Alcohol Related Drowning Deaths In Young People Of Victoria

Life Saving Victoria

in collaboration with

The Coroner’s Prevention Unit
Who We Are

Life Saving Victoria (est. 2002) is an initiative of the Royal Life Saving Society Australia Victoria Branch (est. 1904) and Surf Life Saving Victoria (est. 1947)

Our Mission: “to prevent aquatic related death and injury in all Victorian communities and the vision that all Victorians will learn water safety, swimming and resuscitation, and be provided with safe beaches, water environments and aquatic venues”
Youth 15-24 years represent 12% of the total drowning population in Victoria, over the last decade. This is a crude death rate of 0.63 per 100,000.
How Alcohol Increases the Risk of Drowning

- Physiological and psychological effects of alcohol increase the risk of immersion
- Increase the likelihood of being exposed to high risk situations
- Impaired judgment, reaction times, cognitive and central nervous system processing, and physiological responses
- Spasm of the vocal chords where water and alcohol can lock the airway closed making breathing difficult
- Increased blood vessel dilation may increase the time a person will stay in cold water, increasing the risk of sustaining hypothermia
- Disturbance of the inner ear that may cause a person suddenly immersed in water to become disoriented and swim down rather than up

There is a very clear link between the amount of alcohol consumed and the increase of risk of injury, with many studies producing dose-response curves.
There are many limitations with this data, including but not limited to an incomplete dataset, unknown alcohol contribution and open cases.
Research on Alcohol Related Youth Drowning Deaths

- Warner et al, 2000: 17% of 15-24 years in New Zealand were positive for alcohol use, however only 30% of this age group were tested for BAC
- Quan and Cummings, 2003: 13% of 15-19 years in the US had alcohol as a defined contributor to the drowning death
- Bell et al, 2001: Alcohol use in drowning deaths of US male army soldiers sig more likely in <25 years than >25 years
- Lunetta et al, 2004: 59% of 15-24 years had a BAC ≥ 50mg/dL, however they represented 51.1% of total drowning deaths
- Franklin et al, 2010: Alcohol detected in 20.9% of 18-29 year old drowning deaths
Youth Attitudes to Drinking Alcohol While Participating in Aquatic Recreation

- 23% of boat operators 18-24 years admitted doing so while under the influence of alcohol (Logan et al, 1999)
- 21% of male and 10% of female 21 year olds in New Zealand had been boating, and 23% of males and 9% of females were involved in other water-related activities within 2 hours of consuming alcohol (Gulliver and Begg, 2005)
- 38% of youth 16-29 years had previously swum after drinking alcohol (McCool et al, 2008)
- 28% of 20-29 years consumed alcohol before swimming; of these 54% consumed 4 or more drinks (Howland et al, 1990)
Limitations in Current Knowledge

- Different population demographics and other influencing factors in other countries that make it hard to relate results to Victorian setting
- Information not specific to 15-24 years age group making it hard to understand full extent of alcohol related drowning for this age group, even in other countries
- Specific settings E.g. boating, army do not encompass all aquatic alcohol related drowning
- Varying proportion of drowning deaths for 15-24 years compared with total in other countries
What We Know

- There is a significant lack of information on alcohol related drowning deaths within Victoria for all age groups.
- It is currently estimated that 20% of drowning deaths in Australia were alcohol related (Franklin et al, 2010).
- Current Victorian estimates for alcohol detected in drowning deaths of 15-24 years is 28% and for a BAC ≥0.05g/100mL is 19%.
- There was one case under 15 years where alcohol was determined as a contributing factor in the drowning.
- There are still a significant number of cases where alcohol contribution remains unknown.
- Studies on youth aged alcohol related drowning deaths are lacking, especially in the Australian setting.
The Research Project

- Life Saving Victoria in collaboration with the Coroners Prevention Unit will examine all unintentional drowning deaths in Victoria for 2000-2009
- This will allow us to:
  - Obtain accurate drowning statistics for each age group
  - Have in-depth information on alcohol related drowning
  - Examine the demographics of drowning victims
  - Determine any trends that may be present
  - Determine if the presence of alcohol among drowning deaths in Victoria has changed over time
  - Examine the time of incident, type of aquatic activity, and location of each incident
  - Use this information to advise future drowning prevention strategies
Project Design

- Case series analysis of all unintentional drowning deaths reported to the Victorian Coroner between 1 January 2000 and 31 December 2009
- Each death will be examined using the Coroners Court database, Coroner’s findings and toxicological reports
Limitations with Identifying Alcohol Related Drowning Deaths

- **Post-mortem Toxicology** - time between the incident and death; time between death and sample taken; specimen type and sampling collection

