

PRIORITY BRIEFING

The purpose of this briefing paper is to aid Stakeholders in prioritising topics to be taken further by PenCLAHRC as the basis for a specific evaluation or implementation research project. This paper was compiled in 2-3 days.

What is the impact on physical and mental well-being of using outdoor spaces such as gardens for those with dementia?

Question ID: 9

Question type: Intervention

Question: What is the impact on physical and mental well-being of using outdoor spaces such as gardens for those with dementia?

Population: People who have dementia living in their own homes or in care homes.

Intervention: A therapeutic/healing garden.

Control: No garden or no use/access to a garden.

Outcome: Outcomes of interest:

- change in psychological and behavioural symptoms of dementia (such as episodes of wandering, falls, agitation, aggression etc.)
- changes in levels of physical activity
- changes in levels of cognitive functioning
- change in medications (eg antipsychotic prescription)
- quality of life
- carer burden
- carer quality of life
- measures of carer acceptability and satisfaction
- themes and concepts related to the views and experience of domestic gardens and their use by staff, carers and/or people with dementia
- the impact of different levels of engagement with the space (e.g. sitting, relaxing, gardening, or walking) will be considered as subgroups.

For consideration: A number of studies have been completed in this area which could be brought together for review. Any review would consider before and after study designs and evaluations. A review of qualitative research using recognised methods of synthesis could also be undertaken.

*Please note that the details included in the box are from the original submission and have been edited where necessary for clarity and precision

Dementia:

The term dementia is used to describe a syndrome which may be caused by a number of illnesses in which there is progressive decline in multiple areas of mental function, including memory, reasoning, communication skills and the ability to carry out daily activities. Alongside this decline, individuals may develop behavioural and psychological symptoms such as depression, psychosis,

aggression and wandering, which complicate care, and often challenge the skills and capacity of carers and services. The specific causes of these illnesses are not well understood, but they all involve structural and chemical changes in the brain leading to the death of brain tissue. The main sub-types of dementia are: Alzheimer's disease, vascular dementia, mixtures of these two pathologies ('mixed dementia') and rarer types such as Lewy body dementia, dementia in Parkinson's disease and fronto-temporal dementia. The term 'Alzheimer's disease' is used sometimes as a shorthand term to cover all forms of dementia.

Outdoor Space: (Therapeutic/ Healing/Wander gardens)

Outdoor space within the context of healthcare is often referred to as a "healing garden", "therapeutic garden" or "wander garden". In the case of a healing garden, healing refers to an improvement in well-being that incorporates the spiritual as well as the physical, not a cure for a specific illness. A healing garden may provide relief from the psychological distress associated with a disease but not alter the disease's outcome. A therapeutic garden is designed to produce a given effect or outcome. It is less focused on healing in a spiritual context (although it may have that effect), and more focused on ameliorating a disease. The terminology of wander gardens is used when the specific aim of the outdoor space is to elicit freedom to move. Gardens are experiencing a renaissance in health care settings as a growing body of research is showing that exposure to natural environments can improve both the patient experience and health outcomes.

The Health Problem:

Globally it is estimated that 24.3 million people have dementia, with 4.6 million new cases of dementia being diagnosed every year. The most recent estimate of the number of patients with diagnosed and undiagnosed dementia in the UK is 821,884, representing 1.3% of the UK population (Dementia 2010, Alzheimer's Research Trust). Dementia costs the UK economy £23 billion a year and in the next 30 years, the number of people with dementia in the UK is expected to double, with costs expected to treble to over £50 billion per year (National Dementia Strategy, 2009). Whilst, dementia is predominantly a disorder of later life, there are at least 15,000 people under the age of 65 who have the illness.

In the South West, there is a higher than average population of older people and thus higher prevalence of dementia. It is estimated there are currently 72,811 people with dementia, 20,141 of whom live in Devon and Cornwall and the Isles of Scilly (Joint Review of Dementia Services in the South West, 2009).

Guidelines:

NICE guidance recommends increasing physical activity for older people, including through gardening and walking, to improve mental wellbeing (NICE PH Guidance 16, 2008). NICE also recommends that specific attention should be paid to the physical environment where people with dementia live, including the design of gardens and peoples access to them, although the evidence base for

this is unclear. (NICE Clinical Guideline 42, 2006, Supporting people with dementia and their carers)

NHS Priority:

This question encompasses a number of priority areas including Mental Health and Wellbeing and Long Term Conditions. Improved quality of care for people with dementia in hospitals and care homes is part of the National Dementia Strategy, published by the Department of Health and the National Service Framework for Older People.

