast-paced environment, with a lesser focus on social interaction, compared to longer term residential settings.

As is evident from the growing literature, design modifications such as appropriate lighting, contrasting colour schemes, legible signs for orientation, and resources to support activity and stimulation, may all facilitate in the daily health and wellbeing of people with dementia (The Kings Fund, 2014, Dementia Action Alliance, 2013). However, to date, limited research has explored how these design modifications may influence various aspects of daily activity engagement within an acute hospital setting, and the overall impact of the environmental space.

The aim of this research was to explore the perceived implications of a 'dementia friendly' ward environment (The Kings Fund, 2014), on various aspects of daily activity engagement for patients with dementia. Patient is the commonly used term in the study environment and is therefore used in this paper. The main research objective was to investigate multidisciplinary staff perceptions to gain insight into their experience of working on an acute 'dementia friendly' ward. Specifically, this exploration attempted to understand how the new 'dementia friendly' design changes may have influenced the perceived daily activity engagement and overall wellbeing of patients with a diagnosis of dementia.

### **Method**

This study used a practice based mixed methods approach (Yardley et al. 2015) with qualitative emphasis. The study combined: 1. a research centred environmental assessment tool (The Kings Fund, 2014) and 2. a specifically designed questionnaire, to explore various staff perceptions concerning the influence of the 'dementia friendly' ward design on aspects of activity engagement, independence and wellbeing, for patients with dementia.

**Participants:** Eight members of the multidisciplinary team who worked full time in an acute hospital ward for patients with dementia were selected by snowball sampling techniques (Emerson, 2015), from a range of professional backgrounds. The eight participants were considered a representative sample of the multidisciplinary team in this particular setting. Within snowball sampling, the lead researcher began by identifying at least two individuals who may have relevance to the study, with the advantage being that one informant refers the researcher to another participant, who may also have relevance to the investigation. There is potential bias in convenience sampling through a snowballing approach, as it is not known if those recruited have a similar view. However, care was taken during the recruitment process to not reveal the researcher's view or the anticipated outcome (Bowling, 2009).

**Ethical considerations:** With regards to the NHS definition of research (NHS Health Research Authority, 2013), this study fell under the remit of a service evaluation, as it measured current service without reference to a standard, involved analysis of existing data and there was no randomisation. Permission of access was gained from the relevant NHS trust.

All participants were briefed before completion of the questionnaires. The ethical procedures included providing the participant with the right to privacy, autonomy and confidentiality, and also the right to withdraw from the study at any time (NHS Health Research Authority, 2013)

**Procedure:** An appropriate professional contact was first established within the research and development team at the hospital trust, to discuss the aims of the research, and to gain further insight into possible participants, as well as a particular ward setting that may be of relevance to the study. Consequently, the criteria for the ward environment was one which had undergone a recent transition regarding design features, into a more 'dementia friendly' ward environment (The Kings Fund, 2014). Following approval of access to an appropriate hospital ward, members of staff who had had been briefed and provisionally selected to take part

in the study were approached on the ward and handed a participant information sheet, written consent form and a semi-structured research questionnaire to complete (Peterson, 2000).

**Data Collection** An environmental assessment tool (The Kings Fund, 2014) was also completed by the lead researcher with the ward manager, to rate various aspects of the 'dementia friendly' design features. The tool rated the environmental design features on aspects of patient mobility, wayfinding, orientation, feelings of calm and security, personal hygiene, self-care activities and the promotion of meaningful activities (The King's Fund, 2014). Further data was gathered using a specifically designed questionnaire, with an emphasis on open-ended questioning. This questionnaire was considered appropriate to provide a detailed exploration of the topic, due to the primarily phenomenological nature of the research (Peterson, 2000). The design of the questionnaire incorporated existing terminology referred to within a validated environmental assessment tool (The Kings Fund, 2014).

