

10 YEAR ANALYSIS OF DROWNING IN OLDER ADULTS AGED OVER 65 YEARS

Western Australia
2005-06 to 2014-15



ROYAL LIFE SAVING
WESTERN AUSTRALIA

PARTNER



Government of Western Australia
Department of Health



DROWNING IN OLDER ADULTS – AN OVERVIEW



OLDER ADULTS AGED OVER 65 YEARS FATALLY DROWNED



OLDER ADULTS WERE ADMITTED TO HOSPITAL FOLLOWING A NON-FATAL DROWNING INCIDENT



OLDER ADULTS PRESENTED TO A METROPOLITAN EMERGENCY DEPARTMENT FOLLOWING A NON-FATAL DROWNING INCIDENT



HIGHEST RATE OF FATAL DROWNING OF ANY AGE GROUP IN WA



OLDER ADULTS WERE 1.9 TIMES MORE LIKELY TO DROWN IN REGIONAL WA COMPARED TO THE PERTH METROPOLITAN AREA

PREVENTION STRATEGIES



INTRODUCTION

In 2016, 16% of Australians (3.7 million people) were aged 65 years and over which is projected to grow to 22% of the total population by 2056¹. Having an ageing population presents many challenges across policy, community planning and infrastructure, health services and injury prevention.

Drowning remains a significant injury prevention issue for older people in Western Australia (WA) and a priority group for drowning prevention efforts. On average, 288 people drown in Australian waterways each year, with older adults over 65 years of age accounting for 31% of these deaths². Reducing drowning amongst older adults has been identified as a key priority area for drowning prevention in the Australian Water Safety Strategy 2015-2020³.

A recent report⁴ estimated the mean cost of drowning events in those aged 65 years and over in WA to be \$11 million in 2012, with an average cost of \$1,399,124 per drowning event. This was compared with an average cost per drowning event of \$1,272,144 for the whole population and \$230,169 for all injury events in this age group. It was also noted in the report that the mean cost of injury events involving drowning were considerably higher than any other injury event due to the high proportion of drownings being fatal.

A number of risk factors for injury (including drowning) amongst older people have been identified including gender, age, participation in sport and physical recreation, presence of pre-existing medical conditions and associated use of medications and alcohol consumption.

Gender

Males are generally over-represented in injury statistics for older adults. Nationally, males are 1.3 times more likely to be hospitalised as a result of an injury. In WA, males also had a higher rate of injury across all levels compared to females, representing 63% of all injury costs in this age group⁴. Similar to general injury trends, older adult males are also over-represented in drowning statistics. A review of drowning deaths in older people in Australia revealed 75% of drowning deaths recorded between 1 July 2002 and 30 June 2012 involved males. This is likely contributed to by the fact that a higher proportion of males' report participating in sport and physical recreational compared to females in this age group (52.4% compared to 48.3%)⁵. However, the report identified that this trend was reversed for those aged over 90 years where females were more likely to drown than males⁶. This is identified as being likely due to females having a longer life expectancy than males.

Age

Australia has an ageing population. It is also the time where many people retire from employment resulting in greater time to undertake leisure activities and travel, both of which can contribute to an increased exposure to potential hazards and risk of injury. General trends in injury show that the rates of injury in older people increases in correlation to increasing age⁷. Factors such as reduced fitness and physical capabilities, poorer health, greater exposure through increased aquatic activity after retirement and overconfidence in abilities due to a reliance on skills gained earlier in life are likely to contribute to this⁸.

Participation in sport and physical recreation

Australian Physical Activity Guidelines recommend that older Australians should accumulate 30 minutes of moderate physical activity on most days⁸. This activity should include moderate intensity exercise including strength, balance and flexibility activities, and efforts should be made toward reducing sedentary behaviour and extended periods of sitting⁹. In 2014-15, only 1 in 4 adults aged over 65 did at least 30 minutes on at least 5 days a week¹⁰. Almost half of this population (44.7%) did not complete more than 30 minutes of exercise on any days during the week⁸.

In 2013-14, 49.6% of adults aged over 65 years in WA reported participating in sport and physical recreation, the second highest proportion of any state or territory.¹¹ Older people are more likely to participate in non-organised physical activity than organised sports (63.3% compared to 31.3%)¹¹.

Research has shown that health and fitness are the most common motivators in older adults to participate in physical activity¹²⁻¹⁴. However, health concerns are also the most common barrier that prevents older adults from regularly participating in exercise, impacting on their ability to participate in physical activity as desired^{12,15}. Those with a higher number of health-related issues are less likely to be physically active¹⁶. Other motivators for participation in exercise include individual factors such as positive expectations or attitudes and perceived benefits of participation, having previous experience with physical activity, environmental influences such as support from family and friends and environmental factors such as having safe environments for participation and having recreation facilities in close proximity to their home that are easily accessible^{13,17}, which is of particular relevance to aquatic facilities¹⁸.

There is limited research available in relation to participation in aquatic activities, however swimming, fishing and boating are seen as popular water-related activities in the broader community. Queiroga and Peden⁵ identified that older people engaged in a range of aquatic activities in Australia and found that the most common activities being undertaken at the time of drowning incidents were watercraft (kayaking, canoeing, surfing), recreating around an aquatic environment, swimming and fishing. This suggests that these are popular aquatic activities within this age group.

Benefits of participation in sport and physical recreation

Behaviour changes are key to a healthy lifestyle and injury prevention in older adults¹⁹. Older people are often aware of the benefits of physical activity to their health, however do not possess sufficient motivation to maintain behaviour²⁰. Physical activity has been shown to result in a variety of physical, mental and social benefits in older people²¹. Exercise interventions with a focus on the improvement of balance and muscle strength promote the development of mechanisms aimed to compensate against falls risks²². Both land and aquatic based exercise programs have been shown to positively contribute to strength and flexibility in older people^{23,24}.

Aquatic activity has also been shown to contribute to an improvement in dynamic balance and weight loss in participants, specifically when training occurs in warmer water²³. These are both risk factors for falls, which are the leading cause of injury amongst people over the age of 65 years in WA, with 32.5% of fatal injuries and 32.5% of non-fatal injuries recorded in 2012 due to falls, with an estimated cost of \$2.2 billion⁴. Water based activities are sufficient to maintain and improve physical activity levels in older adults when land-based exercise programs are not feasible or where aquatic activities are preferred²⁴. Other benefits of light intensity exercise such as swimming include improved bone health and associated reduction in the risk of osteoporosis, improved postural stability, increased flexibility and increased speed and range of motion⁶.