Local

- **NHS Devon:** Helping people to stay healthy, carers support, dementia care
- **Torbay Care Trust:** Helping people to stay healthy, people supported to live independently through social services
- **NHS Plymouth:** Helping people to stay healthy, improved mental health and wellbeing,
- **Cornwall and Isles of Scilly:** Helping people to stay healthy, improved mental health and wellbeing, dementia

QIPP – Improving mental health is a QIPP priority

Existing Research:

Published research

No systematic reviews or randomised controlled trials evaluating the outcomes of therapeutic/ healing gardens for dementia were identified in the search conducted for this priority briefing. Whilst it is often noted that therapeutic gardens offer positive outcomes for people with dementia, the empirical data is lacking, with the research to date largely exploratory and anecdotal with very few follow-up studies. Several case-studies were identified. Mather and colleagues found an increase in morale after the introduction of a walled garden for long term patients with Alzheimer's, but no pre-post differences in disruptive behaviours¹. Detweiler et al. reported a reduction in agitation for dementia patients 12 months after the introduction of a wander garden². The same authors also noted that high garden users required fewer scheduled medications and experienced reduced falls and lower fall morbidity than those who used the garden less³.

Numerous qualitative descriptive studies were identified, often using focus-groups and one on one interviews to assess the impact of gardens for individuals with dementia, their families and carers. Improved quality of life and mood for the individuals with dementia by families and carers has been noted^{4, 5, 6} as well as by dementia patients themselves⁷. Gardens have also been noted to be of value to visiting families members.

Ongoing research

No ongoing randomised controlled trials were identified. Three abstracts refer to two case studies and one quasi-experimental trial in progress. These are 1) investigating appropriate methodology for assessing the impact of therapeutic gardens, 2) assessing the cognitive effects of a garden for people with Alzheimer's disease and 3) assessing the effects on neuropsychiatric behaviors and need for medication to control behavior of therapeutic gardens for individuals with Alzheimer's disease.

Feasibility:

Links are in place with PCMD staff who specialise in older people's mental health and the Environment and Human Health.

References:

1. Mather, J.A., Nemecek, D., Oliver, K. 1999 The effect of a walled garden on behavior of individuals with Alzheimer's. American Journal of Alzheimer's Disease 12(6):252-257

Provision of Special Care Units for people with Alzheimer's is seen as a solution to difficulties with their behavior, but the effect of such a unit is rarely tested. After Southland Care Center built an enclosed garden next to such a locked-in unit, Ss' behavior was observed to look for such an effect. To find out if the garden helped change behaviors of the residents, 3 different types of observations were used: measurement of disruptive behaviors, outdoor observations and indoor observations. 10 Ss, aged 69-100 yrs, participated. No pre- post-differences in disruptive behaviors were observed over the summer high-use period. However, Ss averaged only 14% of the peak afternoon use time in the garden, and those using it more displayed less disruptive behavior. As well, Ss slept less in the daytime in summer compared to winter and spent more time in winter looking out the window and trying the handle of the door to the garden. Garden use appeared to have had a general positive effect on morale but little effect on disruptive behaviors, perhaps because of limited use by Ss.

2. Detweiler, M.B., Murphy, P.F., Myers, L.C.Kim, K.Y. 2008 Does a wander garden influence inappropriate behaviors in dementia residents? American Journal of Alzheimer's Disease and Other Dementias, 23(1):31-45

Background: The effect on resident behaviors of adding a wander garden to an existing dementia facility was investigated. Methods: 34 male residents were observed for 12 months before and after opening the garden. Behaviors were assessed using the Cohen-Mansfield Agitation Inventory Short Form (CMAI), incident reports, as needed medications (pro re nata [PRN]), and surveys of staff and residents' family members as indices of affect. Results: Final CMAI scores and total PRNs employed were lower than baseline values with a trend for residents who used the garden more often to have less agitated behavior. Verbal inappropriate behaviors did not change significantly whereas

physical incidents increased. Staff and family members felt that the wander garden decreased inappropriate behaviors and improved mood and quality of life of the dementia residents. Conclusions: Study design characteristics and garden management may have affected behaviors both positively and negatively. Additional studies are needed to explore the benefits of wander gardens for dementia residents.

3. Detweiler, M.B., Murphy, P.F., Kim, K.Y., Myers, L.C., Ashai, A. 2009. Scheduled medications and falls in dementia patients utilizing a wander garden, American Journal of Alzheimer's Disease and Other Dementias, 24(2): 322-332

Little has been reported about the relationship of a dementia wander garden with scheduled psychiatric medications in addition to changes in fall number and severity. The 28 participating residents of a dementia unit were divided into high (HUG) and low (LUG) wander garden user groups and assessed for the number and severity of falls. The type and dose of scheduled psychiatric medications were monitored for 12 months before and 12 months after the wander garden was opened. Results indicated that the residents experienced about a 30% decrease for the raw number of falls and fall severity scores. The HUG had a significant reduction in high-dose antipsychotics, whereas there was relatively no change in antidepressant, hypnotic, and anxiolytic use. High wander garden user group required fewer scheduled medications and experienced reduced falls and lower fall morbidity than the LUG. The most significant changes in scheduled psychiatric medications were reductions in scheduled antipsychotics and an increase in residents requiring no antipsychotics.

