CEO’s Report

This year we again find ourselves reporting an increase in the Victorian drowning toll, with 45 people losing their lives to drowning in 2016/17. We can also note that paramedics attended 54 non-fatal drowning incidents, bringing the total number of drowning incidents across Victoria to 99.

Similarly, alcohol has been a continuing trend in drowning incidents. It was a factor this year in 22% of cases. Notably there has been an average of nine drowning alcohol related deaths each year over the past decade (2006/07 to 2015/16).

Meanwhile, differing from the past two years, the majority of drowning deaths in 2016/17 occurred in inland waterways (42%, 19). This is a 48% increase, when we compare to the 10-year average. Over the past three years, LSV has been partnering with the Royal Life Saving Society - Australia and the Australian Government to deliver the Respect the River campaign to promote safety in inland waterways. These alarming statistics certainly highlight the importance of this campaign as it continues into 2017/18.

Two new inclusions in this year’s report provide further snapshots of drowning in public swimming pools as well as children drowning in home pools. Both of these areas have been identified as key priorities for action and will be areas of significant focus in our drowning prevention activities for 2017/18.

Looking forward and thanks to funding announced by the Victorian Government earlier this year, LSV will lead an industry partnership in developing a formal approach to public pool safety, meanwhile changes are expected for Victorian pool fencing laws when the replacement Victorian Building Regulations are finalised and come into effect by June 2018.

I present the 2016/17 Drowning Report with the reminder that drowning deaths are highly preventable and therefore, needless.

I hope that perusal of this report helps you to better understand the Victorian drowning issues we are faced with. Together with our Community/Government partnerships, we will continue to strive to prevent future aquatic deaths and injuries.

Dr Nigel Taylor ESM CEO

This year we saw increases in fatal drowning rates across a number of key demographics (compared to the 10 year average 2006/07-2015/16), including:

- A 6% increase for children aged 0-4 years;
- A 25% increase for young adults aged 15-24 years;
- An 18% increase for adults aged 25-44 years; and
- A 45% increase for adults aged 65 years and over.

The increase of drowning in older adults is being addressed through the Play is Safe by the Water campaign. Over summer this age group will continue to be targeted with TV, radio and online advertisements. These advertisements aim to prompt adults 65+ not to overestimate their abilities and to understand the risks of their chosen aquatic environment. This campaign will be supported with targeted practical water safety programs, for example the Grey Medallion program. We hope to see some improvement in the numbers for this demographic in the future.

The most common activity immediately prior to a drowning in 2016/17 was swimming/paddling/wading, representing 59% of total and 26% of non-fatal drowning incidents. These figures highlight the importance of all Victorians having the opportunity to learn swimming and water safety skills. Staying calm, floating or treading water are the keys to saving many lives.

The Victorian Government announcement (November 2016) that swimming and water safety education would become a compulsory part of the Victorian school curriculum, has been a significant milestone in LSV’s long-term work toward addressing the lack of swimming competency of Victorian school children. We hope that this initiative will also provide greater benefits into the future, by allowing these children to enjoy aquatic activities safely, for many years to come.

In an area where we have seen very little change, men remain four times more likely to drown than women. This year’s fatal drowning statistics were made up of 35 males, compared to 10 females.

CEO’s Report

This year saw increases in fatal drowning rates across a number of key demographics (compared to the 10 year average 2006/07-2015/16).
### FATAL DROWNING IN 2016/17

- **45** drowning deaths
- **20%** increase on the 10 year average
- **$189 million** direct cost of lives lost

### NON-FATAL DROWNING IN 2016/17

- **54** non-fatal drowning incidents attended by paramedics
- **0.86** crude non-fatal drowning rate per 100,000 persons in Victoria

### Activity (Fatal)

- **29%** swimming/paddling/wading
- **18%** walking or playing near water
- **20%** involved alcohol

### Activity (Non-Fatal)

- **26%** swimming
- **22%** general leisure/play

### Location (Fatal)

- **42%** lakes/dams/rivers/creeks
- **32%** bay/beach/ocean

### Location (Non-Fatal)

- **33%** pools (22% public and 11% residential pools)
- **32%** bay/beach/ocean

### Key Fatal Drowning Statistics In 2016/17

- **45%** increase in fatal drowning rate of adults aged 65+
- **48%** increase in drowning deaths in inland waterways
- **76%** increase in drowning deaths of people from multicultural communities occurred at beaches
- **45%** of drowning deaths of people from multicultural communities occurred at beaches

### Key Fatal Drowning Statistics Over the Past Decade

- **69%** of drowning deaths of children aged 0-4 in home pools/spas involved lack of maintenance of the pool/spa barrier as a contributing factor
- **74%** of people who drowned in boating incidents were not wearing a lifejacket
Every day, visitors to Victoria's 811 kilometres of ocean beaches, 259 kilometres of bay beaches, 85,000 kilometres of rivers, 13,000 natural wetlands and 450 public and commercial swimming pools, engage in a wide variety of recreational aquatic activities (Short, 1996; DSE, 2011; VAIC, 2001). Our prevention efforts span this setting.

**REDUCE DROWNING**
Reduce Victorian drowning rate

- **45**
  - Drowning deaths in Victoria in 2016/17. This is eight more than the 10 year average 2006/07 to 2015/16.

- **0.72**
  - Crude fatal drowning rate per 100,000 persons in Victoria in 2016/17; a 9% increase compared to the 10 year average (2006/07 to 2015/16).