Prevention Strategies

As part of their review into drowning amongst older adults, Queiroga and Peden⁶ highlighted that prevention measures targeting older adults must consider the following:

- Increasing numbers of older people are living outside of residential care
- A diversity of languages, cultures, skills and life experiences in older people in Australia
- More than a third of the population aged over 50 years live in major city locations
- Changes in income and its impact on recreation and mobility
- Increased life expectancy countered with increased use of medication
- People working longer and continuing to contribute to the community via volunteering pathways and
- Changes in their role in family and community, particularly grandparents as carers of children

In response to the growing rate of drowning amongst older people, the Royal Life Saving Society Australia developed the Grey Medallion program. The Grey Medallion is a practical program that provides older adults with personal survival techniques, improved swimming skills, knowledge to deal with emergency situations and a thorough understanding of water safety, in order to reduce the likelihood of drowning. The program is inclusive of all abilities, including non-swimmers. Evaluation undertaken by Lifesaving Victoria²⁵⁻²⁷ showed that the program was effective in increasing older adults' water safety knowledge and skills, and their confidence both in engaging in aquatic activities (aqua aerobics, recreational swimming and lap swimming), supervising young children, using personal survival skills and being able to assist others in difficulty. Participants also reported improvements in feelings of social inclusion through improved social skills and meeting new people and also in their general health and well-being. Factors including flexible program delivery, having knowledgeable and approachable instructors and creating a social environment were identified as key to engaging participants in the program.

Pivotal to any prevention effort is an in-depth understanding of where, how and when drowning occurs and what factors contribute to these incidents. It is widely acknowledged that the full impact of drowning is not limited to fatal drowning incidents. Therefore, this report aims to explore fatal and non-fatal drowning amongst older adults aged over 65 years in WA between 1 July 2005 and 30 June 2015 to better understand patterns and key risk factors for drowning and provide guidance for drowning prevention initiatives.

METHODS

The aim of this research is to quantify the burden of drowning amongst older people aged over 65 years in WA, better understand the circumstances surrounding these incidents and identify key factors contributing to incidents amongst this age group to guide future prevention initiatives.

Information on fatal and non-fatal drowning incidents involving older people aged over 65 years that occurred in WA from 1 July 2005 to 30 June 2015 have been included within this report.

Fatal drowning data was sourced from the WA Coroner's Office and through the online National Coronial Information System (NCIS). Individual case files for all fatal drowning incidents were reviewed including coronial finding, police reports, witness statements, expert reports and toxicology reports. These cases were cross checked with media reports on fatal drowning incidents collated through a media monitoring system.

A total of 23 cases were excluded from the analysis. Exclusions from this data include deaths from suicide, natural causes, other injuries and deaths where the cause of death or intent was unascertainable. All cases where drowning was identified as a cause of death or a factor contributing to the death have been included within this report.

While all care is taken to ensure that the information included within this report is as accurate as possible, data may be subject to change following ongoing coronial enquiries and investigations.

At the time of compiling this report all cases had been closed by the WA Coroner.

Non-fatal drowning data was collated by the Department of Health WA Epidemiology Branch and included state-wide hospital admissions and metropolitan emergency presentations data from 1 July 2005 to 30 June 2015. ICD codes were used to identify cases and included ICD-10 coding for near-drowning (T75.1; W65; W66; W67; W68; W69; W70; W73; W74; V90; V92) and brain injury (striking the head S06.xx; anoxic brain damage G93.1; and cerebral complications G93.x). While hospital admissions data is collected state-wide, emergency presentations data from the metropolitan area only has been included within this report due to most regional emergency departments not using the ICD-10 coding system. Therefore, non-fatal drowning numbers may be under-represented within this report.

Drowning rates were calculated per 100,000 population using ABS data provided by the Department of Health WA Epidemiology Branch.





RESULTS

Overall, 149 older Western Australians were affected by drowning (including both fatal and non-fatal) between 1 July 2005 and 30 June 2015 at a rate of 5.4 incidents per 100,000 older adults (Figure 1).

This was the lowest overall rate of drowning of any age group in WA during this time period. It is important to note that this is likely an underestimation, given that emergency department presentations are currently only reported for the Perth metropolitan area and don't include those recorded in regional WA.

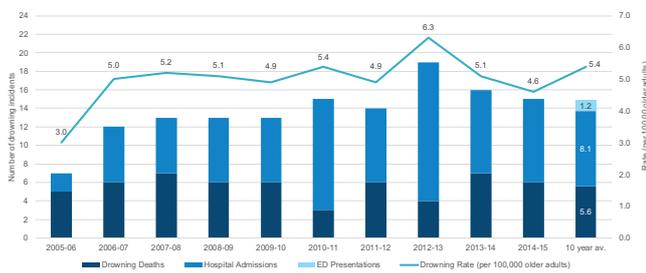


Figure 1: Total drowning burden - Older adults 65+ years, WA 2005-06 to 2014-15

*Due to the small number of emergency department presentations recorded each year, only the 10 year average has been included within this figure.

FATAL DROWNING

There were 56 fatal drowning incidents recorded involving older adults over 65 years of age in WA waterways between 1 July 2005 and 30 June 2015 at a rate of 2.0 deaths per 100,000 older adults (Figure 2). This represented 16.2% of the total number of drowning deaths recorded in the 10-year time period. A coronial inquest was held in 10.7% (n=6) of cases recorded within this age group to determine the cause and circumstances surrounding the death.

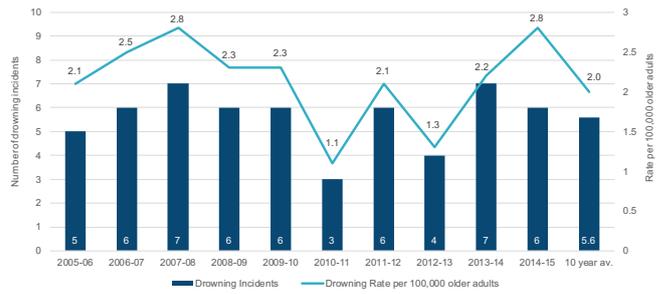


Figure 2: Fatal drowning trends – Older adults, WA 2005-06 to 2014-15

This was the second highest fatal drowning rate of any age group in WA during this time (figure 3). Over the 10-year period, there was a 13.3% decrease in the number of drowning deaths and a 20.8% decrease in the rate of drowning amongst older adults over 65 years of age.