4. Lovering, M.J., Cott, C.A., Wells, D.L., Taylor, J.S., Wells, L.M. 2002 A study of a secure garden in the care of people with Alzheimer's disease, Canadian Journal on Aging, 21(3):17-27

Specially designed outdoor spaces (SDOS) have been developed to improve the quality of life of people with dementia. However, few follow-up studies have been done to examine their use once implemented. The purpose of this study was to gain a better understanding of how SDOS are used and the objectives of their design fulfilled. A qualitative descriptive study was conducted of a SDOS 3 years after it was built to answer the following questions: How has the garden changed from the original design? What are the current patterns of use of the garden? What factors facilitate use of the garden? What are the barriers to use of the garden? Four main sources of data were used: landscape architectural drawings, non-participant observation, focus groups, and in-depth interviews. The results lend support to the theoretical principles of garden design in the literature. The garden was considered an important part of the service program. However, factors such as garden maintenance, organizational support, staff training, and accessibility may limit its impact.

5. Cohen-Mansfield, J., Werner, P. 1999 Outdoor wandering parks for persons with dementia: A survey of characteristics and use. Alzheimer Disease and Associated Disorders 13(2): 109-117

This study aimed to characterize the features of outdoor areas for persons with dementia, and to clarify the relationship between design features, use, and satisfaction with these areas. A national survey of long-term care facilities with outdoor areas investigated the characteristics and features of these areas, and how those related to their perceived impact on their users. Most respondents rated outdoor spaces as very useful, and as having a great benefit for users. The perceived benefit was related to the presence of more design features, such as the presence of gazebos and to the number of activities offered in the area. Despite these positive findings, respondents stated the areas were not used as much as possible and indicated several problems, mostly related to the safety of the residents. The results of this survey can assist facilities in better designing or improving their outdoor areas to increase use and satisfaction.

6. Innes, A., Kelly, F., Dincarslan, O.(2011) Care home design for people with dementia: What do people with dementia and their family carers value? Ageing & Mental Health 15(5): 548-556

OBJECTIVES: To report on the views of people with dementia who live in care homes and their family carers on aspects of design that are important to them, and discuss these in relation to developing physical care environments that respond to the wishes of people with dementia and their family carers. METHOD: Six focus groups were held: two in Northern Ireland and four in Scotland. A total of 40 people participated in the focus groups. Twenty nine people were with dementia (24 female and five male), and 11 were family carers (10 female and one male). RESULTS: Carers discussed the features of a building they took into account when selecting a care home, and discussed this in relation to 'bricks and mortar versus people'. Key themes reported by people with dementia and their family carers included how the space in the environment is used, for example, what happens in the building and the presence or absence of certain design features. Outside space and way finding aids were identified as positive features of the home, along with a general lack of concern about ensuite provision. CONCLUSION: The results demonstrate the complexity of building design as it must provide living space acceptable to people with dementia living there and family members who visit, as well as provide a workable environment for staff. The findings highlight areas that should be considered by care home teams involved in the build of a new home or the redevelopment of an existing care home

7. Bomalaski, M. N. 2011 Horticultural therapy for persons with severe dementia, Journal of Investigative Medicine, 59(1): 208-209

AIM: It is estimated that around 7% of persons over the age of 65 have diagnosable dementia, with the risk of dementia doubling every five years. With 23% of residents in Lewistown, MT over the age of 65, the prevalence of dementia is projected to continue rising, along with costs and challenges to

caregivers. Horticultural therapy (HT) has been shown to improve emotional well-being and social functioning, while reducing confusion, agitation, and anxiety. The purpose of this project was to design a program of HT for the dementia-afflicted residents of MMHNCC, providing opportunities for constructive engagement through a culturally familiar activity. **METHODS:** Interviews with staff at the MMHNCC revealed challenges to constructively engaging residents with severe dementia. Because of the cultural significance of agriculture to this region, HT was identified as an appropriate intervention. An HT activity was conducted with dementia patients at the MMHNCC, and a multisensory garden was designed in collaboration with local gardeners and landscape architects. **RESULTS:** An activity of HT was conducted with four residents with severe dementia. Participants were encouraged to appreciate the sensory qualities of each plant and to recall pleasant memories associated with horticulture. Participants were observed to have improved mood and constructive engagement throughout the activity. A document was created with plans for a multisensory garden, including specific design considerations, suggested plantings, ideas for accommodating persons of different abilities, and relevant literature and community resources. This was distributed to recreation staff of the MMHNCC, as well as local arts and gardening organizations. **CONCLUSIONS:** Creating spaces for personal enrichment is vital for improving the quality of life of those suffering from severe dementia. The positive effects observed during this HT activity and the community support for designing a therapeutic garden indicate the potential for the future use of HT at the MMHNCC and other health care settings.