- **54**
  - Non-fatal drowning incidents attended by paramedics in Victoria in 2016/17.

- **46%**
  - Decrease in the fatal drowning rate in Victoria since the start of the Pay It Safe by the Water campaign in 1998 (baseline is the three year average 1996/97-1998/99 compared to the follow-up 2014/15-2016/17 average).

- **$189M**
  - Direct cost to society of lives lost (where the value of a statistical life is estimated at $4.2 million; Office of Best Practice Regulation, 2014).

- **$235M**
  - Estimated total value of coastal services in Victoria per year (9WC, 2011).

**SERVICES**
Expand to meet public need/ sustainability/ membership development, growth and support

- **670**
  - Rescues by lifesavers and lifeguards on patrolled beaches on average per year from 2006/07 to 2015/16.

- **26,48**
  - Rescues per 100,000 beachgoers on average per year from 2006/07 to 2015/16.

- **1,874**
  - First aid assistance by Rescuers and Lifeguards on patrolled beaches on average per year from 2006/07 to 2015/16.

- **33,159**
  - Volunteer members, patrolling our beaches and providing education and training in lifesaving activities, to ensure the safety of Victoria’s waterway users.

**PROGRESS**
The following table outlines Victoria’s progress against the Victorian Water Safety Strategy 2016-2020 and Australian Water Safety Strategy 2016-2020, with respect to fatal drowning incidents. While the overall drowning rate has decreased by 13% from the baseline, this is well short of the target of a 50% reduction in drowning by 2020.

<table>
<thead>
<tr>
<th>KEY LIFE STAGES</th>
<th>BASELINE 3 YEAR AVERAGE (2004/05-2006/07)</th>
<th>FOLLOW-UP 3 YEAR AVERAGE (2014/15-2016/17)</th>
<th>PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce drowning in children aged 0-4 years</td>
<td>3</td>
<td>4</td>
<td>High concern</td>
</tr>
<tr>
<td>Reduce drowning in children aged 5-14 years</td>
<td>4</td>
<td>1</td>
<td>High concern</td>
</tr>
<tr>
<td>Reduce drowning in people aged 15-24 years</td>
<td>5</td>
<td>6</td>
<td>High concern</td>
</tr>
<tr>
<td>Reduce drowning in people aged 65+</td>
<td>8</td>
<td>11</td>
<td>High concern</td>
</tr>
</tbody>
</table>

**EDUCATION & TRAINING**
Continue development to ensure efficiency and expansion of delivery

- **195,675**
  - Participants took part in water safety education state-wide in 2016/17; a 1.2% increase compared to the five year average (2011/12-2015/16).

- **14,000**
  - Culturally and linguistically diverse participants took part in LSV programs in 2016/17; a 19% increase compared to the five year average (2011/12-2015/16).

- **26,860**
  - People trained in CPR or other First Aid related courses in 2016/17.

- **11,622**
  - Participants in Pool Lifeguard, Community Surf Life Saving, or water rescue courses in 2016/17.

- **152**
  - Aquatic facilities were registered Watch Around Water facilities in 2016/17. This represents an estimated 53% of aquatic facilities in Victoria.

**AQUATIC RISK & RESEARCH**
Striving for excellence/ evidence based practice

- **88%**
  - Of students said the Open Water Learning Experience and Sink or Swim programs that were adapted for inland waterways made them think about being more careful around water (Birch et al. 2017).

- **1,060**
  - People were invited to the Connecting African Communities Aquatic Project. In addition there was a 75% employment conversion from eight African youth undertaking the past illigal course (Birch & Matthews, 2010).

- **5,366**
  - Students played the Everyday Lifesaver App between October 2015 and April 2016. Of those students (aged 12-14 years) that participated in a trial of the App (n=249), 69% felt more confident to perform CPR after they played the App (Birch, Matthews and Simpson, 2017).

- **121**
  - Pool safety assessments conducted by LSV to audit aquatic locations against the best practice standards.

- **52%**
  - Council owned aquatic facilities have not completed a facility safety assessment in the past three years.

**PROGRESS**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Reduce alcohol and drug related drowning</td>
<td>9</td>
<td>12</td>
<td>High concern</td>
</tr>
<tr>
<td>Reduce boiling, watercraft and recreational activity related drowning***</td>
<td>7</td>
<td>8</td>
<td>High concern</td>
</tr>
<tr>
<td>Risk populations***</td>
<td>6</td>
<td>7</td>
<td>High concern</td>
</tr>
</tbody>
</table>

**HIGH RISK LOCATIONS**

<table>
<thead>
<tr>
<th>BASELINE 3 YEAR AVERAGE (2004/05-2006/07)</th>
<th>FOLLOW-UP 3 YEAR AVERAGE (2014/15-2016/17)</th>
<th>PROGRESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce drowning in inland waterways</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Reduce drowning in coastal waters</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>Reduce drowning by strengthening the aquatic industry**</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Reduce drowning in high-risk populations***</td>
<td>8</td>
<td>11</td>
</tr>
</tbody>
</table>

* Includes drowning deaths at public swimming pools.
** Includes boat and watercraft, rock fishing, rock fishing and shore fishing.
*** Includes Aboriginal and Torres Strait Islander people from culturally and linguistically diverse (CALD) backgrounds, international students, international tourists and international students.
There were a total of 99 drowning incidents in Victoria in 2016/17, including 45 drowning deaths and 54 non-fatal incidents. Children aged 0-4 years have the greatest overall risk of drowning, with the highest age-specific combined rate of fatal and non-fatal drowning. However, older adults aged 65+ years had the highest age-specific rate of fatal drowning in 2016/17.

