



Up and away

Improving the accessibility of airports
for travellers with dementia

Professor Jill Franz

Queensland University of Technology

Dr Maria O'Reilly

Central Queensland University, Bundaberg

Dementia Centre for Research Collaboration, Brisbane

Nicole Shepherd

University of Queensland

Acknowledgement

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The project was led by Dr Maria O'Reilly in collaboration with a multidisciplinary team involving: Professor Jill Franz, Ms Nicole Shepherd, Dr Elaine Fielding, Professor Helen Edwards, Professor Elizabeth Beattie, and Professor Richard Fleming.

Context

social inclusion

- In Australia 1 in 10 people over 65 have a diagnosis of dementia
- 3 in 10 people over 85 have a diagnosis of dementia (AIHW, 2015)
- In 2015 approx. 47 million people worldwide were diagnosed with dementia
- By 2016, overseas trips by Australian residents aged over 65 \cong 950,000 per year (Tourism Research Australia, 2016a)
- 43% increase in domestic trips (Tourism Research Australia, 2016b)

- People living with dementia and their carers should have access to the full range of activities available to all members of society to maintain optimal quality of life
- Less attention to cognitive impairments regarding public spaces and accessibility compared to mobility limitations and visual impairments
- Less attention to comorbidity conditions

For people with dementia likely comorbidities relate to reduced function in terms of cognition, perception, sensory engagement, mobility... Experientially, people with dementia have a tendency to become confused, disorientated, lost in unfamiliar environments; become agitated and frustrated in noisy environments; and find it difficult to understand instructions – visual and auditory

Context

initial project

Findings of the initial project:

Infrequent flyers? Exploring the issue of air travel and dementia

On-line survey*

7 people with dementia
41 travel companions

21 flight crew
13 security staff

Telephone interviews

10 companions from the
survey

Frequency of travel

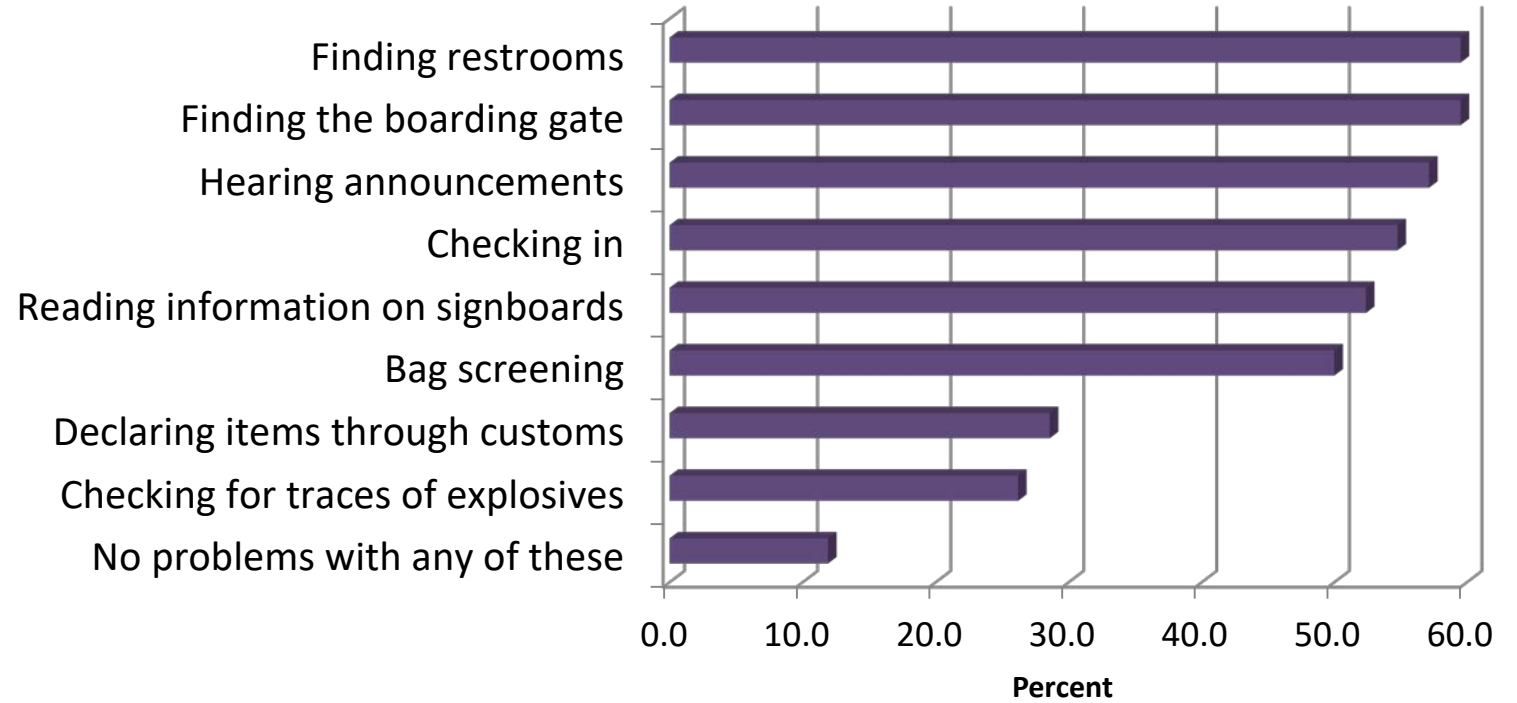
- On average, companions reported taking **two trips by plane per year** with the person with dementia with whom they were travelling
- Most companions (70%) stated that their **most recent trip was in the last year**
- Almost half of companions (49%) said they plan to **continue travelling by air with their companion with dementia**