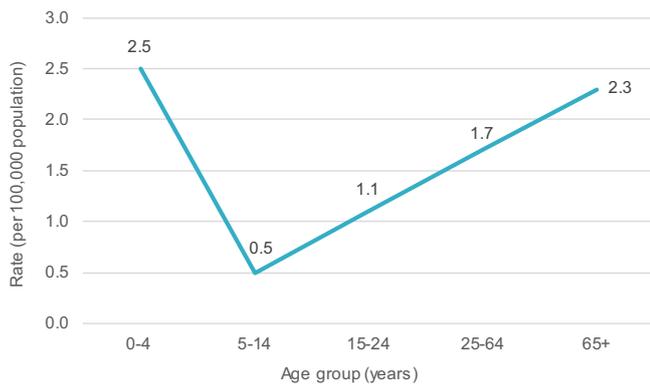


Figure 3: Fatal drowning by age group, WA 2005-06 to 2014-15

Nationally, there were 534 (18.9% of total) drowning deaths involving older adults over 65 years of age recorded between 1 July 2005 and 30 June 2015, with WA accounting for 10.5% of these deaths. On average, the proportion of drowning deaths involving older adults occurring in WA has decreased over the 10-year period by 30.5% (figure 4).

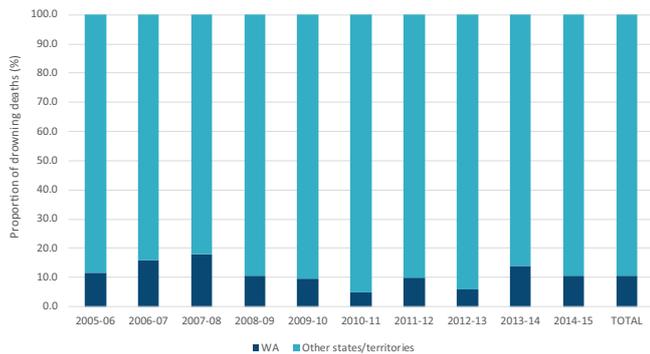


Figure 4: Proportion of fatal drowning by year, 2005-06 to 2014-15

NON-FATAL DROWNING

There were 81 older adults over 65 years of age admitted to hospital following a non-fatal drowning incident between 1 July 2005 and 30 June 2015 at a rate of 2.9 admissions per 100,000 older adults. This was the second lowest rate of any age group recorded during this time. Over the 10-year period, the average number of hospital admissions almost doubled, increasing by 89.3% and the average rate of hospital admissions for older adults increased by 63.6% (Figure 5). This represented an annual percentage increase of 6.9%, which was the second highest increase of any age group during this time and was greater than the state average of 4.0%.

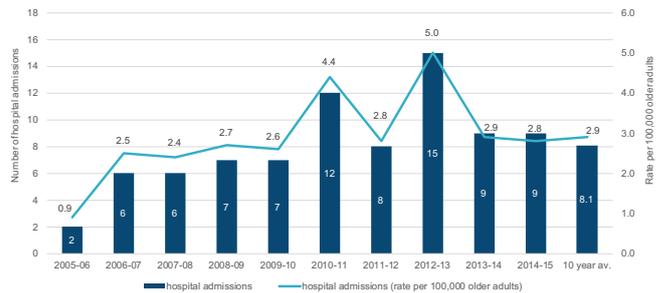


Figure 5: Non-fatal drowning trends – Older adults 65+ years, WA 2005-06 to 2014-15

In addition, 12 older adults presented to the emergency department following a non-fatal drowning incident in the Perth metropolitan area at a rate of 0.5 presentations per 100,000 older adults, the lowest rate of any age group during this time. In addition, older adults were the only age group to record an average annual decrease in emergency department presentations during this time, with a 7.1% average annual decrease compared to a 2.2% increase for the whole population. Given the small number of emergency department presentations amongst this age group, annual figures haven't been included in this report.

WHO DROWNS?

Gender

Overall, 75.9% (n=104) of drowning incidents (fatal and hospital admissions) recorded in this age group involved males and 24.1% (n=33) were female. Due to small numbers (<5), data relating to gender wasn't available for emergency department presentations and isn't presented in this report. The rate of drowning for males was 8.2 incidents per 100,000 older adults and 2.2 incidents per 100,000 older adults for females (Figure 6). This means that overall, males were 3.7 times more likely to be involved in a drowning incident than females.

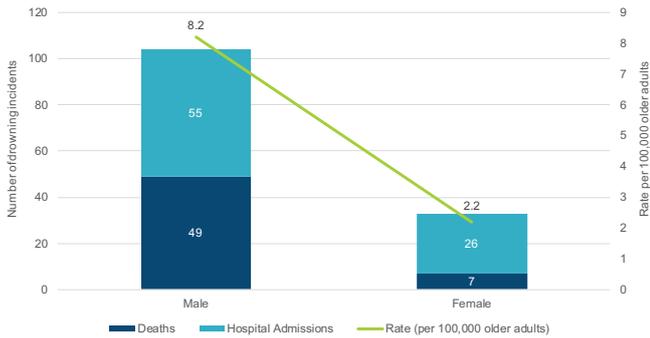


Figure 6: Drowning by gender – Older adults 65+ years, WA 2005-06 to 2014-15

FATAL DROWNING

Similar to overall drowning trends, older adult males were at a significantly greater risk of fatal drowning than their female counterparts. Overall, 87.5% (n=49) of drowning deaths amongst older adults were male and 12.5% (n=7) were female. Overall males were 7.6 times more likely to be involved in a fatal drowning incident than females (3.8 deaths per 100,000 older adults compared to 0.5 deaths per 100,000 older adults respectively).

NON-FATAL DROWNING

Males were also at higher risk of non-fatal drowning than females, although not to the same extent as for fatal drowning. Of the 81 older adults who were admitted to hospital following a non-fatal drowning incident, 67.9% (n=55) were male and 32.1% (n=26) were female. Overall, males were 2.4 times more likely to be admitted to hospital following a non-fatal drowning incident (4.3 admissions per 100,000 older adults) than females (1.8 admissions per 100,000 older adults).