DEATHS

The 45 drowning deaths in 2016/17 represent a 20% increase (eight deaths) compared to the 10 year average from 2006/07 to 2015/16. The crude fatal drowning rate was 0.72 per 100,000 persons in 2016/17, this is a 9% increase compared to the 10 year average (0.66 per 100,000 persons from 2006/07 to 2015/16).

Of the 45 drowning deaths in Victoria in 2016/17, 35 (78%) were male. Males are consistently overrepresented in drowning statistics, overall they are four times more likely to drown than females.

Four children aged 0-4 years died as a result of drowning this year in Victoria, with a drowning rate of 1.00 per 100,000 population. There was a 6% increase in the fatal drowning rate of children aged 0-4 years in 2016/17 compared with the 10 year average (2006/07-2015/16). There was also a 25% increase in the fatal drowning rate of young adults aged 15-24 years, an 18% increase in the fatal drowning rate of adults aged 25-44 years and a 45% increase in adults aged 65 years and over.

NON FATAL INCIDENTS

There were 54 non-fatal drowning incidents attended by paramedics in 2016/17. This represents a crude non-fatal drowning rate of 0.86 per 100,000 persons in 2016/17.

Hospital Admissions, 2006/07 to 2015/16

Over the previous decade there were 701 hospital admissions for non-fatal drowning, which is an average of 76 hospital admissions for non-fatal drowning per year. The annual crude hospital admission rate was 1.34 per 100,000 persons per year (2006/07-2015/16). The rate of admissions increased over the 10 year period from 2006/07-2015/16.

Emergency Department (ED) Presentations, 2006/07 to 2015/16

There were 772 ED presentations in the 10 year period from 2006/07-2015/16, which is an average of 77 ED presentations for non-fatal drowning annually. The average annual rate of ED presentations was 1.31 per 100,000 persons per year. The rate of ED presentations varied over the 10 year period from 2006/07-2015/16, but trended toward an overall increase. The majority of the 772 ED presentations were males (658, 86%). Similar to hospital admissions, ED presentations decreased with increasing age.
Drowning Deaths of Children 0-4 Years of Age in Home Pools

Two young children (aged 0-4 years) drowned in home pools in 2016/17. In addition there were 13 drowning deaths of children aged 0-4 years in home swimming pools (and outdoor spas) over the previous 10 year period (2006/07 to 2016/17). Of the drowning deaths over the past 10 years all occurred on a weekday, with nine occurring in the afternoon. The majority of deaths (8) occurred in the summer and 10 occurred in Greater Melbourne.

Coronial records indicate that the deaths primarily resulted from a combination of inadequate carer supervision immediately prior to the drowning, lack of adequate safety barriers between the child and the pool/spa, and availability of an entry point. Examples of inadequate safety barriers and available entry points include: safety barrier gate left propped open or door left open, faulty gate lock, safety barrier fence not maintained or adaptations to the fence or surrounding area made so it no longer complied with the Australian Standards. There were also cases where a climbing point allowed easy access to the swimming pool.

In nine of the 13 drowning deaths of children aged 0-4 in home pools and spas in Victoria in the past 10 years, the coroner found lack of maintenance of the pool fence or gate was a contributing factor to the child’s death. These figures highlight the need for mandatory barrier inspections for home pools, to ensure that barriers are being properly maintained and prevent further drowning deaths. Evidence from other states demonstrates the success of mandatory barrier inspections in reducing drowning (Royal Life Saving Society - Western Australia, 2016). Furthermore the World Health Organization stresses that low compliance and weak enforcement of legislation can lead to pool barriers alone being ineffective (World Health Organization, 2017).

There were also 39 non-fatal drowning incidents of young children (0-4 years) in home swimming pools attended by paramedics in the five year period from 2012/13 to 2016/17.

CULTURAL AND LINGUISTIC DIVERSITY

This year six individuals that drowned were reported as being from culturally and linguistically diverse (CALD) communities (13%). This is a 15% decrease when compared to the 10 year average (seven per year from 2006/07 to 2015/16).

These figures may be even higher, as from 2006/07 to 2015/16 it is estimated that country of birth or ethnicity were unknown in 68% of drowning deaths.

On average over the past 10 years, 18% of drowning deaths were of individuals known to have been born overseas. Of those, the majority were males (84%), with many aged 25-44 years (42%) or 15-24 years (20%). Incidents typically occurred in open waterways, with 42% at beaches and 21% in rivers/creeks/streams. The most common activities victims were undertaking prior to the drowning incident included swimming/wading (38%), walking/recreating near water (16%), or rock fishing/rock waling (11%).

Individuals from a CALD background are recognised as those who identify as ‘having a specific cultural or linguistic affiliation by virtue of their place of birth, ancestry, ethnic origin, religion, preferred language(s) spoken at home, or because of their parents’ identification on a similar basis’ (Department of Human Services Multicultural Strategy Unit, 2002).
These maps outline excess risk of drowning incidents in Victoria over a 15 year period from 2001/02 to 2015/16. Values are considered excess risk where the observed count exceeds the expected count of events, given the underlying population for each postcode.

Each map contains different analysis timeframes. The first three maps illustrate excess risk rates using postcode and population counts for consecutive five year periods, 2001/02 to 2005/06, 2006/07 to 2010/11 and 2011/12 to 2015/16. The fourth map uses the same data over the whole 15 year timeframe (2001/02 to 2015/16).
WHEN DID THEY DROWN?