**Survey was Australia wide of travellers' experience locally and internationally involving no specific airlines or terminals.*

Context

initial project

Challenges experienced in airport terminals



Case study environmental audit

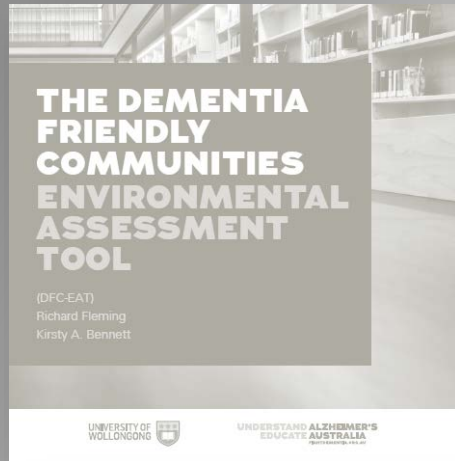
Brisbane domestic and international terminals

A dementia-friendly environment is one that:

- Promotes independence and supports well-being
- Has familiar surroundings
- Allows easy access and finding your way
- Supports meaningful tasks
- Supports participation in daily activities
- Promotes safety, security and comfort (Dementia Australia, Help Sheet 3).

Aims

- Understand the needs of people with dementia when using airports and their responses to existing terminal designs
- Determine the dementia friendly status of the Brisbane domestic and international terminals
- Identify potential features of dementia-friendly terminal design
- Determine the need for further research at other airports



Case study environmental audit method

*Dementia Friendly Communities Environmental Assessment Tool (DFC-EAT)**

Domestic Terminals

- Initial visit
- Audit conducted with frequent traveller with dementia and their companion
- Follow up visit to verify the scoring

International Terminal

- Initial visit
- Audit conducted with frequent traveller with dementia and their companion

