Dementia-Friendly Homes in Singapore[1]

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For people living with dementia, living at home can give them a sense of familiarity and independence. Living at home is not without challenges as people living with dementia may experience an increased risk of falling. Changes in cognition, coupled with vision and hearing issues might make the home environment suddenly unfamiliar and uncomfortable. With ageing population in Singapore, this note explores dementia-friendly housing principles, designs, and modifications to enhance the home environment for people living with dementia in Singapore.

Dementia-Friendly Design Principles

Several design tools have emerged in Singapore over recent years. A notable example is a guideline on "**Looking to the Future - Inclusive Design for People Living with Dementia**" (**2nd edition - 2021**) co-developed by the Agency for Integrated Care (AIC) and community partners. The guideline focuses on improving the environment through retrofits and minor changes such as

[1] This is an evolving database. We will be adding more examples and cases over time.

furniture selection to maximise their independence in activities of daily living and encourage age-in-place. The principles are applicable in long-term care institution, home environment and outdoor spaces.

Six key design principles were identified, each with photos to illustrate their application to the home (Figure 1).

Figure 1: Six dementia-friendly design principles
(Source: AIC)

Principle 1: Safety
- Use colour and contrast to aid visibility
- Practise fall prevention measures (non-slip flooring and grab bars)
- Restrict unsupervised access to high-risk areas (use colours or plants to camouflage doors that lead to hazardous areas in the home, and use unobtrusive technology to alert caregivers when people living with dementia are in high-risk situations) (Figure 2 and Figure 3)
- Effective and appropriate lighting (living areas should have lighting that is adequate to provide colour temperature equivalent to the warm white light of about 3000K, good contrast in colours minimising glare, and avoid sudden changes in light levels)

Figure 2: Example of using textures and plants to camouflage doors to reduce access to high-risk areas
(Image credit: "Looking to the future", AIC)

Figure 3: Example of using complementary colours to camouflaged doors to minimise attention and reduce access to areas
(Image credit: "Looking to the future", AIC)

Principle 2: Empowerment and autonomy
- Use appropriate orientation cues and signages to facilitate easy wayfinding around the home (Figure 4)
- Use colour contrasts to enable easily recognisable fixtures and fittings (Figure 5)

Figure 4: Example of simple and clear toilet signage that contrasts with its background and the surrounding environment.
(Image credit: "Looking to the future", AIC)

Figure 5: Examples of orientation cues for quick identification of the toilet. Good contrast of colours for fixtures and fittings.
(Image credit: "Looking to the future", AIC)

Principle 3: Homely environment
- Use furniture that is familiar to the person living with dementia
- Spaces for interaction with family and friends

Principle 4: Personal space and privacy
- Provide opportunities for people living with dementia to personalise their space (Figure 6 and Figure 7)
- Create private spaces to conserve dignity in palliative care or for personal life events such as last rites

- Multi-functional spaces for family and group activities

Figure 6: Example of personal space to promote a sense of familiarity and comfort.
(Image credit: "Looking to the future", AIC)

Figure 7: Example of using familiar items to create a personalised comfort space
(Image credit: "Looking to the future", AIC)

Principle 5: Meaningful participation
- Factor in periods of rest and non-activity for people living with dementia to recuperate
- Provide and cater for a range of activities by using interactive whiteboards, leisure/hobby items, and reading materials such as newspapers and personal journals
- Provide options for individual or group activities

Principle 6: Appropriate environmental stimulation

- To create a calm and serene home environment
- Avoid exposure to loud noises and continuous sounds, drastic changes in temperature, inadequate lighting and bright and confusing prints.

Building on these principles, design tools were developed.

Elderly- and Dementia-Inclusive Environment

Developed by Nanyang Polytechnic and Dementia Singapore (supported by AIC), this design guide on elderly- and dementia-inclusive features further prioritises the spatial environment within the home. The guide emphasises the importance of a fully furnished apartment with sufficient space areas to encourage interaction amongst the residents and accommodate a person requiring mobility aids to move around within the apartment, with or without assistance.

Virtual Reality Resource

Another design tool is the Virtual Reality resource co-developed by AIC and Dementia Singapore that guides caregivers to create a dementia-friendly HDB home (Box 1).