Month and Season
Over a third (36%, 16) of drowning deaths occurred in the summer months last financial year. There was an increase in drowning deaths in spring, representing 32% (14) of the total drowning deaths.

In the previous decade (2006/07 to 2015/16) the majority of drowning deaths occurred in summer (34%), followed by autumn (23%), spring (22%) and winter (20%). There were significant increases in drowning deaths in July, September, October, December and March in 2016/17 when compared with the 10 year average from 2006/07 to 2015/16.

Similar to fatal drowning, non-fatal drowning incidents were more common in summer (44%, 31). This was followed by autumn (16%, 11), spring (14%, 10) and winter (3%, 2).

WHERE DID THEY DROWN?

Region
In the last financial year 51% of drowning incidents (23) occurred in major cities in Victoria, this is a 30% increase when compared with the 10 year average from 2006/07 to 2015/16.

When accounting for the differences in the distribution of the population, the drowning rate decreased for those residing in regional areas of Victoria. There was an 8% decrease in the drowning rate of those residing in regional areas of Victoria this year (0.85 per 100,000 population in 2016/17) compared with the 10 year average (0.92 per 100,000 population from 2006/07 to 2015/16). However, of concern is the 16% increase in the drowning rate of those residing in metropolitan areas of Melbourne.

Waterways
Differing from the past two years, in 2016/17 the majority of drowning deaths occurred in inland waterways (19, 42%). This represents a 48% increase in drowning deaths in inland waterways, compared with the average over the previous decade (13, 34% from 2006/07 to 2015/16). This increase was driven by an increase in drowning in lakes, with eight deaths in lakes in 2016/17 compared to an average of three per year over the past decade. The number of drowning deaths occurring in coastal waterways was 15 in 2016/17 and 16 on average over the previous decade.

A third of non-fatal drowning incidents in 2016/17 occurred in swimming pools, (22% public and 11% residential pools). The other key waterways for non-fatal incidents were bay/beach/ocean environments (32%), which is consistent with previous years.

WHAT WERE THEY DOING?

Activity
The most common activity immediately prior to a fatal drowning in 2016/17 was swimming/paddling/wading (29%, 13), followed by walking/playing near water (18%, 8) or bathing/having a spa bath (11%, 5).

There was a 76% increase in those that fatally drowned while swimming/paddling/wading in 2016/17, compared to the 10 year average from 2006/07 to 2015/16 (7, 20%). Similar to fatal drowning, the greatest proportion of non-fatal drowning incidents involved those swimming (26%, 14). These figures highlight the importance of the recent Victorian Government initiative making swimming and water safety mandatory in the primary school curriculum.

Unintentional water entry (slips/trips/falls) accounted for 40% of fatal drowning incidents last year (18). This is a 46% increase compared to the past decade, with an average of 12 (36%) per year from 2006/07 to 2015/16.

48% INCREASE IN DROWNING DEATHS IN INLAND WATERWAYS.

76% INCREASE IN THOSE THAT FATALLY DROWNED WHILE SWIMMING/PADDLING/WADING IN 2016/17, COMPARED TO THE 10 YEAR AVERAGE.
Drownings Deaths at Public Swimming Pools

There were 35 drowning deaths at public swimming pools in Victoria in the past 25 years, an average of 1.4 deaths per year. Of these 35 drowning deaths, 71% (25) occurred at council owned aquatic and leisure facilities, while the other 29% (10) occurred at non-council owned pools (typically privately owned health and fitness centres, or hotels/resorts).

The majority (86%, 30) of people who drowned were male and the median age was 27 years. The majority of cases (66%, 23) occurred in the period 1991-2000, however 20% of cases (7) occurred in the two year period from 2014-2015, this is the highest since 1998-1999 (20%, 7).

Key factors that contributed to drowning deaths at public swimming pools were a lack of supervision and pre-existing medical conditions. Parent or carer supervision was lacking in five out of seven child drowning cases. In 37% of cases (13) there was evidence of a pre-existing medical condition, such as heart disease or epilepsy.

Drowning deaths in public swimming pools represented 3% of the total unintentional drowning deaths in Victoria over the last 25 years. In addition, there were 86 non-fatal drowning incidents in public swimming pools that were attended by paramedics in the five year period from 2013/14 to 2015/16. This is an average of 17.2 non-fatal incidents per year.

Alcohol-related Drowning Deaths

Alcohol is a common factor in drowning, representing 22% of the drowning toll annually over the past decade (an average of 9 deaths per year from 2006/07 to 2015/16). Consistent with previous years, nine lives were lost in 2016/17 when an individual reportedly consumed alcohol prior to drowning, representing 20% of the total drowning toll.

Lack of Lifejacket Use

Lack of a lifejacket use when boating has potentially claimed many lives in Victoria. Of the 50 boating-related deaths over the past decade (2006/07 to 2015/16), lifejacket use was known in 39 cases. Of these 39, in 29 incidents (74%), the deceased was not wearing a lifejacket at the time. A further 15 (6%) had an incorrectly fitted lifejacket or were wearing the incorrect type recommended for the conditions.

Wearing a lifejacket when rock fishing could also have saved another six lives over the past decade (2006/07 to 2015/16), with all individuals who drowned while rock fishing found to not be wearing a lifejacket.