Age

Data relating to the individual's age was only available for fatal drowning incidents involving older adults. Drowning risk varied across the age group and tended to decrease with age, with the highest proportion (n=37; 66.1%) of drowning deaths involving older adults aged 65-74 years, followed by those aged 75-84 years (n=18; 32.1%). Ages ranged from 65 to 94 years, with an average age of 73.0 years. On average, older adult females who died from drowning were older than males (77.0 years compared to 72.4 years).

Socio-Economic Status

Socio-economic status was determined using the socio-economic index for areas (SEIFA), which ranks areas of residence according to relative socio-economic advantage and disadvantage. Data relating to socio-economic status was only available for fatal drowning incidents. Older adults living in areas of relative advantage were at a greater risk of fatal drowning than those in areas of relative disadvantage. Overall, the average SEIFA ranking for those involved in a fatal drowning incident was 6.1 with 39.3% (n=22) residing in areas in the highest two quintiles of socio-economic advantage and one quarter (n=14; 25.0%) in the lowest two quintiles of socio-economic disadvantage (figure 7).

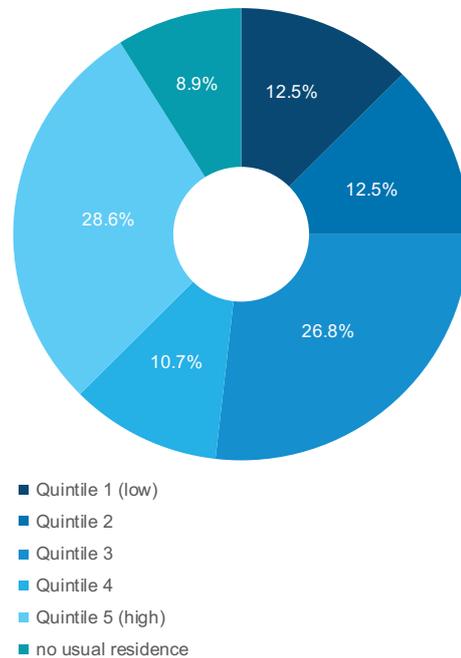


Figure 7: Socio-Economic Status – Older adults, WA 2005-06 to 2014-15

Employment Status

Data relating to the individual’s employment status was only available for fatal drowning incidents. The majority of older adults involved in a fatal drowning incident were retired (n=43; 76.8%) or a pensioner (n=4; 7.1%) at the time of the incident. Overall, 16.1% (n=9) of older adults were employed at the time of the incident.

Country of Birth

Data relating to the individual’s country of birth was only available for fatal drowning incidents. The majority of drowning deaths involved older adults who were born overseas (n=35; 62.5%). On average, older adults born overseas had been living in Australia for 31 years, with 68.6% (n=24) having resided in Australia for more than 21 years. Of those who were born overseas, 61.9% (n=22) were born in an English-speaking country including the United Kingdom (n=19; 54.3%) and New Zealand (n=2; 5.7%). The remaining 32.1% (n=13) were born in non-English speaking countries mainly from Europe (n=9; 25.7%) and Asia (5.7%). See Figure 8.

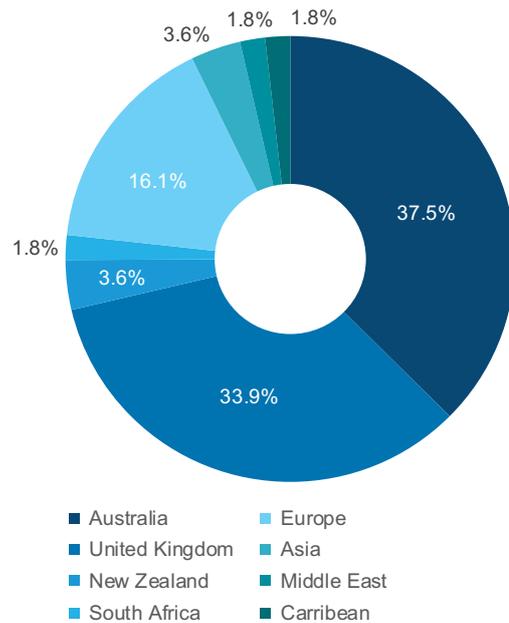


Figure 8: Fatal drowning by region/country of birth – Older adults 65+ years, WA 2005-06 to 2014-15

Tourist Status

Data relating to the individual’s tourist status was only available for fatal drowning incidents. A quarter (n=14; 25.0%) of older adults involved in a fatal drowning incident were tourists or visitors to the region. Of these, half (n=7; 50.0%) were intrastate visitors travelling within WA and 42.9% (n=6) were international tourists.



WHEN DO OLDER ADULTS DROWN?

Data relating to the season, day of the week and time of day that the incident occurred was only available for fatal drowning incidents.

Overall drowning trends highlight that drowning occurs all year round, however incidents involving older adults were most likely to occur in the autumn (n=20; 35.7%) and summer months (n=16; 28.6%). March (n=12; 20.0%) and January (n=7; 12.5%) were the most common months for drowning deaths and June recorded the lowest proportion of drowning deaths (n=1; 1.8%). See Figure 9.

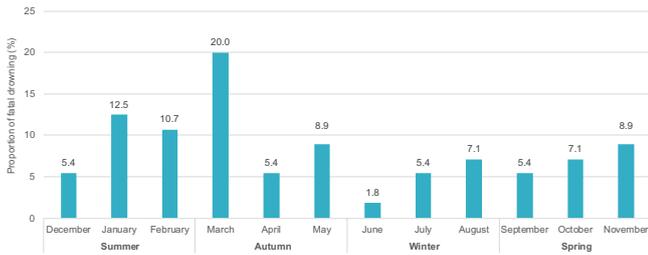


Figure 9: Fatal drowning by season and month – Older adults, WA 2005-06 to 2014-15

Drowning deaths were most likely to occur on Sunday (n=15; 26.8%), Wednesday (n=11; 19.6) or Monday (n=10; 17.9%) and were least likely to occur on Thursday (n=3; 5.4%). Overall, 33.9% (n=19) occurred on the weekend and 8.9% (n=5) occurred on public holidays/ long weekends, namely the Christmas and New Year period and the Queen’s birthday (figure 10).