**Data Analysis:** Following the gathering of open-ended, semi-structured data, thematic analysis was used. This type of analysis allowed for the examination of the underlying ideas, assumptions and conceptualisations that were theorised as shaping or informing the semantic content of the data (Braun and Clarke, 2006). Although this was primarily an open-ended analysis, some closed ended, discrete data (Marshall and Jonker, 2010) was collected from the questionnaire and environmental assessment tool. Simple descriptive statistics were incorporated in the form of summary charts, to provide an overview of staff responses to the 'dementia friendly' design principles, and add further in-depth analysis to the qualitative themes.

### **Findings**

All eight participants completed the specifically designed questionnaires. They included two occupational therapists, two nurses, two physiotherapists and two occupational therapy assistants.

As can be seen from figure 1, all eight participants agreed that the design features of the ward environment appeared to have a positive influence on patients' level of awareness and mood. The majority of participants also agreed that the 'dementia friendly' ward environment had positively influenced patient and staff interaction, independence in personal hygiene and independence in mobility. However, only half of respondents agreed that 'dementia friendly' principles positively influenced patient' engagement in daily self-care activities.

*Insert Figure 1 here*

Figure 2 highlights the mean scores from the environmental assessment tool, illustrating the summary of rating scores for various aspects of the 'dementia friendly' ward design, and the perceived influence on patient activity and wellbeing. The ratings ranged from 1 (barely met) to 5 (totally met).*Insert Figure 2 here*

Figure 2 reveals that the environment was rated as four out of five for promoting meaningful interaction. This rating included an obvious reception desk, social areas such as day rooms, and the encouragement of activity in social areas. A mean score of four was also ranked against the promotion of wellbeing. This rating included

the environment having an appropriate level of lighting, access to natural light, access to personal objects including self-care items, and views of nature maximised.

The environment promoting calm and security was also ranked a mean score of four out of five. In particular, this included a “clutter free” ward environment, sound control and discrete safety aspects. The promotion of orientation was also similarly rated a mean score of four out of five. This included the ward having clear signage, large visible clocks, and clear, accessible rooms and facilities. A mean score of five out of five was also rated alongside the environment promoting mobility. This included contrasting colour schemes on the walls and furniture, space for patients to walk around, local points of interest, coloured accessible handrails, matt flooring and small seating areas around the ward.

### **Thematic Findings**

All eight participants completed the questionnaire. These were thematically analysed, revealing six overarching themes.

- 1) Contrasting colour schemes;
- 2) Clear ward signage;
- 3) Positive staff interaction;
- 4) Photographs and memorabilia;
- 5) Activity rooms and items;
- 6) Context of the acute hospital setting.

Themes one to five were perceived to positively influence patient interaction, wellbeing and engagement in daily activities. Theme six highlighted the degree to which ‘dementia friendly’ ward design principles could be implemented and had to be considered within the context of the acute hospital setting.

#### **Theme 1: contrasting colour schemes**

The majority of participants reported that contrasting colour schemes throughout the ward had positively influenced patient independence, particularly regarding mobility and daily personal hygiene activities. Participants said patients were able to recognise the colour red as the colour for the bathroom and nowhere else. Respondents proposed that this promoted continence, as patients were able to locate, manoeuvre and access the toilet independently when required. Incorporated into this theme was that separate, bright colours on the walls, floors and in the bay areas, helped promote patient recognition and independence in navigation. For instance, participants said that the coloured bedrooms and bay areas were now easier for patients to remember, recognise and locate and helped staff describe to the patients where to go.

#### **Theme 2: clear ward signage**

Another key theme evident from participants’ responses was that clear ward signage promoted patient locating and wayfinding abilities. Several participants discussed that patient independence in self-care tasks was facilitated by clear yellow signs, with text and pictures on the bathroom and throughout ward corridors. It

was suggested that this prompted the patient to mobilise independently to the bathroom, toilets and ward facilities. Correspondingly, continence and independence in personal hygiene and mobility were rated highest within the environmental assessment tool. However, only half of respondents reported that the ward environment appeared to influence patient daily self-care activities.