74% of people that drowned in boating incidents over the past decade were not wearing a lifejacket.
The role of the coroner in Victoria is to investigate reportable deaths, which include drowning, in order to determine the identity of the person who died, the cause of the death and, in some situations, the circumstances surrounding the death. As part of this process, the coroner may recommend ways to help prevent similar deaths in the future.

There were seven coronial findings where recommendations were made relating to drowning deaths in 2016/17. The following is a summary of the incidents and the recommendations made by the coroner as contained in the coronial findings. Please note, these are not exact replications from the findings. Full coronial findings can be accessed from the Coroners Court of Victoria website:


2014

On 2 February 2014, Paul Rayudu was located at the bottom of the 50 metre pool at a public swimming pool in Greensborough. He was unconscious when pulled from the water. Cardio-pulmonary resuscitation (CPR) was initiated and he was transferred by ambulance to hospital. He was admitted to intensive care but failed to improve. He died on 8 February 2014.

Recommendations

1. I recommend that Belgravia Leisure Pty Ltd implement a system, not limited to, but which may be in the form of signage, requesting patrons to inform a staff member of their vulnerabilities before entering the water.

2. I recommend that Belgravia Leisure Pty Ltd, in consultation with Banyule City Council, explore the options and means for best communicating with and encouraging patrons who have English language challenges, to inform a staff member of their vulnerabilities before entering the water. The communication option may take the form of, but not be limited to, visual imagery on a monitor at the reception area and multilingual written material.

3. I recommend that Chris Eccles, Secretary of the Department of Premier and Cabinet, work with the appropriate area of Victorian Government to establish a central oversight and regulation body for public swimming pool operation in Victoria, to ensure safety standards are applied and upheld consistently across the industry.

2014

Mr Gao was a 20-year-old student who arrived in Australia from China in 2013 to study. He drowned on 21 December 2014, while collecting crabs at Number Four Beach in Venus Bay. The beach was unpatrolled at the time and it is unclear if Mr Gao could swim.

The coroner noted that Mr Gao’s death “…highlights the particular vulnerability of foreign-born individuals to accidental drowning in Victorian (and Australian) coastal waters.” Furthermore that “…beach safety signage is an important tool for providing information about risks and hazards on coastal beaches and waterways,” but that “…signage, though valuable, is unlikely in isolation to wholly manage the risks presented by coastal waters …water safety education is, therefore, another important tool through which to minimise unintentional drowning in coastal waters for this cohort.”

Recommendation

I endorse the comments made by Coroner Jamieson ...that all education and training institutions that have international students enrolled annually seek the services of Life Saving Victoria to deliver water safety information to their students. Building water safety awareness among this group may promote the adoption of protective behaviours and a more accurate assessment of risks posed by different aquatic environments.
Coronial Recommendations

2015

Paul Gendre, aged 61 years, died as a result of drowning while on a fishing trip between 6-11 July 2015. He was on his own in his canoe (a canoe with a square transom) at Lake Dartmouth. He was considered to be a very competent canoeist and strong swimmer, however his current fitness level was moderate. Toxicological analysis detected alcohol at a concentration of 0.23g/100mL. In addition, he was not wearing a lifejacket at the time his body was recovered from the water.

The coroner noted that “... by taking his canoe to a relatively remote area, loading it with bulky items, travelling with no lifejacket or personal flotation device, apparently consuming alcohol, and failing to obtain a Recreational Boating License and associated education, Mr Gendre was exposed to considerable risk of injury.”

Recommendation

With the aim of reducing the risk of harms and preventing like deaths through the provision of appropriate information about the risks associated with boating and associated water activities, I recommend that Goulburn Murray Water erect additional safety signage adjacent or proximate to the boat ramp at Lake Dartmouth.

2015

On 14 September 2015, a two-year-old boy (Child E) drowned in a backyard swimming pool at a rental property where he lived. The child was unsupervised at the time and the pool safety barrier did not comply with building regulations. The coroner noted that “... both pool safety barriers were badly damaged and faulty.” Further, the coroner made the following comments regarding the deaths:

“The tragic deaths of three children; Chanel Peckham, Jacob (Yakkoy) Oxadiza Ben Zur, and Darren Harris in backyard swimming pools of rental properties, should be an impetus for regulatory change in Victoria. However, while we have waited for the Victorian Government’s reform of the Building Regulations 2006, and the response to Deputy State Coroner Iain West’s recommendations following the Inquest into the Death of Lauren Harris, Child E has died. The regulation of backyard swimming pools in Victoria is inadequate, and the evidence indicates that tenants are made especially vulnerable by the status quo. There is a theme wrought by the devastating deaths of these children, and an intrinsically response or lack of reform will keep the Victorian public at an unacceptable level of risk.”

Recommendations

1. With the aim of improving Victoria’s pool safety regulation framework and preventing like deaths, I recommend that during the review of the Building Regulations 2006, the Minister for Planning consider adopting elements of the framework enacted in Queensland, including but not limited to, requiring that a pool safety certificate be obtained prior to a property with a pool being sold or leased.
2. With the aim of improving Victoria’s pool safety regulation frameworks and rigorously monitoring compliance, I recommend that, as anticipated in the recommendation made by Deputy State Coroner Iain West in The Finding following the Inquest into the death of Lauren Kayley Harris dated 14 October 2014, the Minister for Planning consider the creation of a state-wide pool register.
3. With the aim of emphasising and enhancing the role of real estate agency staff in detecting malfunctioning pool safety barriers in rental properties, I recommend that the Minister for Consumer Affairs, Gaming and Liquor consider that Consumer Affairs Victoria also produce a pro forma Routine Inspection Report document, which incorporates reference to ‘pool fence and gate’ and ‘spa fence and gate’, as in its condition report.