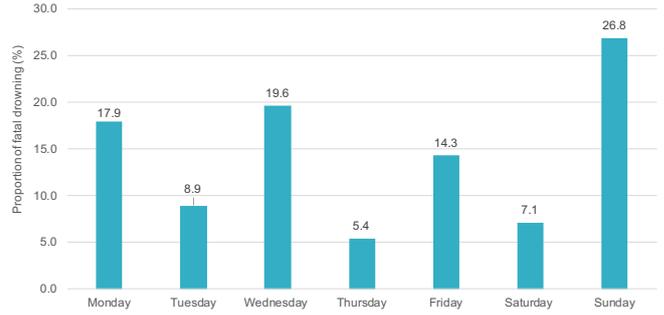


Figure 10: Fatal drowning by day of the week – Older adults, WA 2005-06 to 2014-15

The majority of fatal drowning incidents occurred in the morning between 6.01am and 12.00pm (n=17; 30.4%) with the most common time between 10.30 and 11.30am. In addition, 28.6% (n=16) of incidents occurred in the afternoon between 12.01pm and 6.00pm. The time of the incident was unknown in 16.7% (n=9) of cases. See Figure 11.

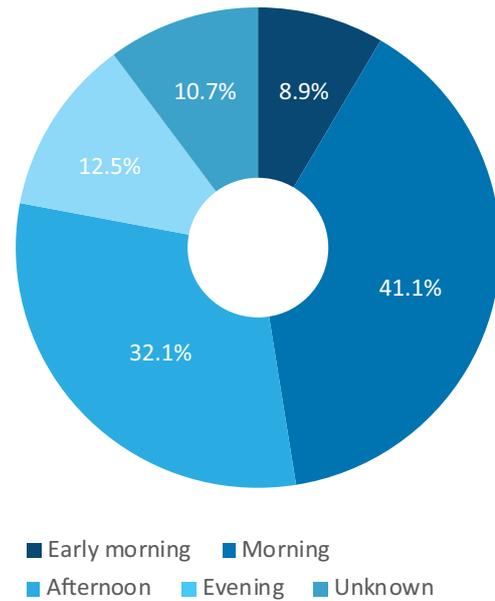


Figure 11: Fatal drowning by time of day – Older adults, WA 2005-06 to 2014-15



WHERE AND HOW DO OLDER ADULTS DROWN?

Region

Older adults were at greater risk of drowning in regional areas of WA than in the Perth metropolitan area. Overall 67.1% (n=92) of drowning incidents (including fatal and non-fatal) occurred in the Perth metropolitan area and 32.9% (n=45) occurred in regional and remote areas of WA. However, when population distribution is taken into account, older adults were almost twice as likely to drown in regional and remote areas of WA (7.8 incidents per 100,000 older adults) compared to the Perth metropolitan area (4.2 incidents per 100,000 older adults).

The highest number of drowning incidents was recorded in the South Metropolitan (n=40) and North Metropolitan (n=36) regions and the lowest number was recorded in the Pilbara region where there were no drowning incidents recorded during the 10-year period. When taking into consideration population distribution, the Midwest region (20.4 incidents per 100,000) recorded the highest rate of drowning followed by the South West region (6.7 incidents per 100,000 older adults). See Figure 12.

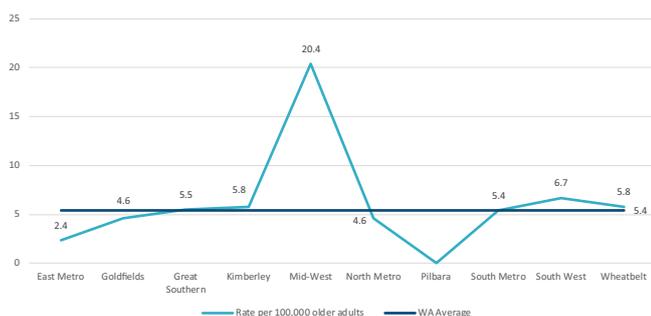


Figure 12: Overall drowning by WA health region – Older adults 65+ years, WA 2005-06 to 2014-15

FATAL DROWNING

Overall, half (n=28; 50.0%) of fatal drowning incidents occurred in regional and remote areas of WA. However, when considering population distribution, older adults were 3.9 times more likely to fatally drown in a regional or remote area (5.0 deaths per 100,000 older adults) than in the Perth metropolitan area (1.3 deaths per 100,000 older adults).

The highest number of fatal drowning incidents occurred in the Midwest region (n=13) followed by the South Metropolitan (n=12) and North Metropolitan (n=10) regions. The lowest number of drowning deaths were recorded in the Pilbara and Kimberley regions. When population distribution is taken into account, the rate of drowning was highest in the Midwest (16.6 deaths per 100,000 older adults), Kimberley (5.8 deaths per 100,000 older adults) and Goldfields (4.6 deaths per 100,000 older adults) regions. The most common local government areas where fatal drowning incidents occurred were the Shire of Carnarvon (10.7%), City of Rockingham (8.9%) and City of Greater Geraldton (7.1%).

Apart from the Pilbara region where no deaths were recorded, the lowest drowning rates were recorded in the East Metropolitan (0.6 deaths per 100,000 older adults) and North Metropolitan (1.3 deaths per 100,000 older adults) regions. See Figure 13.

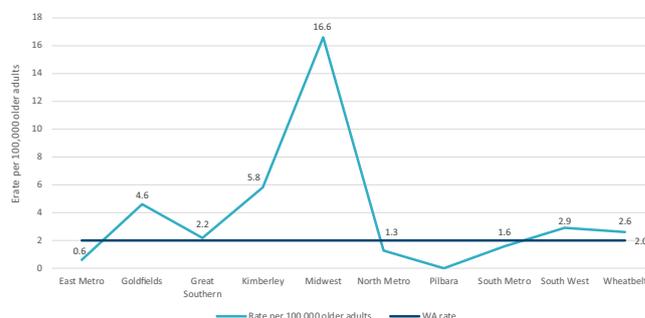


Figure 13: Fatal drowning by WA health region – Older adults 65+ years, WA 2005-06 to 2014-15

NON-FATAL DROWNING

The proportion of hospital admissions following a non-fatal drowning incident was greater in the Perth metropolitan area (n=64; 79.0%) than regional WA (n=17; 21.0%). However, unlike fatal drowning in this age group, when population distribution is taken into account, the rate of hospital admission was similar for the Perth metropolitan area (2.9 admissions per 100,000 older adults) and regional and remote areas of WA (3.0 admissions per 100,000 older adults).