Box 1: 360° Virtual Reality Dementia-Friendly HDB Home Design Guide

The virtual environment is easy to navigate and best viewed on a desktop. From modifications that can be viewed in the corridor, living room, kitchen, bathroom, and bedroom, the Design Guide offers a variety of suggested

changes within the home to create a dementia-friendly environment that is more accessible, comfortable, and safe for people living with dementia.

Figure 8: Screenshot of the bedroom
(Image credit: "360° Virtual Reality Dementia-Friendly HDB Home Design Guide", AIC, Dementia Singapore)
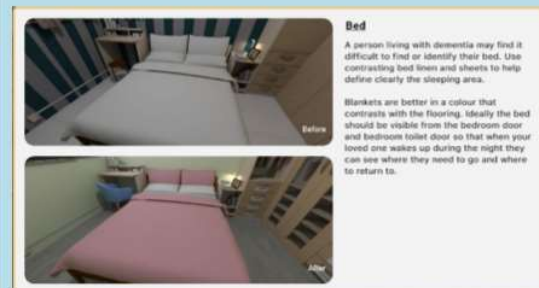

Figure 9: A proposed design modification for the bedroom
(Image credit: "360° Virtual Reality Dementia-Friendly HDB Home Design Guide", AIC, Dementia Singapore)

Source: *360° Virtual Reality Dementia-Friendly HDB Home Design Guide*. (n.d.). https://aic.buzz/DFHome

Hack Care Guide

Launched during World Alzheimer's Month in September 2020, the **Hack Care guide** is developed by Lien Foundation, Lekker Architects, and Lanzavecchia + Wai Design Studio. Unlike the common "heck care" euphemism, the Hack Care guide is a social initiative to demonstrate

how to better care for people with dementia through "design hacks", improvisations, and innovative ideas.

The guide goes beyond everyday furniture and products to create a dementia-friendly home. Several IKEA products were selected to showcase the possible design adaptations (Figure 10 - 12).

Figure 10: Before (left) and after (right) adaptations of a chair. Adaptations include improved support, headrest, sturdier armrest, and a raised height for easier standing.
(Image credit: "Hack Care", Lien Foundation)

Figure 11: A care corner allows for the caregiver to easily organise important care needs like medication. Post-its or written reminders also serve as externalised reminders to assist the caregiver in remembering important tasks.
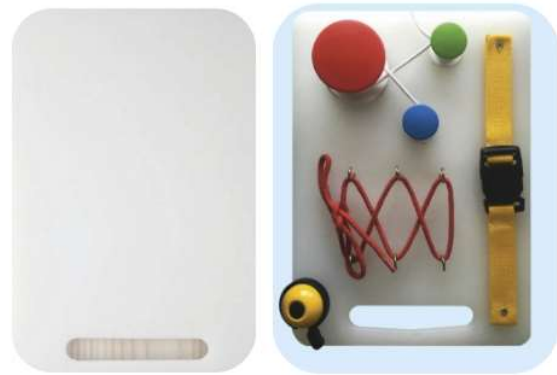(Image credit: "Hack Care", Lien Foundation)

Figure 12: Before (left) and after (right) adaptations of a chopping board. Having familiar household items and different coloured objects allows for varied tactile experiences to stimulate and mentally engage people with dementia.
(Image credit: "Hack Care", Lien Foundation)

Assisted Living Facilities for Seniors in Kebun Baru

Operational since March 2022, the **Integrated Dementia (Home-based) Assisted Living (IDeAL@115) project** seeks to support vulnerable senior residents, including people living with dementia to age in place with person-centred care support. This project is developed and implemented by the Kebun Baru grassroots organisation and Dementia Singapore. As of March 2022, 40 residents living in the rental flats at Block 115 Ang Mo Kio Avenue 4 are enrolled in the IDeAL@115 project. Of the 40 residents, 10 are people living with dementia.

The project involves retrofitting four units of 1-room flats located on level 2 of Block 115 with smart analytics technology. The facility features two cameras and a sound sensor that are monitored by Kebun Baru Community Club volunteer caregivers. The video-based technology monitors

residents in a non-invasive manner by detecting silhouettes instead of actual images of persons. When metadata from the video footage identifies residents in distress, the alarm is activated, allowing caregivers to intervene to provide medical aid or notify emergency services. Assistive technology including telecare and telehealth is introduced to support the resident with everyday tasks and activities, improving safety and monitoring their health to help them live independently at home.