	0 = disagree 1 = partially agree 2 = agree	1 = low to moderate 2 = high	1 = low to moderate 2 = high	1 = low to moderate 2 = high	1 = low to moderate 2 = high	1 = low to moderate 2 = high
Safety	All areas are free from dark shadows or bright glare. All areas are well lit. All areas can be accessed without need to negotiate steep stairs. All changes in surface levels are safe. Consider clear marking of level changes. Distribution, presence of handrails and non-slip surfaces. Score 2 if no level changes. Gradient of all ramped areas are safe for people using a wheelchair or walking aid. (Score 2 if no ramp).					
Being and Being seen	The way to the next stage of the journey is clearly visible and safely accessible. Consider ease of access to paths, sign holders at the edge of the path, support rails, benches, seats (suitable for 2 people to sit), absence of obstacles on the path. All manually operated entry doors/gates are easily operated e.g. have an air handle/grip plate) (Score 2 where gates/doors are automatic or not present).					
Wayfinding	The entry/exit can be easily identified. The way to a toilet can be easily seen. The next destination can be easily seen and identified e.g. airport exit, show, computer, office, way back to exit. The final destination above the person with dementia to see all of the areas that they may wish to use.					
Size	The space is unobstructed. The function of the space is obvious, e.g. a toilet, a thoroughfare leading to a destination. Architectural design features, including signage and furniture, are familiar and easily understood by a person with dementia. Colours and decor are familiar.					
Number of people	The size and scale of the space allows a person with dementia to feel comfortable and at ease e.g. not too large or too confined. The number of people present in the space allows the person living with dementia to feel comfortable and at ease. Seating is provided to allow the person with dementia to sit quietly by themselves or with a small number of others. The space promotes easy and comfortable interaction with people of different ages and interests.					
Monitors and engagement	There are both shady and sunny areas along the journey. The journey is pleasant. Seating or nooks enable a person living with a dementia to sit and rest. Spaces provide opportunities to participate in or observe activities of interest.					

[*http://www.enablingenvironments.com.au/audit-tools--services.html](http://www.enablingenvironments.com.au/audit-tools--services.html)

Environmental audit

domestic and international terminals

'Touch points':

- Approach to entry
- Check-in counters
- Route through checkpoints
- Boarding gates
- Arrival gate to baggage collection/exit

'Touch points' – Points that map the physical journey taken by a person with dementia (Boex & Boex, 2012)

Dementia-friendly design principles

Universal design principles

(CUD, 2008)

Community and neighbourhood (Mitchel & Burton, 2010)

Familiarity

- Design for recognition and comprehensibility of surroundings to prevent/alleviate spatial disorientation, confusion, short-term memory loss

Legibility

- Design to help people locate where they are where they need to go to prevent/alleviate spatial disorientation, confusion and anxiety

Distinctiveness

- Design to capture attention and aid orientation and wayfinding through provision of distinctive features

Accessibility

- Design to enable people to reach, enter, use and move around environments they wish to access regardless of any physical, sensory or cognitive impairment

Comfort

- Design to enable people to visit, use and enjoy environments of their choice without physical or psychological discomfort

Safety

- Design to enable people are able to use, enjoy and move around without fear of coming to harm

1. Equitable use
2. Flexibility in use
3. Simple & intuitive
4. Perceptible information
5. Tolerance for error
6. Low physical effort
7. Size-space for approach & use

Aged and health care environments, commercial and public environments (Fleming & Bennett, 2017)

- Principle 1: Unobtrusively reduce risks
- Principle 2: Provide a human scale
- Principle 3: Allow people to see and be seen
- Principle 4: Reduce unhelpful stimulation
- Principle 5: Optimise helpful stimulation
- Principle 6: Support movement and engagement
- Principle 7: Create a familiar space
- Principle 8: Provide opportunities to be alone or with others
- Principle 9: Provide links to the community
- Principle 10: Respond to a vision for way of life

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Approach to entry - domestic

carpark/terminal link threshold

1. Unobtrusively reduce risks
(Tolerance for error)
3. Allow people to see and be seen
(Simple & intuitive)
5. Optimise helpful stimulation
(Perceptible information)