The highest number of hospital admissions were recorded in the South Metropolitan (n=28) and North Metropolitan (n=26) regions, followed by the East Metropolitan (n=10) and South West (n=8) regions. All other regions recorded less than five hospital admissions and haven't been included within this report.

Remoteness Classification

Remoteness classification was determined using the specific location of the drowning incident. Data relating to remoteness classification was only available for fatal drowning incidents. Almost half (n=25; 44.6%) of fatal drowning incidents occurred in major cities, however a high proportion occurred at locations classified as either remote or very remote (n=13; 23.2%). This has implications for drowning outcomes as most of these locations have limited vehicle access and mobile phone coverage often resulting in delays in attendance of emergency services and placing a greater importance on personal rescue and survival skills.

Distance from Home

Data relating to the distance from home of the incident was only available for fatal drowning incidents. Overall, two-thirds (n=37; 67.3%) of fatal drowning incidents occurred within 10km of the person's place of residence (See Figure 15). The average distance from home for those who usually resided in WA was 95.3km and ranged from 0 (death occurred at usual place of residence) to 1,099km from home.

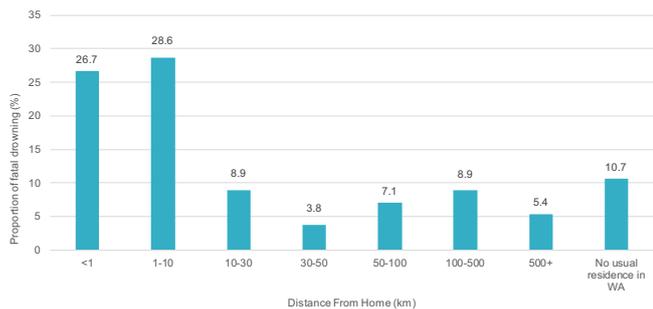


Figure 15: Fatal drowning by distance from home – Older adults 65+ years, WA 2005-06 to 2014-15

Aquatic location

FATAL DROWNING

The highest proportion of fatal drowning incidents occurred at ocean/harbour (n=17; 30.4%), beach (n=14; 25.0%) and home pool (n=10; 17.9%) locations. See Figure 16.

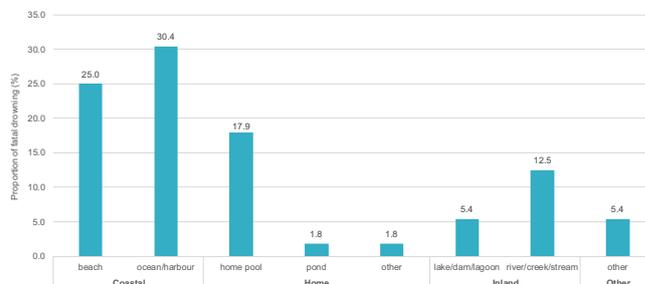


Figure 16: Fatal drowning by aquatic location – Older adults 65+ years, WA 2005-06 to 2014-15

Coastal locations

Fatal drowning incidents involving older adults most commonly occurred at coastal locations (n=31; 55.4%). Of these, the majority (n=17; 54.8%) occurred at ocean/harbour locations with 45.2% (n=14) occurring at beaches. Coastal drowning deaths were most likely to occur in regional and remote areas of WA (n=21; 67.7%) compared to the Perth metropolitan area (n=10; 32.3%) while the person was boating (n=13; 41.9%), fishing (n=11; 35.5%) or swimming (n=10; 32.3%). A significant proportion of deaths involved tourists (n=12; 38.7%) and/or people born overseas (n=19; 61.3%) who had been in Australia for an average of 28.5 years.

Figure 14: Fatal drowning by remoteness classification – Older adults 65+ years, WA 2005-06 to 2014-15



Locations in and around the home

Overall, 21.4% of fatal drowning deaths involving older adults occurred at locations in and around the home with almost all occurring in a home swimming pool (n=10; 83.3%). The average age of the victim was 74.8 years and males were involved in 83.3% (n=10) of incidents occurring at home. The majority of deaths occurred in the Perth metropolitan area (n=9; 75.0%) while the person was either recreating around the water (n=6; 50.0%) or swimming (n=5; 41.7%). In addition, 58.3% (n=7) of deaths at locations in and around the home involved an older adult who was born overseas who had been in Australia for an average of 29.6 years.

Inland waterways

Inland waterways were also common locations for fatal drowning amongst older adults in WA with 17.9% (n=10) of deaths occurring at these locations. Of these, the majority (n=7; 70.0%) occurred in rivers/creeks/streams. The remaining 30.0% occurred in lake/dam/lagoons. All drowning deaths at inland waterway locations involved males, with an average age of 74.5 years. The majority of deaths were recorded in the Perth metropolitan area (n=8; 50.0%) while the person was recreating around the water (n=5; 50.0%) or fishing (n=3; 30.0%). In addition, 70.0% (n=7) of deaths at inland waterways involved an older adult who was born overseas who had been in Australia for an average of 31.3 years.

Other locations

Other locations such as public swimming pools and hotel swimming pools accounted for 5.4% of fatal drowning incident amongst older adults.

Overall, 91.1% (n=51) of deaths occurred at the incident location and 8.9% (n=5) of older adults died at the hospital after being transferred from the incident location.

NON-FATAL DROWNING

The aquatic location where the drowning incident occurred was coded as unspecified or other in 75.3% (n=61) of hospital admission records. Where the location was specified, the most common location where the incident occurred was at home (n=11; 55.0%).





HOW DO OLDER ADULTS DROWN?

Aquatic Activity

FATAL DROWNING

Almost all (n=55; 98.2%) older adults who fatally drowned between 1 July 2005 and 30 June 2015 were undertaking a recreational activity at the time of the incident. Fishing (n=17; 30.4%) was the most common activity being undertaken at the time of the incident with fishing from a boat (n=10; 58.8%) and rock fishing (n=4; 23.4%) to most common types of fishing. Other common activities included recreating around the water (n=16; 28.6%), swimming (n=15; 26.8%) and recreational boating (n=12; 21.4%). See Figure 17.