2015

On 9 October 2015, 78-year-old Geoffrey and his 71-year-old friend Ed died from drowning while fishing in a boat off Warrnambool. They were both experienced fishermen. Geoffrey lived in Warrnambool. Ed was a Canadian national who lived in Ontario and was on holiday in Australia. He was a keen fisherman and an experienced boatsman, but not a strong swimmer. Witnesses noticed their capsized boat and they were recovered from the water, deceased. Neither man was wearing a lifejacket or personal flotation device (PFD).

Recommendations

1. If it has not already been done so, Maritime Safety Victoria should conduct a systematic review of existing safety markings of Victorian coastal reefs to assess their adequacy and where necessary, to provide additional signage and cardinal markers.
2. The legislation regulating the use of PFDs should be reviewed, in particular as to the adequacy of the definition of ‘heightened risk’ and whether it should include boating in coastal reef areas and adverse weather or water conditions other than the ones currently specified.
3. That Maritime Safety Victoria produce and disseminate educational information about the dangers of coastal reefs and the advisability of wearing PFDs at all times, particularly given the unpredictability of weather and water conditions.

2016

Darren, aged 41 years, drowned on or about 17 January 2016, in Dandenong Creek, while on a bike ride. It is most likely he entered a bend at speed and the bicycle contacted with raised marker posts before running off the path into the creek.

Recommendation

With the aim of preventing injuries and like deaths, I recommend that the ConnectEast Group conduct a risk assessment of the EastLink Trail’s footbridge which crosses the Dandenong Creek and review any opportunities for safety improvements, such as, but not limited to, warning signs regarding speed bumps and additional fencing.

Murray River Drowning

2006/07 to 2015/16

The Murray River has been identified as the number one river drowning blackspot in Australia (Peters & Guernaja, 2014). At 2,508 km, the Murray River is Australia’s longest river. It forms a majority of the border length between Victoria and New South Wales and stretches down into South Australia. Due to state government legislation, drowning incidents that occur in the Murray River are under New South Wales jurisdiction and are therefore reported in New South Wales drowning statistics. However, many of the drowning victims resided in Victoria. Therefore the key trends of victorians drowning in the Murray River are a focus for this report.

Analysis found that 24 Victorians drowned in the Murray River over the 10 year period from 2006/07 to 2015/16. Of these 19 (79%) were males, and the median age of the deceased was 30 years. Four (17%) of the individuals that drowned were reported as being from CALD communities.

Half of the incidents occurred on a weekend (12.50%). The majority of deaths occurred in summer (10.42%), followed by autumn (7.25%). The most common activity just prior to drowning was swimming (9.38%) or walking/bathing near water (4.17%). Other typical activities included boating, and driving or retrieving on a houseboat. In 38% (8) of drowning deaths in the Murray River, the person had reportedly consumed alcohol prior to the incident.

It was found that 42% (10) of those that drowned did not intend to enter the water, they slipped or fell into the water. Equally 42% (10) intentionally entered the water (swimming/wading or wading in water). In the other four (17%) incidents, the person was found floating and the type of entry was unknown.

38%

OF VICTORIANS THAT DROWNED IN THE MURRAY RIVER HAD REPORTEDLY CONSUMED ALCOHOL PRIOR TO THE INCIDENT.
Drowning Profiles

By Victorian Statistical Areas 2005/06 To 2015/16

Ballarat Statistical Area 4 - Drowning Statistics 2006/07-2016/17

- 10 Drowning Deaths
- 18 Ballarat SA4 residents hospitalised due to non-fatal drowning
- 16 Emergency Department presentations of Ballarat SA4 residents for non-fatal drowning
- 63% Likelihood of one or more drowning deaths occurring in Ballarat SA4 in any given year
- 55% Likelihood of one or more residents of Ballarat SA4 drowning in any given year

Demographics

- Proportion of drowning deaths and population by age group (years)

Location and Activity

- Males were 1.5 times more likely to drown than females.

Geelong Statistical Area 4 - Drowning Statistics 2006/07-2016/17

- 26 Drowning Deaths
- 51 Geelong SA4 residents hospitalised due to non-fatal drowning
- 41 Emergency Department presentations of Geelong SA4 residents for non-fatal drowning
- 93% Likelihood of one or more drowning deaths occurring in Geelong SA4 in any given year
- 80% Likelihood of one or more residents of Geelong SA4 drowning in any given year

Demographics

- Proportion of drowning deaths and population by age group (years)

Location and Activity

- Males were 1.9 times more likely to drown than females.
### Latrobe-Gippsland Statistical Area 4 - Drowning Statistics 2006/07-2016/17

- **Drowning Deaths**: 23
- **Hume SA4 residents hospitalised due to non-fatal drowning**: 21
- **Emergency Department presentations of Latrobe-Gippsland SA4 residents for non-fatal drowning**: 15

#### Demographics

<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>Latrobe-Gippsland SA4 Population</th>
<th>Latrobe-Gippsland SA4 Drowning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-24</td>
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</tr>
<tr>
<td>25-44</td>
<td></td>
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</tr>
<tr>
<td>45-64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Location and Activity

- **Location**: River/creek/stream
- **Activity**: Swimming/attempting a rescue

#### Proportion of drowning deaths and population by age group (years)

- **Proportion of drowning deaths**
  - 0-4: 18%
  - 5-14: 31%
  - 15-24: 16%
  - 25-44: 18%
  - 45-64: 20%
  - 65+: 15%