### **Theme 3: positive staff interaction**

Another theme repeated throughout the data was that positive staff interaction encouraged patient wellbeing and aided in patients' daily activity engagement. For example, several responses revealed there was an increase in ward staff encouraging patients to use the new facilities, such as day rooms, and to involve patients in family interaction and activities. Two participants felt that patient engagement in self-care activities was more significantly influenced by staff attitudes and encouragement, compared to any of the design features alone. It is not known if these views were influenced by other factors or changes in ward staffing or leadership. However, several respondents also indicated that ward staff seemed happier due to the bright aesthetic appeal and clear layout of the ward. Staff perceived these design modifications aided in more positive patient interaction and engagement. Responses also indicated that new volunteer involvement had made a positive difference to patient engagement within meaningful daily activity.

### **Theme 4: photographs and memorabilia**

A common response throughout the data were the nationally recognised photographs of places and buildings and pictures of nature and memorabilia along the ward corridors. For example, staff members felt that familiar photographs allowed for positive patient interaction to discuss the history of visiting these places. Two therapists also reported that photographs of nationally known attractions were useful within specific therapy programmes, to aid in discussion and reality orientation with the patient. Responses also highlighted that the pictures of individual coloured flowers above the bedside prompted the patients to remember what room they were in and independently locate their bedside.

### **Theme 5: ward activity items and environments**

Staff also felt the ward design had been adapted to provide well-equipped activity rooms and social areas, as well as an increase in the use of activity items. Several participants reported that there had been an increase in the use of the lounge area and day room as social space and a place for therapeutic activities to be held. Facilities in the day room had been made more 'homely' and included new tables and chairs, and access to music. This new design modification was suggested to promote the social and therapeutic appeal of the ward. New seating areas throughout the ward were also reported several times. Staff suggested that this had led to an increase in patient visibility, which increased the level of social opportunity and interaction on the ward. Furthermore, two therapy respondents stated that there was now an activity box with memorabilia items, and activities provided on a regular basis, to facilitate engagement of patients during a therapy session.



## **Theme 6: Context of the acute hospital setting**

A majority of respondents also emphasised that the scope of 'dementia friendly' design principles had to be considered in the context of the acute hospital setting (NICE 2006, Waller & Masterson 2015). For example, staff felt that a more defined, personalised area at the bedside would be beneficial. However, this was not possible due to additional ward priorities such as patient confidentiality. Some respondents also suggested that bespoke furniture, for example, chairs in the bathroom were important for self-care activities. However, they noted that this was not possible due to infection control (NICE, 2011) and the need to keep only essential and easily sterilised items to hand. Furthermore, respondents felt that the addition of new activity rooms required an increase in staff involvement, to facilitate patients to access and use these rooms. This required a balance of work priorities, to attend to the acute medical needs of patients who were physically unwell, with the social requirements and daily aspects of more independently mobile patients with dementia.

### **Discussion**

The overall findings of this small-scale study revealed that supportive design features such as bright contrasting ward colours, clear ward signage, positive staff interaction, and identifiable memorabilia, were all perceived to promote patients remaining abilities in these settings. Recent emerging literature such as Scerri et al. (2015) also lends support to these results by proposing that contextual design considerations such as colour schemes, signage and memorabilia, as well as positive staff and caregiver interaction, are essential prerequisites to providing quality dementia care in acute settings. Whilst the costs of the changes to this particular dementia friendly ward were not explored in this study, Waller and Masterton (2015) have noted that changes to the design and fabric of the hospital environment are often relatively straightforward and inexpensive.

A prevalent finding of the study was that the ward colour schemes, including colour coded furniture and facilities, positively influenced patients' mood, orientation and wayfinding abilities. Previous research by Benson (2002) also proposed that contrasting colours on the walls and floors may provide important visual cues to facilitate orientation, mobility and promote independence. Rogers and Langa (2010) suggested that the visual disturbances in dementia, such as contrast sensitivity, visuospatial orientation and colour perception may explain the significance of contrasting colour schemes, in facilitating visual recognition and navigation on the ward. Impairment in recognition, perception and memory in patients with dementia emphasises the importance of appropriate signage, in particular, text and image, and environmental cues, for patients to orientate themselves to their surroundings, (Marquardt et al. 2014).