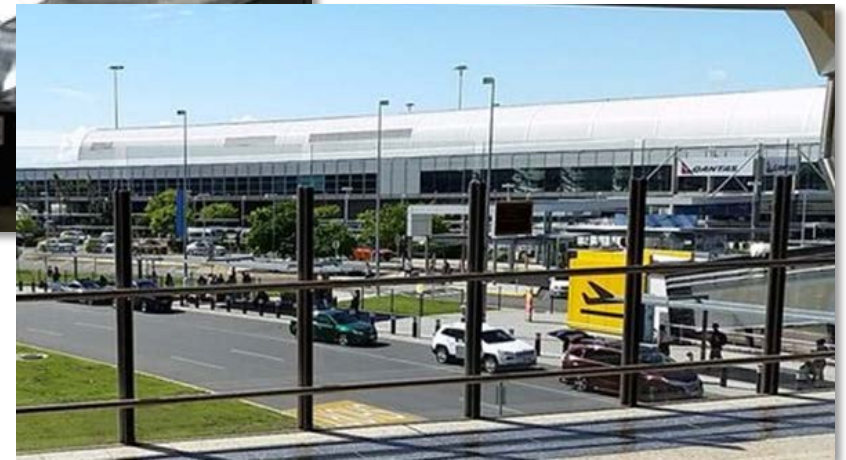
- Physically accessible through provision of ramps, lifts
- Unambiguous/legible/distinctive design features for wayfinding and safety, eg colour coded columns, bollards, floor marking
- Minimal visual clutter reducing unhelpful stimulation allowing maximum impact of directional and locational visual cues and signage (images, symbols, colour/colour contrast) – enhanced legibility, orientation and safety
- Passenger assistance point providing access to social support



Approach to entry via link

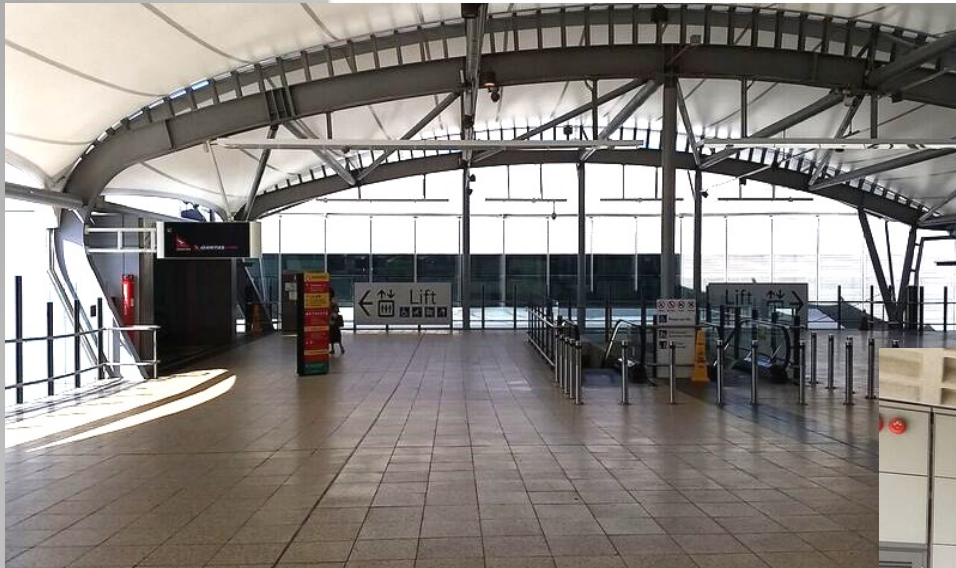
- 2. Provide a human scale
- 6. Support movement & engagement
- 7. Create a familiar space

- Roof design 'embraces' contributing to a more human and comfortable scale
- Openings - access to:
 - distinctive forms, familiar sounds of an airport aiding comprehensibility and orientation;
 - nature aiding temporal location



Approach to entry via link

- Link ends with several exit points and no visibility to what lies ahead
- High degree of background noise (travelator warning) – unhelpful stimulation



- No seating in link for resting
- Metal bollards around escalator create ambiguity and confusion
- There are more warning signs than directional signs creating confusion