### Hume Statistical Area 4 - Drowning Statistics 2006/07-2016/17

- **Drowning Deaths**: 16
- **Hume SA4 residents hospitalised due to non-fatal drowning**: 13
- **Emergency Department presentations of Hume SA4 residents for non-fatal drowning**: 10

#### Demographics

<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>Hume SA4 Population</th>
<th>Hume SA4 Drowning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-14</td>
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<td>15-24</td>
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<td>45-64</td>
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<tr>
<td>65+</td>
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</tr>
</tbody>
</table>

#### Location and Activity

- **Location**: River/creek/stream
- **Activity**: Swimming/attempting a rescue

#### Proportion of drowning deaths and population by age group (years)

- **Proportion of drowning deaths**
  - 0-4: 53%
  - 5-14: 26%
  - 15-24: 32%
  - 25-44: 18%
  - 45-64: 14%
  - 65+: 21%

### Melbourne Inner, Inner East, Inner South, North East, North West, Outer East, South East, West Statistical Area 4 - Drowning Statistics 2006/07-2016/17

#### Drowning Statistics For All Melbourne SA4s

<table>
<thead>
<tr>
<th>Statistical Area 4</th>
<th>Drowning deaths in SA4</th>
<th>Drowning deaths of residents in SA4</th>
<th>Residents in SA4 hospitalised</th>
<th>Emergency Department presentations of residents in SA4 for non-fatal drowning</th>
<th>Likelihood of one or more drowning deaths occurring in any given year</th>
<th>Likelihood of one or more residents drowning in any given year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melbourne - Inner</td>
<td>35</td>
<td>63</td>
<td>67</td>
<td>97</td>
<td>96</td>
<td></td>
</tr>
<tr>
<td>Melbourne - Inner East</td>
<td>14</td>
<td>21</td>
<td>44</td>
<td>75</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>Melbourne - Inner South</td>
<td>25</td>
<td>54</td>
<td>48</td>
<td>92</td>
<td>86</td>
<td></td>
</tr>
<tr>
<td>Melbourne - North East</td>
<td>11</td>
<td>20</td>
<td>40</td>
<td>67</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Melbourne - North West</td>
<td>10</td>
<td>27</td>
<td>38</td>
<td>63</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td>Melbourne - Outer East</td>
<td>16</td>
<td>65</td>
<td>57</td>
<td>80</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>Melbourne - South East</td>
<td>19</td>
<td>42</td>
<td>80</td>
<td>85</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>Melbourne - West</td>
<td>18</td>
<td>31</td>
<td>77</td>
<td>83</td>
<td>94</td>
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</tr>
</tbody>
</table>

#### Demographics

<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>Melbourne Population</th>
<th>Melbourne Drowning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-14</td>
<td></td>
<td></td>
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<tr>
<td>15-24</td>
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<tr>
<td>25-44</td>
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<td></td>
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<tr>
<td>45-64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>65+</td>
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</tbody>
</table>

#### Location and Activity

- **Location**: Beaches
- **Activity**: Life-saving/rescuing

#### Proportion of Drowning Deaths and Population by Age Group (years)

<table>
<thead>
<tr>
<th>Age Group (years)</th>
<th>Melbourne Population</th>
<th>Melbourne Drowning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-14</td>
<td></td>
<td></td>
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<tr>
<td>15-24</td>
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<tr>
<td>25-44</td>
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<tr>
<td>45-64</td>
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<tr>
<td>65+</td>
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</tr>
</tbody>
</table>

### Life Saving Victoria Victorian Drowning Report 2016/17

- **Males were 2.8 times more likely to drown than females.**
- **Males were 5.2 times more likely to drown than females.**

---

**Note:** The above information is a representation of the data from the Life Saving Victoria Victorian Drowning Report 2016/17.
**North West**

Statistical Area 4 - Drowning Statistics 2006/07-2016/17

Demographics

- Proportion of drowning deaths and population by age group (years)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>North West SA4 Population</th>
<th>North West SA4 Drowning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>5-14</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>15-24</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>25-44</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>45-64</td>
<td>20%</td>
<td>0%</td>
</tr>
<tr>
<td>65+</td>
<td>10%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Location and Activity

- Males were 7.0 times more likely to drown than females.

**Shepparton**

Statistical Area 4 - Drowning Statistics 2006/07-2016/17

Demographics

- Proportion of drowning deaths and population by age group (years)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Shepparton SA4 Population</th>
<th>Shepparton SA4 Drowning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>60%</td>
<td>40%</td>
</tr>
<tr>
<td>5-14</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>15-24</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>25-44</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>45-64</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>65+</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Location and Activity

- Males were 4.5 times more likely to drown than females.

**Mornington Peninsula**

Statistical Area 4 - Drowning Statistics 2006/07-2016/17

Demographics

- Proportion of drowning deaths and population by age group (years)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Mornington Peninsula SA4 Population</th>
<th>Mornington Peninsula SA4 Drowning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>40%</td>
<td>30%</td>
</tr>
<tr>
<td>5-14</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>15-24</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>25-44</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>45-64</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>65+</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Location and Activity

- Males were 6.3 times more likely to drown than females.