The environmental assessment tool rating and staff feedback from the questionnaires revealed that signage and views to nature were accentuated on the ward, and this appeared to have had a positive influence on patients' navigational abilities. However, Yates-Bolton et al. (2012) suggested that there are potentially conflicting issues when adapting the environment for a person with dementia, in an acute setting. This finding became apparent in the current investigation, as it was not possible to include personalised name plates, due to issues of patient confidentiality. Interestingly, it was also clear from the environmental assessment tool that

attempts had been made to balance the priorities of the ward, with the design considerations essential for those with dementia. For instance, instead of personal portraits and photographs, nationally recognisable memorabilia were instead incorporated into the ward design, to aid in familiarity and reality based discussion. Personal care items were in the lockers at the bedsides, and familiar cues such as pictures of individual flowers, instead of nameplates, were in place to aid familiarity. This compromise supports Fleming and Purantares' (2010) recommendation that the inclusion of 'familiar, personal and homelike' belongings in a person's immediate environment could be a practical and realistic compromise in these settings. However, a further consideration is that all wards should incorporate environmental design factors that meet the needs of all patients to create a supportive environment to maintain daily skills (Waller & Masterson, 2015 and College of Occupational Therapists, 2014)

Overall, much of the emerging research on contextual ward design features in acute settings, centres on factors influencing the quality of care for patients with dementia, and incorporates language and outcomes from a nursing or a caregiver's perspective (Scerri et al. 2015). This current small scale study may be regarded as unique in its attempt to explain the implications of these design features, from an activity perspective. Thus, it may be proposed that improvements in wayfinding, mobility and interaction on the ward, may be regarded as the physical performance components necessary for an improvement in a person's activity performance (Golledge, 1998). Furthermore, it may be reasonable to propose that the ward design may have also led to an overall improvement in patients' daily activity engagement (Wilcock, 2007). For instance, as patients were able to locate more independently their bedside area, attend more to their self-care needs, and engage more in daily therapeutic activities, this may be regarded as patients attending more to activities with meaning, to accomplish a desired outcome (Wilcock, 2007). Waller and Masterson (2015) highlighted that if the ward environment is appropriately designed patients are more likely to retain independence in daily living tasks and return home.

The observed increases in independence regarding continence and personal hygiene may also be considered as factors facilitating an increase in daily activity engagement (Creek and Hughes, 2008). Clark and Rugg (2005) suggested that patients within a hospital setting view requiring assistance in toileting as undesirable, leading them to feel uncomfortable, helpless and a decreased sense of control. Consequently, improved independence in toileting may further enhance the patient's sense of efficacy in this task, which may contribute to an increased sense of empowerment and confidence in undertaking other meaningful ward activities.

Staff also felt they had a reduced time to engage patients in daily social activities, due to the need to attend to patients with a main physical diagnosis, as well as their dementia. Therefore, this lends support to the viewpoint that comorbidities make the complexity of care more challenging in these environments (Scerri, 2015). However, the findings revealed that staff understood the importance of 'quality time', positive staff regard, and appropriate communication at all times, as a way to compromise for the lack of time available for direct one-to-one social engagement. Interestingly and unexpectedly was that the mere aesthetic appeal of the new ward design was reported to have further aided in staff morale, which may have contributed to more

positive patient interaction. Others have recently acknowledged how completion of the environmental changes can have a positive impact on staff and carers attitudes.