- A wall is encountered at the bottom of the escalator with no line of sight or immediately visible directional signage to terminal entries



Approach to entry - international

transition foyer

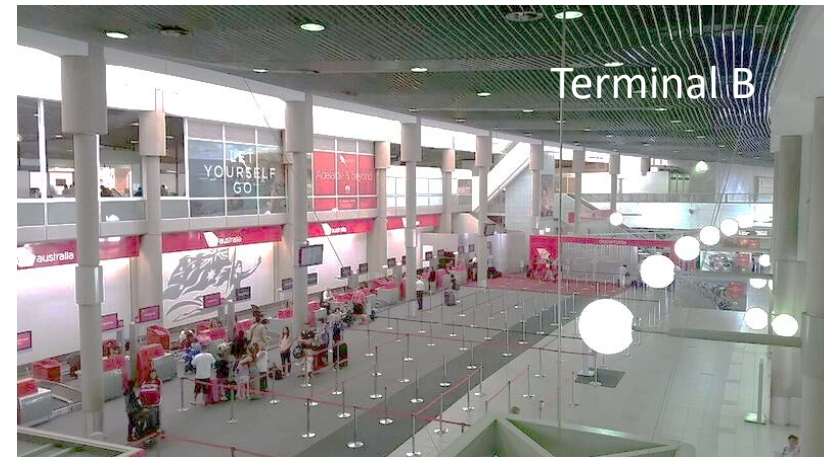


- Highly patterned and contrasted floor that could be problematic for people with visual/ perceptual disturbances
- No seating areas for resting and orientation



- Poor signage for lift
- Lift design not familiar

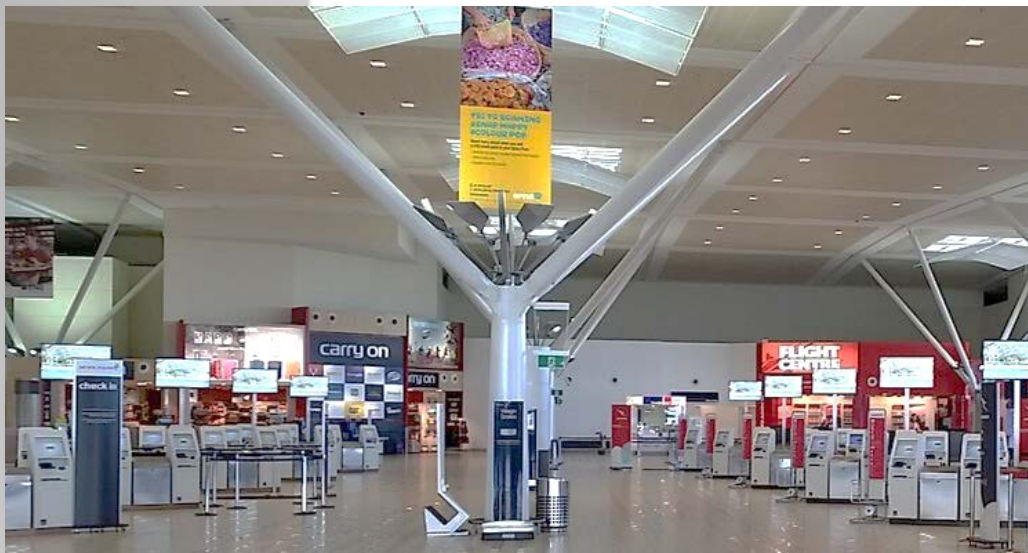
Entry hall check-in – domestic



- No clear direction to check-in
- No demarcation of baggage pick-up from check-in

- Familiar check-in features
- Ordered – demarcated areas
- Architectural design features enhance legibility/wayfinding

Entry hall check-in – international



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 - Direct access from car drop off
 - Good visibility through entry
 - Seating arranged to provide visibility of most airline check-ins and information boards
 - Sensitively patterned/textured floor treatment – low stimuli
 - Oversized shop signs enhances legibility