In addition, a dedicated team of full-time staff, part-time staff and volunteers works in the facility from 9am - 6pm daily to cater to the residents' daily needs. Coordinated services and activities from the community were also introduced. Key services included:

- **Administrative Office**
  The office seeks to facilitate better coordination between the various healthcare and assisted living service providers, community partners and volunteers. It uses assistive technology like tracking devices, teleconsultations, fall detection devices and remote monitoring to alert the community in times of need or when irregular patterns in behaviour are detected (Figure 13).

Figure 13: Administrative Office
(Image credit: Dementia Singapore)

- **Central Kitchen**
  IDeAL@115 receives daily food ingredients donations. Volunteers then prepare and cook daily lunch. Residents are encouraged to collect the meals to promote physical movement and interaction with residents and staff. Lunch meals are distributed to residents who require assistance in their basic activities of daily living (BADLs) and instrumental activities of daily living (IADLs) (Figure 14).

Figure 14: Central Kitchen
(Image credit: Dementia Singapore)

- **Activity Room**
  An activity room offers residents the space to participate in exciting activities to combat loneliness and social isolation (Figure 15).

Figure 15: Activity Room
(Image credit: Dementia Singapore)

Telehealth Room

- In collaboration with Tan Tock Seng Hospital, the Telehealth Room is a space where residents are provided with teleconsultation services with GPs, polyclinics, hospitals, and other service providers (Figure 16).

Figure 16: Telehealth Room
(Image credit: Dementia Singapore)

Healthcare, social care, technology, and financial support are combined and integrated into the key infrastructure of IDeAL@115 to create a dementia-friendly home.

Mr Tan, 79, a resident of the IDeAL@115project explained how the programme had helped him a lot.

"My lunch is covered by the central kitchen and I am really appreciative of that because it helps me save some money. I am thankful for IDeAL as it has helped me and my community," (Raguraman Anjali, 2022)

Dementia Singapore chief executive officer Jason Foo hopes that the pilot project could be expanded to reach more estates.

"We hope that IDeAL@115 will serve as a model of care that can be replicated in neighbourhoods across Singapore to empower the growing silver population to age comfortably in place," (Raguraman Anjali, 2022)

Similarities across Different Programmes

AIC's 6 dementia-friendly design principles, Lien's foundation Hack Care design guide and Singapore's assisted living facility for seniors in Kebun Baru share the common goal of creating a safe and familiar home environment for people living with dementia (Figure 17).
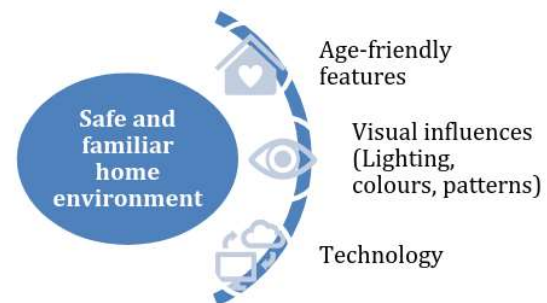

Figure 17: Dementia-friendly home design principles similarities
(Figure credit: author)

Installing age-friendly features for different spaces in the home such as grab bars, rails and non-slip floorings are

essential to enhance the accessibility of and safety of the home. A familiar home environment can also be created with everyday household items. These items may be redesigned to help people cope with memory loss like,

- whiteboards for writing lists and reminders
- clocks with large faces that are easier to read
- medication reminder box.

Maintaining appropriate visual influences using lighting, plain patterns, contrast, and colour would make the home environment easier to perceive for the resident, encouraging movement.

Unobtrusive technology for monitoring the physical activities of residents and assistive technologies that can assist people with memory problems and other cognitive difficulties including communication, socialising and leisure would support the independence of people living with dementia and help maintain a sense of wellbeing.

Conclusion

For people living with dementia, their quality of life is affected by where and how they live. Thoughtful adaptations to the home environment can make a significant difference to the well-being and independence of a person living with dementia, allowing them to enjoy life within their own homes, whether alone or with caregivers, and reducing pressures on caregivers.

The creation of a safe and familiar home environment can be achieved through

installing age-friendly features, maintaining appropriate visual influences using lighting, colours and patterns and the usage of unobtrusive technology.

It is also crucial to highlight that the proposed modifications reviewed in this note may not suit all cultures and homes. Every individual is different. It is essential to enhance the environment according to the needs and preferences of the people living with dementia and their families.

Sources:

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