The implications of a 'dementia friendly' ward environment on staff morale are significant, as widespread research has reported the prevalence of a diminished staff morale, due to issues with the environment, organisation and knowledge of staff within these settings (Porock et al. 2014). Reed (2010) contended that the appreciation and training of staff in older persons care are important in laying the foundations for positive staff ethos in these settings. Within this current research, staff reported having received specific training in dementia care, which may have provided an increased understanding around the interrelationship between the physical space, social interaction and encouragement of daily activities on the ward.

### **Limitations of the study**

As the study used a small sample size and semi-structured questionnaire data for data collection purposes, the overall findings cannot be generalised to all 'dementia friendly' hospital settings. Thus, future research will be needed to consider the perspective of staff that work within other 'dementia friendly', to provide comparisons and recommendations within these settings. Low, Draper, and Brodaty (2004) have suggested that there is no single environment suited to all residents. Thus, there is a need to explore the phenomenological experience of the physical and social environment, to further understand the meaning and function of space to those with dementia.

### **Implications for practice**

Overall, it is anticipated that this study may provide foundations for future explorations within 'dementia friendly' hospital environments, using a daily activity and social interaction perspective. Further explorations may allow for a more accurate conceptualisation of patients remaining abilities within these settings. Furthermore, it is anticipated that these findings will contribute to the growing evidence base towards the positive influence that 'dementia friendly' design principles may have on patients with dementia, within the acute hospital setting.

This study demonstrated the importance of auditing, as an outside researcher, in the acute hospital environment, as it prompted staff in open debates and reflection regarding the design of the ward. An unexpected outcome of this study was that immediately following the completion of the environmental assessment tool, staff members implemented further modifications to the ward, such as further signage and information, and enhanced personalisation of bed areas. Staff also reflected on the use of space within the ward and how it could better utilised. This finding further illustrates the importance of auditing within health care environments for person with dementia, to create opportunities and possible areas for improvement and future implementation (Kristensen and Hounsgaard, 2014).

### **Implications for future research**

Larger scale comparative studies are required to identify which particular aspects of the “dementia friendly” environment have the most impact on maintaining daily activities and independence. It is interesting that there is currently a systematic pragmatic review underway to compare outcomes of dementia friendly interventions and the environment, on improving primary outcomes such as satisfaction, length of stay, and place of discharge and readmission rates for people living with dementia (Handley *et al.* 2015). As this current study was a relatively small-scale consideration of the issues, any future research also needs to consider if such environments enable patients to retain their daily living skills, maintain quality of life and reduce length of stay. Further research into the key aspects of design that enable meaningful daily activity engagement is required.

### **Conclusion**

This study suggests the positive implications of a ‘dementia friendly’ ward design, on dementia patients’ remaining abilities with the acute hospital setting. Both the physical design modifications, and positive staff ethos and involvement, were perceived to contribute to increased patient independence in personal care activities, social interaction, and engagement in daily activities on the ward. Supportive design features, such as bright contrasting colour schemes, clear ward signage, positive staff interaction, activity rooms, and identifiable memorabilia, were suggested to promote patients’ remaining abilities within these settings. This exploration also revealed that staff felt the need to maintain an optimum balance between the clinical priorities of the acute physical setting, with the contextual requirements of patients with dementia, to achieve the most effective ‘dementia friendly’ acute ward environment.