- - Way to a toilet cannot be easily seen
 - Undersized directional signs – poor legibility
 - Lack of signage at decision points

Moving through checkpoints – domestic check-in to security

- Lift location counterintuitive



- Chaotic, confusing queue control

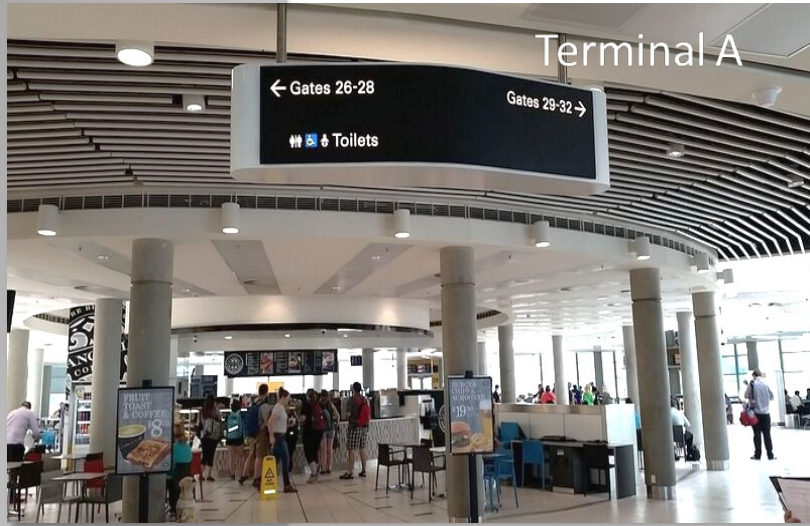
Route to boarding gates domestic



- Mirrored surfaces can create confusion
- Extreme contrasts between light and dark can create a “visual cliff”
- Dark tiles can be mistaken for holes



Boarding gates domestic



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- Retail area breaks up views to all boarding gates – poor legibility and access
- Seating not very flexible or welcoming
- Visually busy with advertising



+

- Clear line of sight to all boarding gates
- Range of seating with choice re level of 'privacy', access for wheel chairs
- Open and welcoming - uncluttered
- Matte flooring minimising problems with glare
- Carpet in waiting area reduces noise

Boarding gates domestic



- Windows to airfield and planes provide visual 'bridge' to next stage of the journey
- Ample space for crowds to disperse



- Clear signage and design feature to identify entry gate

Route to exit domestic



- Advertising signage larger than information/directional signage



- Visible signage to lift



Baggage collection international airport

- Use of familiar icons at large scale to be seen over crowds
- Use of coloured patterns on floor to aid traffic flow in highly crowded conditions