**Warrnambool and South West**

Statistical Area 4 - Drowning Statistics 2006/07-2016/17

Demographics

- Proportion of drowning deaths and population by age group (years)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Warrnambool and South West SA4 Population</th>
<th>Warrnambool and South West SA4 Drowning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>50%</td>
<td>30%</td>
</tr>
<tr>
<td>5-14</td>
<td>30%</td>
<td>20%</td>
</tr>
<tr>
<td>15-24</td>
<td>20%</td>
<td>10%</td>
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<tr>
<td>25-44</td>
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<tr>
<td>45-64</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>65+</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Location and Activity

- Males were 13.0 times more likely to drown than females.
For the overall 2001/02 to 2015/16 aggregated relative harm risk average of the three censuses was used. This approach was used in order to factor changing population counts across the 15 years specifically to each event.

**PROBABILITY CALCULATIONS**

Probabilities for Victorian Statistical Area Level 4 (SA4) regions were computed determining the likelihood of at least one drowning event occurring within each of the 17 Victorian regions. Probabilities were calculated based on yearly means spanning 15 years from 2006/07 to 2015/16 for each SA4 region. Using yearly means provides the ability to derive the likelihood of one or more drowning events in each SA4 in any given year.

Probabilities were computed based on the incident location of events and based on the resident location of events. Incident location and resident location events were geocoded and counted within each Victorian SA4 for the given 15-year period. This process enabled a mean for each SA4 to be derived, then the calculation of the different SA4 probabilities for each event type (incident and resident).

**GEOGRAPHICAL CLASSIFICATION**

Geographical classification of fatal and non-fatal drowning victims used the Australian Standard Geographic Standard (ASGS, ABS, 2016c). The ASGS is the Australian Bureau of Statistics’ geographical framework used to assign places in Research Areas and Statistical Areas. Data were extracted from the Census DataPack into Remoteness Areas and Statistical Areas. Probabilities were computed based on the number of drowning cases. Cases were retained if the event location of events and based on the resident location of events were geocoded and counted within each Victorian SA4 in any given year.

The maps illustrate excess risk rates using the method of direct standardization. The method of direct standardization is used to calculate the expected number of events in each SA4 in any given year. The maps were generated using Microsoft Excel ribbon and the maps were generated using Microsoft Excel ribbon and the maps were generated using Microsoft Excel ribbon.
Acknowledgements and Citation

ACKNOWLEDGEMENTS
Life Saving Victoria gratefully acknowledges the assistance of the following organisations in the production of the Victorian Drowning Report:

- Ambulance Victoria
- Coroners Prevention Unit, Coroners Court of Victoria
- Department of Justice and Regulation
- Emergency Management Victoria
- National Coroners Information System
- Royal Life Saving Society - Australia
- Surf Life Saving Australia
- Victorian Injury Surveillance Unit

SUGGESTED CITATION

COMPILED BY:
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Dr Bernadette Matthews is the Principal Research Associate for Life Saving Victoria. Bernadette specialises in aquatic injury prevention research, from epidemiology of fatal and non-fatal drowning, injuries at public swimming pools and patrolled beaches, and aquatic safety signage recognition and recall, through to evaluation of education programs and major public awareness campaigns. Bernadette has a background in health science, completing her doctoral thesis in 2004.

Rhiannon Birch is the Project Coordinator – Risk and Research for Life Saving Victoria. Rhiannon assists in the planning and coordination of LSV’s research on injury prevention and water safety issues, including inland waterways drowning prevention, the water competency of children and older adults in Victoria, public pool safety, multicultural campaigns and international drowning prevention research. Rhiannon holds a Bachelor of Environmental Science and Graduate Diploma in Education.

Robert Andronaco is the Risk and Spatial Analysis Specialist at Life Saving Victoria. In his role he focuses on quantifying drowning risk and assisting land managers in mitigating assessed risks specific to recreational drowning and injury. Robert uses both traditional statistical approaches and spatial statistical analysis approaches in quantifying drowning risks. Robert holds a Masters in Sport and Recreation Management and a Post Graduate Diploma in Risk Management. He is a current PhD candidate at RMIT in the School of Mathematics and Geospatial Science.

Grace Strugnell is the Project Officer - Risk and Research at Life Saving Victoria. Grace’s role involves observational, qualitative and quantitative data collection, monitoring, evaluation and ethical storage for a range of environments and demographics including inland waterways, metropolitan and regional schools, older adults, public pools and coastal regions. Grace is nearing completion of her Bachelor of Public Health and Health Promotion at Deakin University, Melbourne.

Jennifer Arch is the Communications - Project Manager for Life Saving Victoria. Her role involves managing communications for aquatic risk and research projects, including conducting evaluation and reporting of the Respect the River and Play it Safe by the Water campaigns. Jennifer’s background is in media and communications for emergency services and not-for-profit organisations, including managing LSV’s media and communications team for five years. Jennifer holds a Bachelor of Arts (Media Studies) and Graduate Diploma (Public Relations).

“TWO NEW INCLUSIONS IN THIS YEAR’S REPORT, PROVIDE FURTHER SNAPSHOTS OF DROWNING IN PUBLIC SWIMMING POOLS AS WELL AS CHILDREN DROWNING IN HOME POOLS. BOTH OF THESE ISSUES HAVE BEEN IDENTIFIED AS KEY PRIORITY AREAS FOR ACTION AND WILL BE AREAS OF SIGNIFICANT FOCUS IN OUR DROWNING PREVENTION ACTIVITIES FOR 2017/18.”

Dr Nigel Taylor ESM
Chief Executive Officer,
Life Saving Victoria
Life Saving Victoria

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