## References

- Age UK. (2013), "Dementia", Available at: <http://www.ageuk.org.uk/health-wellbeing/conditions-illnesses/dementia/> (Accessed 10 September 2015).
- Alzheimer's Society. (2014), "What is Alzheimer's disease?", available at: [http://www.alzheimers.org.uk/site/scripts/documents\\_info.php?documentID=100](http://www.alzheimers.org.uk/site/scripts/documents_info.php?documentID=100) (accessed 10 September 2015).
- Benson, S. (2002), "The use of colour in dementia design", *Journal of dementia care*. Vol. 49 No. 3, pp20-23.
- Bowling, A. (2014). "Research methods in health: investigating health and health services". McGraw-Hill Education (UK).
- Braun, V. and Clarke, V. (2006), "Using thematic analysis in psychology", *Qualitative Research in Psychology*. Vol. 3 No.1, pp 77-101.
- Chaabane, F. (2007), "Falls Prevention for Older People with Dementia", *Nursing Standard*. Vol. 22 No.3 pp50-55.
- Clark, J. and Rugg, S. (2005), "The importance of Independence in Toilet: the views of Stroke Survivors and their Occupational Therapists". *British Journal of Occupational Therapy*, Vol. No. 4, pp.165-171
- College of Occupational Therapists. (2014), "Dementia: Adapting the acute hospital environment", available at: <http://www.cot.co.uk/briefings/dementia-adapting-acute-hospital-environment> (accessed 12 September 2015).
- Creek, J. and Hughes, A. (2008), "Occupation and health: a review of selected literature", *British Journal of Occupational Therapy*, Vol. 71 No. 11, pp.456-468.
- Day, K, Carreon, D and Stump, C. (2000), "The Therapeutic Design of Environments for People with Dementia", *The Gerontologist*. Vol. 40 No.3, pp397-416.
- Dementia Action Alliance. (2013), "The Right Care: Creating Dementia Friendly Hospitals", available at: [http://www.dementiaaction.org.uk/assets/0000/1688/Dementia\\_Action\\_Alliance\\_Newsletter\\_January\\_2013.pdf](http://www.dementiaaction.org.uk/assets/0000/1688/Dementia_Action_Alliance_Newsletter_January_2013.pdf) (accessed 11 September 2013).
- Department of Health. (2009), "[Living well with Dementia, a National Dementia Strategy](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/168220/dh_094051.pdf)", available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/168220/dh\\_094051.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/168220/dh_094051.pdf) (Accessed 11 September 2015).
- Department of Health. (2013), "Improving care for people with dementia", available at: <https://www.gov.uk/government/policies/improving-care-for-people-with-dementia> (accessed 10 September 15).
- Emerson, R. (2015) "Convenience Sampling, Random Sampling and Snowball Sampling: How Does Sampling Affect the Validity of Research?" *Journal of Visual Impairment and Blindness*, Vol. 109. No. 2, pp164-168.
- Fleming, R and Purandare, N. (2010), "Long-term care for people with dementia: environmental design guidelines", *International Psychogeriatrics*. Vol. 22 No. 7, pp1084-1096.
- Golledge, J. (1998) "Distinguishing between occupation, purposeful activity and activity, part 1: review and explanation", *British Journal of Occupational Therapy*, Vol. 61 No. 3, pp100-105.
- Handley, M., Bunn, F., & Goodman, C. (2015). Interventions that support the creation of dementia friendly environments in health care: protocol for a realist review. *Systematic reviews*, 4(1), 1.
- Heath, H, Sturdy, D and Wilcock, G. (2010), "Improving quality of care for people with dementia in general hospitals", available at: <http://journals.rcni.com/userimages/ContentEditor/1373367875414/Improving-dementia-care-quality.pdf> (accessed 12 September 2015).

Hodges, L, Bridge, C and Chaudhary, K. (2006), "Dementia Design Guidelines: Home and Community Care Capital Works Program", available at: <http://www.communitywebs.org/htsa/assets/dementia/dementiadesignguidelines.pdf> (accessed 11 September 2015).

Kristensen, H, Houndsgaard, L (2014), "Evaluating the Impacts of Audits and Feedback methods for implementation of evidence in stroke rehabilitation. *British Journal of Occupational Therapy*, Vol. 77 No. 5, pp251-259.

Low, L, Draper, B, and Brodaty, H. (2004), "The relationship between self-destructive behaviour and nursing home environment", *Ageing and Mental Health*. Vol. 8 No.1, pp29-33.

Maier-Heina, K.H, Westin, C.F, Shentona, M.E, Weinerf, M.W, Rajg, A, Thomann, P, Kikinis, R, Stieltjesc, B, and Pasternaka, O. (2014), "Widespread white matter degeneration preceding the onset of dementia", *Alzheimer's and Dementia*, Vol. 11 No. 5, pp. 485–493.