Exit route from terminal domestic



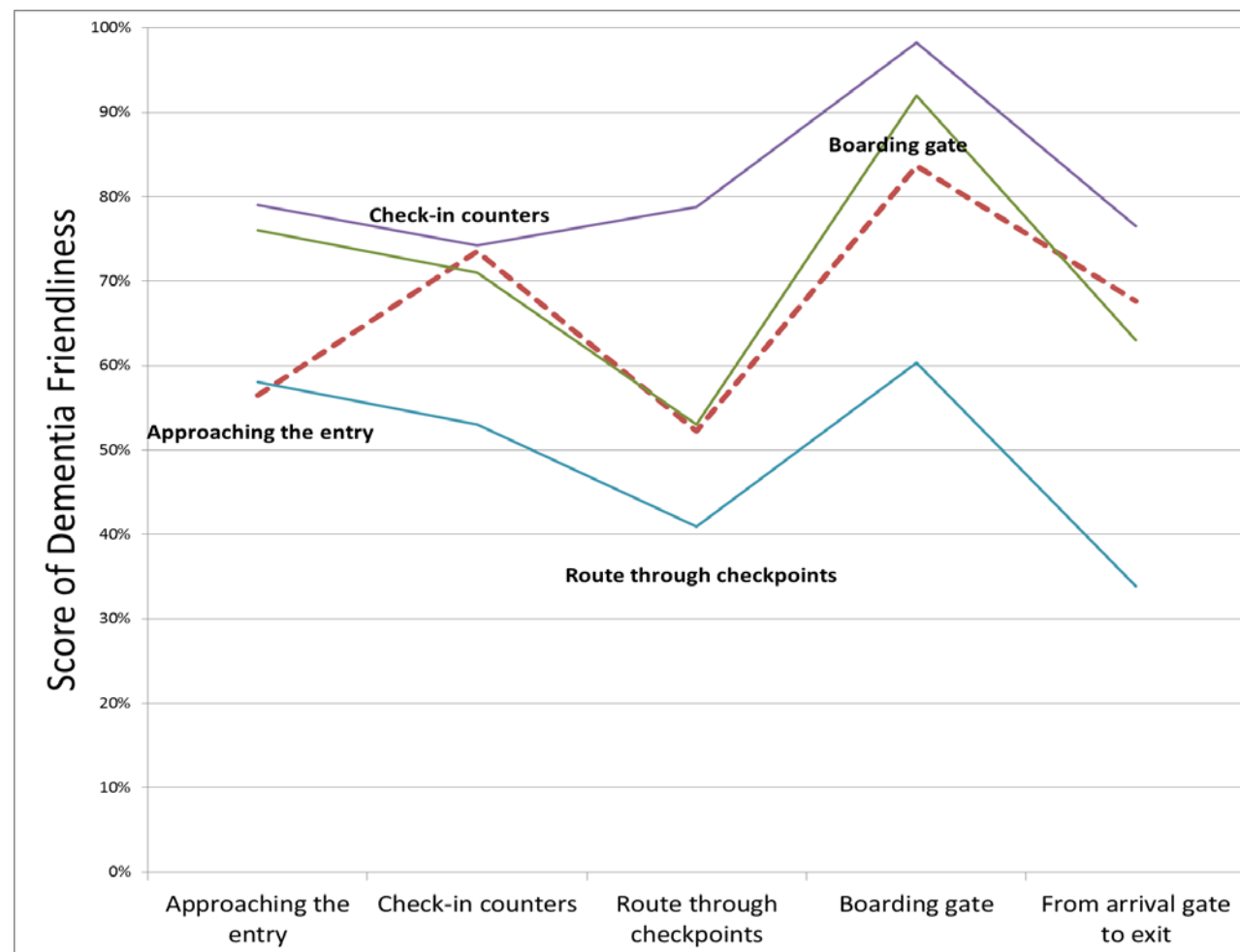
- Minimal signage for taxi rank



- Highly visible signage for train, bus and car park

Case study environmental audit

comparative results of terminals*



*terminals de-identified

Recommendations

Signage

- Ensure clear signage at decision points
- Minimise advertising near decision points
- Provide clear signage to toilets
- Provide signage at security checkpoints that explains the process
- In Duty Free areas make way to gate visually clear and as physically direct as possible

Flooring

- When new flooring is being installed, choose matte rather than gloss finishes. Be cautious in selecting excessively contrasting patterns
- Consider using colours to indicate activity zones and identify objects

Lighting

- Avoid lighting that produces glare and reflections as this can cause confusing visual effects



Recommendations

Seating

- Provide quiet spaces for people to be able to observe what is going on
- Make available quiet rooms for time out
- Place seating with view to toilets for companions to wait

Assistance

- Ensure staff or volunteers are available to provide assistance to people in areas that could be confusing, such as security
- Clearly advertise airport ambassadors on website

Avoid excessive auditory warnings

- Reduce the frequency of warning messages on the traveller at the Domestic Airport

Outcomes

- Development of guide to Brisbane Airport for people with dementia
- Development of staff training modules for ground staff
- In 2017, Brisbane Airport was endorsed by Alzheimer's Australia (now Dementia Australia) as Australia's first "Dementia Friendly Airport".



Acknowledgements

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