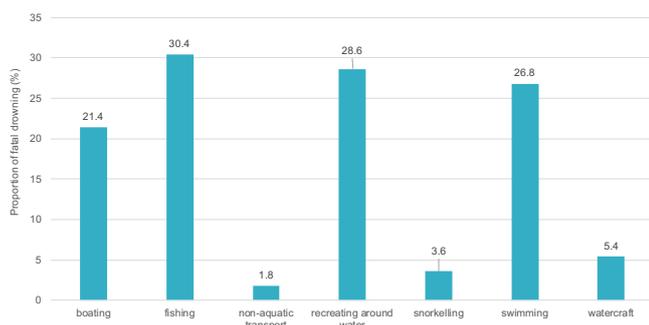


Figure 17: Fatal drowning by aquatic activity – Older adults 65+ years, WA 2005-06 to 2014-15

Overall, 37.5% (n=21) of older adults were participating in a water-based activity at the time of the incident, however they were most likely to enter the water unintentionally (n=33; 58.9%) as the result of slipping or falling (n=19; 57.6%); being swept in by a wave (n=6; 18.2%) or a boat capsizing or colliding with another object (n=5; 15.2%). This means that they were unlikely to have been prepared to enter the water which would have affected their ability to get themselves to safety following the incident.

Entry into the water was unknown in 3.6% (n=2) cases. This was due to the person being alone at the time of the incident meaning that there was no-one to witness how the incident occurred.

NON-FATAL DROWNING

Aquatic activity was specified in 34.7% (n=28) of hospital admissions following a non-fatal drowning incident. Water sports was identified as the most common activity being undertaken at the time of the incident (n=20; 71.4%).

Rescue and CPR

Data relating to rescue and CPR performed following the incident was only available for fatal drowning incidents. A rescue was attempted in 73.2% (n=41) of fatal drowning incidents occurring in this age group with the rescue most likely to be performed by someone unknown to the person (n=23; 56.1%) such a member of the public or lifeguards. A family member or friend performed the rescue in 41.5% (n=17) of incidents.

Reasons for a rescue not being performed included that the person was participating alone and there were no other people at the location or that the people at the location were unable to perform the rescue as they were also involved in the incident.

Where a rescue was performed, cardiopulmonary resuscitation (CPR) was performed in 73.2% (n=30) of incidents. Members of the public (n=20; 66.7%) and trained professionals including lifeguards and first aid staff (n=13; 43.3%) were the most likely to perform CPR following the rescue. CPR was provided by multiple people in half (n=15; 50.0%) of incidents.

Medical Conditions

Data relating to the presence of medical conditions was only available for fatal drowning incidents. Overall, 73.2% (n=41) of older adults who died from drowning had a medical condition that may have contributed to their death. Medical conditions were identified as a specific cause of death in 48.2% (n=27) of all fatal drowning incidents involving older adults and 65.9% (n=27) of those who were reported to have had a medical condition at the time of their death. The most common medical conditions were coronary conditions (n=32; 78.0%) and physical conditions such as mobility issues and Parkinson's Disease (n=16; 39.0%). Respiratory conditions such as emphysema, asthma and pulmonary disease (n=5; 12.2%) and mental health conditions such as dementia (n=4; 9.8%) were also reported. Other medical conditions included high cholesterol and diabetes.

Of those that had a medical condition at the time of the incident, 39.0% (n=16) were reported to have had multiple conditions that may have contributed to their death.

Swimming Ability

Data relating to swimming ability was only available for fatal drowning incidents. Swimming ability was reported in 51.8% (n=29) of fatal drowning cases involving older adults. Of these, 62.1% (n=18) were reported to be good swimmers who swam regularly. Overall, 20.7% (n=6) were reported to be poor or non-swimmers with limited experience.

Alcohol and Drugs

Data relating to the presence of alcohol and drugs was only available for fatal drowning incidents. A toxicology report was available for almost all fatal drowning incidents involving older adults (n=54; 96.4%). Where a toxicology report wasn't available, this was due to the victim's body never being recovered following the incident (lost at sea).

Alcohol

Of those where a toxicology report was available, 20.4% (n=11) of older adults had alcohol in their system at the time of the incident with the majority (n=8; 72.7%) having a blood alcohol concentration (BAC) exceeding 0.05. BAC ranged from 0.011 to 0.301, with an average of 0.123, more than twice the legal limit for driving a motor vehicle in WA.

Of those that had alcohol in their system at the time of the incident, the majority were males (n=9; 81.8%), were aged 65-74 years (n=8; 72.7%) and were retired (n=9; 81.8%). Incidents were most likely to occur in the home swimming pool (36.4%) while they were recreating around the water (45.5%) or swimming (27.3%).

Other Drugs

Of those incidents where a toxicology report was available, 60.7% (n=34) of older adults had drugs in their system at the time of the incident, with the majority of these being prescribed medications (n=32; 94.1%). The high proportion of older adults with reported pre-existing medical conditions requiring medication is likely to have influenced this with 71.9% (n=23) of people with legal drugs in their system having a pre-existing medical condition requiring medication.

Alcohol and Other Drugs

Overall, 16.1% (n=9) of older adults had both alcohol and other drugs in their system at the time of the incident, with majority of these (n=7; 77.8%) having a BAC of greater than 0.05.

Other Contributing Factors

A number of other factors were identified as contributing to fatal drowning incidents including environmental factors such as poor weather conditions, strong winds, large swell, poor visibility and fast flowing water (n=17; 30.4%), participation in unsafe behaviours (n=16; 28.6%) and equipment such as not wearing a lifejacket, inappropriate safety equipment or wearing inappropriate clothing for the activity. Other factors included the person being unfamiliar with the location or inexperienced with the activity being undertaken, remoteness of the location, injury sustained during the incident and fatigue.

DISCUSSION

Drowning remains a significant issue for older adults in WA, and with an ageing population which will see 22.0% of the total population aged over 65 years by 2056, it is likely that the issue of healthy ageing and injury prevention will become even more of a priority. While older adults over 65 years of age recorded the lowest overall drowning rate (fatal and non-fatal) of any age group over the study period, the rate of fatal drowning amongst older adults was the second highest of any age group behind toddlers aged 0-4 years of age. In addition, while the numbers were relatively small, the rate of hospital admissions for older adults following a non-fatal drowning increased by 63.6% during the study period.

This research highlighted that older adults over 65 years of age in WA are at a much greater risk of fatal drowning than non-fatal drowning, a trend that is unique to this age group. It is likely that this is due to a number of other risk factors that exist within this age group such as the presence of medical conditions, increased use of medications and effects of ageing on fitness and abilities contributing to the incident, all of which increase the likelihood that a drowning incident is fatal.