Marquardt, G. (2011), "Wayfinding for People with Dementia: A Review of the Role of Architectural Design", *Health Environments Research & Design Journal*, Vol. 4 No. 2, pp75-90.

Marquardt, G, Bueter, K, and Motzek, T. (2014) "Impact of the design of the built environment on people with dementia: an evidence-based review". *Health Environments Research & Design Journal*, Vol. 8 No. 1, pp127-157.

Marshall, G, and Jonker, L. (2010), A concise guide to...descriptive statistics. Synergy.

Mitchell, I, Burton, e, Raman, S, Blackman, T, Jenks, M, and Williams, K. (2003), Making the outside world dementia-friendly: design issues and considerations. *Environment and Planning B: Planning and Design*. Vol. 30 No. 4, pp605–632.

NHS Health Research Authority. (2014), "Research Community", available at: <http://www.hra.nhs.uk/research-community/> (accessed 10<sup>th</sup> June 2015).

National Institute for Health and Clinical Excellence (Great Britain). (2006). *Dementia: supporting people with dementia and their carers in health and social care*. National Institute for Health and Clinical Excellence.

NICE. (2011), "Healthcare-associated infections: prevention and control", available at: <https://www.nice.org.uk/guidance/ph36> (accessed 13th September 2015).

Peterson, R.A. (2000), *Constructing Effective Questionnaires*. Sage, Thousand Oaks, CA.

Porock, D, Clisset, P, Harwood, and Gladmans, J. (2013), "Disruption, control and coping: responses of and to the person with dementia in hospital", *Ageing and Society*, Vol. 23 No. 6, pp 1-27.

Reed, J. (2010), "Appreciative inquiry and older people, finding the literature". *International Journal of Older People Nursing*, Vol. 5 No. 1, pp.728-735.

Raber, C, Teitelman, J, Watts, J and Kielhofner, G. (2010), "A phenomenological study of volition in everyday occupations of older people with dementia", *The British Journal of Occupational Therapy*, Vol. 73 No. 9, pp498-506.

Rogers, M, and Langa, K. (2010), "Untreated Poor Vision: A contributing Factor to Late-Life Dementia", *American Journal of Epidemiology*, Vol. 176 No. 6, pp.728-735.

Scerri, A, Innes, A and Scerri, C. (2015), "Discovering what works well: exploring quality dementia care in hospital wards using an appreciative enquiry approach", *Journal of Clinical Nursing*, Vol. 11 No.3, pp.1-10.

The Kings Fund. (2014), "Is your ward dementia friendly? The EHE Environmental Assessment Tool", available: <http://www.kingsfund.org.uk/sites/files/kf/EHE-dementia-assessment-tool.pdf>. (accessed 10 June 15).

Waller, S., Masterson, A., & Evans, S. C. (2016). The development of environmental assessment tools to support the creation of dementia friendly care environments: Innovative practice. *Dementia*, 1471301216635829.

Waller, S., & Masterson, A. (2015). Designing dementia-friendly hospital environments. *Future Hospital Journal*, 2(1), 63-68.

Wilcock, A.A. (2007), "Occupation and health: are they one and the same?", *Journal of Occupational Science*, Vol.14 No.1, pp.3-8.

Yardley, L and Bishop, F. (2015), "Using mixed methods in health research: Benefits and challenges, *British Journal of Health Psychology*, Vol. 20. No. 1, pp12-18.

Yates-Bolton, N, Yates, K, Williamson, T, Newton, R and Codinhoto, R. (2012), "Improving Hospital Environments for People with Dementia", available at: [http://usir.salford.ac.uk/23376/1/Dementia\\_Improving\\_Hospital\\_Environments\\_Final\\_%282%29.pdf](http://usir.salford.ac.uk/23376/1/Dementia_Improving_Hospital_Environments_Final_%282%29.pdf). (accessed 10 September 2015).