  - Levine et al (2003) set 0.04g/100mL as a maximum post-mortem alcohol production level
  - Hadley et al (2003) created a BAC adjusted equation based on hours of submersion
  - Wintemute (1990) found that sample must be drawn within 24 hours of death for accurate BAC determination
  - Høiseth et al (2007) use ethyl glucuronide as a marker for ante-mortem alcohol ingestion - further research needed
  - Driscoll et al (2004) used 0.10g/100mL as the cut-off of unintentional drowning attributed to alcohol use
Further Limitations

- **Coroner’s Findings** - level of information on circumstance of death varies greatly
- **Bodies Not Recovered** - in a small number of cases the body is never recovered and therefore toxicological analysis cannot be completed
- **Open Investigations** - no conclusive results as toxicological analysis and coroner’s findings remain unknown
Scenario #1

“22 year old male drinking heavily at pub with friend for 8 or 9 hours. After leaving pub, deceased was seen to move away from a verbal confrontation in the car park and into the vegetation near cliff tops and was not able to be located. Body was found washed up on shore 3 days later”

- Extensive post-mortem damage including shark bite, sea lice infestation, and autolytic changes to internal organs
- Probable post-mortem alcohol production before body recovered
- THC and ethanol detected in urine, but unsuitable specimens to determine true concentrations due to time before body recovered and damage to organs
- Coroner’s findings determined deceased was very drunk at time of incident, but exact circumstances remain unknown
Scenario #2

“21 year old male attended 21\textsuperscript{st} birthday party and then a night club with friends, where he was drinking at both. Deceased left club alone and was seen to be heavily intoxicated. He was not seen or heard from that night. His body was found 5 days later in a lake”

- Toxicological analysis BAC of 0.17g/100mL
- Probable post-mortem alcohol production before body recovered
- Possibility of much higher BAC at time of death
- Large period of time between death and body recovered, and death and sample taken
Use of Results from Study

- Results will be analysed to determine trends of any demographics to advise future drowning prevention strategies

- Potential trends:
  - Location of incidents E.g. Metro vs Rural; Coastal vs Inland etc
  - Activity at time of incident
  - Occupation or SES E.g. Blue collar worker
  - Gender
  - Age
  - Cultural background
  - Drug association
An education and awareness raising campaign

- **Aim** - to reduce the number of those who consume harmful levels of alcohol and participate in recreational aquatic activity and therefore to reduce the number of alcohol related drowning deaths (RLSSWA, 2004)
- **Target Audience** 15 to 29 years
- The program is promoted through youth-based clubs, such as sporting and leisure facilities, alcohol industry venues, high schools and local councils, and events that centre their activities on or around an aquatic environment.
- **Program Components**
  - Policy
  - Professional Development
  - Education and Awareness
  - Environmental Analysis
Examples of Activities of the Campaign

- Advertising comprising of TV, radio, press and outdoor executions
- A series of posters to display in clubs, pubs and hotels
- Use of social networking channels such as Facebook, Youtube and blogs.
- Involvement in Schoolies Week communication activities
- A calendar of events which the campaign can link in with to communicate messages e.g. New Years Eve and Australia Day celebrations
Don’t Drink and Drown TVC
Information and Collateral Kit

- A letter encouraging their support of the campaign
- Newsletter articles
- Tips on promoting the campaign and their organisation’s involvement through their communication channels and the media
- Stubby holders, coasters, posters and more.
- Banners and interactive activities such as vision-altering beer goggles to use at events
- An interactive CD containing all contents of the package, including easy to use policy templates, information and copies of resources.
Key Stakeholders

The Government

- National Binge Drinking Strategy
- National Alcohol Strategy 2006-2011
  - Priority Area 2: Public Safety and Amenity
  - Priority Area 4: Cultural Place and Availability
- Restoring the balance- Victoria’s alcohol action plan 2008-2013

The Industry

- Innovative means to demonstrate the commitment of the industry to encourage a safe and responsible drinking culture
- An opportunity to work together with communities to change attitudes towards and behaviours with alcohol
- Target those based around aquatic environments in particular
Don’t Drink and Drown
Program Evaluation 2007

- Key Findings:
  - In 2007 more than 75% of 15-29 yo were aware that alcohol was the leading contributor to drowning for 15-29 years, compared to 50% in 2005
  - In 2007 82% felt the campaign was effective compared to only 65% in 2005
  - There were also increases in the proportion of 15-29 year olds in WA aware of the risks of consuming alcohol and participating in aquatic recreation
  - AND increases in the knowledge of 15-29 year olds of the dangers associated with consuming harmful levels of alcohol and participating in aquatic recreation
The Next Steps…

- Results from the proposed research project will help to determine if the Don’t Drink and Drown campaign is relevant to the Victorian setting, as well as the target ages, locations and activities.
- The key findings will be published on Life Saving Victoria, Coroners Prevention Unit, and other key stakeholders websites such as Play it Safe by the Water.
- The final report will be submitted to a peer-reviewed journal for publication.
Thank You

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