Older adults' risk of fatal drowning tended to decrease with age, with those aged 65-74 years found to be at the greatest risk, accounting for almost two thirds (n=37; 66.1%) of drowning deaths amongst this age group. During this life stage it is common for people to be transitioning from employment into retirement, which brings with it a number of challenges for drowning prevention. This study found that 76.8% (n=43) of fatal drowning incidents involved a person who was retired at the time of the incident, further highlighting this issue. The transition into retirement is unique in that it often results in increased leisure time previously spent working. It is common for people to re-engage with aquatic activities during this time. While this is seen as an important element in promoting healthy ageing, it also presents a number of drowning prevention issues. People often rely on skills that they obtained earlier in life and haven't regularly practised resulting in a lack of awareness of how skills may have reduced over time.

The 'grey nomad' trend is also common during this life stage, with many spending their new-found leisure time to travel and experience new parts of WA. This study found that 12.5% of drowning deaths involved people travelling within WA. Often, these incidents occurred at locations in regional and remote areas where the risk was greatest, with older adults twice as likely to drown in these areas compared to the Perth metropolitan area. In addition, a further 12.5% involved people travelling from overseas. Both these groups are at a greater risk of drowning as a result of being unfamiliar with the locations they are visiting and unaware of local risks and dangers. Further information regarding the local risks should be available at popular tourist locations, particularly the Midwest and South West where the drowning rates were highest for older adults.

Similar to trends seen in other injury areas and overall drowning trends at an international, national and state level, older adult males were at a significantly greater risk of drowning than females. Overall, males were 8.2 times more likely to drown (fatal and non-fatal) than females and this was more pronounced for fatal than non-fatal incidents. This is likely a result of greater levels of participation in high risk activities such as boating alone and rock fishing amongst older adult males compared to females. In addition, complacency regarding personal abilities and overall risks has been found to be greater in males than females. Despite this, the proportion of drowning incidents involving females was greater amongst older adults than any other age group in WA during this time. Strategies to address these issues are integral to achieving reductions in drowning amongst this age group.

Ageing also presents challenges in the fact that many health and medical conditions become more common with age. The prevalence of many health and medical conditions is much greater in older age groups and this can have a number of implications including increased risk of drowning. This study found that the presence of a medical condition was a significant risk factor for fatal drowning amongst older adults in WA. Overall, 73.2% of older adults who died from drowning during the study period had at least one medical condition that may have contributed to their death, the highest proportion of any age group during this time. Often this is also associated with increased use of medications, many of which can have a detrimental effect on a person's abilities to undertake aquatic activities safely. Better education is required to ensure that older adults are aware of the effect that common medical conditions and associated medication use has on their abilities and where possible, advice should be sought from health professionals prior to participation to ensure that the activity is suitable.

The use of alcohol while undertaking activities either in or around the water was also identified as a risk factor for drowning amongst older adults in WA. Overall, 16.1% of drowning deaths were contributed to by alcohol with the majority of these people (77.8%) recording a BAC exceeding 0.05. At these levels, alcohol is known to significantly affect a person's ability to participate safely due to poorer judgement, slowed reaction times and reduced balance. Reduced balance is a particular concern given that older adults are more susceptible to falls, which is the leading cause of injury amongst this age group. In addition, the use of alcohol in combination with prescribed medications increases a person's risk of injury and/or death.

RECOMMENDATIONS

This report recommends the following to reduce the impact of drowning amongst older adults in the WA community:

1. Encourage participation in aquatic activities

Participation in regular physical activity has a range of social, health and well-being benefits for older adults and should be encouraged to promote healthy ageing amongst this age group. In particular, aquatic activities should be promoted as a pathway to improving overall health and to encourage healthy, independent and active lifestyles.

2. Focus on transition to retirement

Older adulthood is a common time for people to undertake the transition from work into retirement, resulting in increased leisure time and travel with aquatic activity a popular activity during this life stage. However, people often rely on skills previously learned earlier in life and efforts to re-introduce these skills to older adults in preparation for activity need to be implemented to promote safe participation.

3. Develop targeted interventions to reduce the impact of drowning

There are currently no specific interventions in WA targeting drowning prevention in older adults. Efforts are needed to work with seniors to better understand current levels of water safety awareness and the barriers and enablers to participation in aquatic activities. Interventions should focus on providing seniors with swimming skills and building confidence to participate in aquatic activities while educating them on the key risk factors affecting their safety. These programs should be practical and provide seniors with skills in personal survival, general swimming and dealing with emergency situations and should cater for all skill levels.

4. Focus on high risk locations and activities

Interventions and messages should focus on providing seniors with information on the risks that exist at locations where the risk is highest, including home pools and coastal locations. In addition, they should focus on providing seniors with the relevant skills to promote safe participation in a wide variety of activities common in this age group including fishing, swimming, boating and recreating around the water.

5. Promote awareness of medical conditions

Medical conditions are a significant risk factor for drowning amongst older adults in WA and can affect their ability to participate in aquatic activities safely. In addition, the use of some medications can further increase this risk. Older adults need to be better educated about the impact that medical conditions and medication use can have on their physical abilities and those with severe medical conditions should be encouraged to seek medical clearance to ensure that they are fit to participate.

6. Focus on risk-reduction

Drowning amongst older adults is more likely to be fatal than non-fatal and more work is needed to better educate this group on the risks. Prevention messages should focus on reducing risk-taking behaviours common amongst this age group including participating in aquatic activities alone, drinking alcohol while participating and participating in risky activities such as rock fishing. These also need to include strategies to overcome the issue of complacency regarding safety amongst some older adults.

CONCLUSION

Despite older adults recording the lowest rate of overall drowning of any age group during the study period, overall rates amongst this age group have increased by 15.2%. With an ageing population and the proportion of people over 65 years of age expected to grow by 6% by 2056 in Australia, the issue of healthy ageing and injury prevention become even more important.

The challenge is to encourage participation in aquatic activities to promote and improve overall health and well-being, while overcoming common risk factors to drowning such as pre-existing medical conditions, alcohol consumption, complacency and reliance on skills gained earlier in life causing them to overestimate their abilities to participate safely.

Prevention efforts need to focus on re-engaging older adults in aquatic exercise to equip them with relevant skills and provide them with information relating to key risk factors that may impact on their abilities to participate safely. Further collaboration with tourism and seniors' groups and the aquatics industry is also required to ensure the effective delivery of interventions in appropriate formats to reduce the impact of drowning amongst this age group.

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