Dementia masks for search and rescue training

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Up until 2014, Queensland experienced a 25% fatality rate among lost people who were suffering with dementia if not located within 24 hours. This has now been reduced to approximately 5%. This is due, partly, to improved search and rescue training.

In Queensland, missing people with dementia rank third as targets for searchers behind bush and recreational walkers and those intending self-harm. As such, they present particular problems to search coordinators due to the physical manifestations of dementia on their behaviour. Traditional training for search coordinators and searchers has significantly improved since 2013 but there was a known gap that searchers did not fully understand what a lost person with dementia could see in their immediate environment and, therefore, what choices they might have. A dementia mask was developed as a simple aide to provide coordinators and searchers with a practical understanding of the vision limitations of people with dementia.

Dementia is defined as the loss of memory, reason, judgement and language to such extent that it interferes with daily living.[1] Dementia includes AIDS and alcohol-related Dementia, Alzheimer's disease, Down syndrome, early- or younger-onset Dementia, Frontotemporal Lobar Degeneration, vascular Dementia and Dementia with Lewy bodies. Dementia can often result in severe disturbances in how a person perceives and interprets events and sights and sounds around them although the symptoms may vary. People with dementia may have difficulty thinking logically and remembering things, they may become confused easily and may wander, particularly to places from their past. They also often exhibit personality changes, including becoming aggressive when they perceive someone interfering with them. From a search and rescue perspective, this occurs most often when locating a lost person with dementia who is determined on getting to a particular place.

A significant amount of training is devoted to the search for lost and missing people, particularly with respect to lost person behaviour. While much of this training is provided by competent, experienced and enthusiastic trainers, it is often difficult to fully convey the effects of a medical or mental illness to enable students to place themselves in the mind of the lost person.

Dementia and Alzheimer's disease is an example of an illness that has physical impairments associated with it. Having a better understanding of what a lost person with dementia experiences has many benefits when a search is underway. The development of the dementia mask provides a simple way to convey what a person with dementia sees and, often more importantly, what they cannot see.

From a searcher perspective the intricacies of dementia and how it manifests within the brain do not need to be understood; only the physical manifestations that govern what they either can or cannot do. According to Geldmarcher and Whitehouse (1996)[2] and with respect to search and rescue, the most visible effects of dementia are:

- physical impairments such as limited vision or walking ability
- taking the path of least resistance, although they may initially attempt to head up hill if it is to a place previously known
- having limited forward vision and little peripheral vision
- having limited or reduced stamina
- heading for a location previously known to them
- having limited ability to fend for themselves, making them very vulnerable to the environment
- having a range of behaviours from passive through to very aggressive.

Traditional training methods of instructor-led training combined with practical exercises provide the necessary skills to undertake a search. However, there was a gap in the training

related to better understanding how a lost person with these types of limitations relates to their surroundings. Putting this in perspective, a search for a lost bushwalker can be understood through map interpretation and environmental considerations from a bushwalker viewpoint. A search coordinator can go into the bush and see what a bushwalker actually sees. This is more challenging if that person has dementia.

Problem solving

Apart from reduced brain functions for these people, another challenge was how they perceive their immediate environment. Studies into vision impairment and dementia indicate problems for vision.[3] These include:

- narrowing of the field of vision, sometimes down to approximately 30cm wide
- field of vision is generally downwards at an angle of approximately 45° to the horizontal (i.e. they only see things down and to the front)
- limited or no peripheral vision (stopped by a barrier but not being able to turn left or right because it does not exist)
- potential loss of depth perception (shutting down of input from one eye due to overloading of brain with vision stimulation)
- making physical actions that may seem odd (often based on the lack of depth perception, such as feeling for a step that is further away than it seems).

Giving consideration to these limitations of vision, the dementia mask was designed to replicate the vision of a person with dementia. This provided coordinators and students with similar limitations to their peripheral vision and also restricting their forward vision.

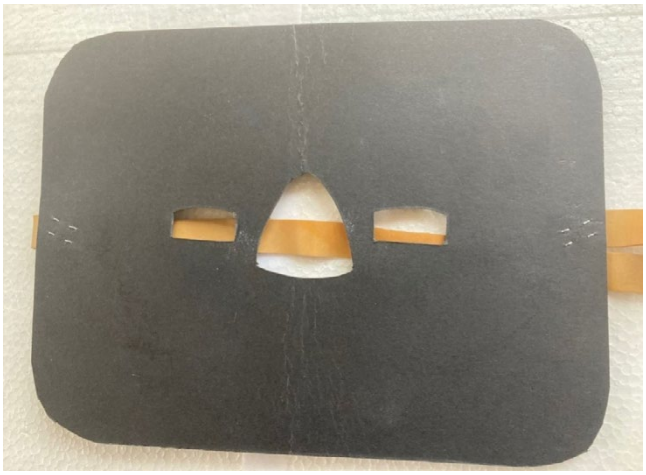
The mask was made of 2mm thick black cardboard and the eye slots were progressively moved down to approximately between 35° and 45° from the horizontal. This provided a corresponding reduction in peripheral vision. An elastic band secures the mask to the face.

Testing

The dementia masks were trialled at a Field Search Coordinators Course. Students operated in pairs for support and safety. The the vision-impaired coordinator was guided by the unmasked coordinator as they slowly made their way around a canteen area and parade ground at the Queensland Police Academy. The masks proved to be a big success with many of the students involved in the subsequent discussion (aided by several case studies) clearly indicating that the experiment had worked. The short walk around the Academy exposed the students, for a short period, to the experiences of a Dementia-affected person.

Implications

The masks replicated what a person with dementia might see and, although not applicable in all cases, it provided further



The masks are 24cm wide and 18cm long and eye slots halfway down the nose area.

Image: Jim Whitehead

knowledge and experience to the search coordinators to assist them to develop search areas based on the reduced field of vision.

Wearing the mask increased the understanding that, for people with restricted vision, it is not possible to see the entirety of what they are facing; only a portion and, therefore, it is easy to lose orientation and to trip. The mask also limited peripheral vision, which is normally taken for granted. Without the concept of something being to the left or right, it made it difficult to make directional changes. This provided a deeper understanding as to why some lost people with dementia will be stopped by a hedge, fence or wall and make no attempt to bypass it.

Conclusion

Queensland Police has made considerable effort to improving search efforts with respect to all lost people, and in particular, people with dementia. An obvious effect is the finding people quicker and helping them to safety. With this has come a reduction in fatalities, which has dropped from 20% to be now less than 5%.[4] This is due in part to improved training, with coordinators and searchers having a better understanding of what a person with dementia might experience or how they might act when lost.

Endnotes

1. Cambridge English Dictionary 2021, *Cambridge University Press.*

2. Geldmacher D & Whitehouse P 1996, *Evaluation of Dementia, New England Journal of Medicine, vol. 335, pp. 330–336.*

3. Littlejohn J, Bowen M, Constantinidou F, Dawes P, Dickinson C, Heyn P, Hooper E, Hopper T, Hubbard I & Langenbahn D 2022, *International practice recommendations for the recognition and management of hearing and vision impairment in people with dementia, Gerontology, vol. 68, pp.121–135.*

4. Queensland Police Service 2021, *SAR Statistics 2020-2021, Brisbane.*