Non-Fatal Drowning in Australia

Part 1: Non-fatal drowning trends over time
Royal Life Saving is focused on reducing drowning and promoting healthy, active and skilled communities through innovative, reliable, evidence-based advocacy, strong and effective partnerships, quality programs, products and services, underpinned by a cohesive and sustainable national organisation.

Royal Life Saving is a public benevolent institution (PBI) dedicated to reducing drowning and turning everyday people into everyday community lifesavers.

We achieve this through advocacy, education, training, health promotion, aquatic risk management, community development, research, sport, leadership and participation, and international networks.

Suggested citation

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7,374 cases of non-fatal drowning between 1 July 2002 and 30 June 2017 (hospitalisations)

Non-fatal drowning incidents increased by 50% between 2002/03 and 2016/17

Average of 492 cases of non-fatal drowning each year

66% of all non-fatal drowning incidents were males

65% Major cities
32% Inner and outer regional
4% Remote and very remote

54% 0-14 years
13% 15-24 years
22% 25-54 years
11% 55+ years

35% Swimming pool
26% Natural water
8% Bathtub
32% Other or unspecified
Fatal drowning has long been the focus of the drowning prevention community. In Australia, Royal Life Saving Society – Australia (RLSSA) and Surf Life Saving Australia (SLSA) collect, analyse and report on unintentional fatal drowning, including historical trends and factors such as age, sex, location, remoteness classification and activity. However, many more non-fatal drowning incidents occur each year.

The updated definition of drowning incorporates three possible outcomes: death, morbidity and no morbidity, signifying the continuum of possible consequences following a drowning incident (1). It should be noted that ‘non-fatal drowning’ is the correct terminology and phrases such as ‘near-drowning’ are inappropriate for use.

The Australian Water Safety Strategy (AWSS) 2030 encourages a continued focus on the full burden of drowning, with research and policy activities designed to further our understanding of non-fatal drowning and its impacts (2).

Previous research investigated hospitalisations in Australia, reporting 6,158 cases of non-fatal drowning over a 13-year period (3). Over the course of the study, non-fatal incidents increased by 42% (3). In Australia, for every one fatal drowning, a further three people are admitted to hospital following a non-fatal incident (3). Among children aged 0-4 years, this ratio increases to eight non-fatal incidents (3).

Building on this previous study, additional data has been obtained to continue monitoring non-fatal drowning over time. This study examines hospitalisations in Australia over a 15-year period, revealing trends in sex, age, location, remoteness classification and activity.
METHODS

Non-fatal drowning data

The non-fatal drowning data used in this report were made available by the Australian Institute of Health and Welfare (AIHW). The authors are responsible for the use made of the data in this report.

Non-fatal drowning incidents that occurred in Australia between 1 July 2002 and 30 June 2017 were collated using hospitalisation data. Hospital separations (a process by which an episode of care for an admitted patient ceases, for example, due to their discharge from hospital or their transfer to another facility) were used to calculate the number of hospitalisations related to a non-fatal drowning event.

Data were obtained from the Australian Institute of Health and Welfare’s (AIHW) National Hospital Morbidity Database (NHMD). Hospital separations where the principal diagnosis was any code in ICD-10-AM Chapter XIX Injury, poisoning and certain other consequences of external causes (S00-T98) and the first reported external cause of morbidity was Accidental Drowning and Submersion (W65-W74) were included. For further information on these classifications, see below.

Accidental drowning and submersion includes the following subdivisions:

- Drowning and submersion while in bathtub (W65)
- Drowning and submersion following fall into bathtub (W66)
- Drowning and submersion while in swimming pool (W67)
- Drowning and submersion following fall into swimming pool (W68)
- Drowning and submersion while in natural water (W69)
- Drowning and submersion following fall into natural water (W70)
- Other specified drowning and submersion (W73)
- Unspecified drowning and submersion (W74)

These subdivisions were then combined in the following way for the resulting analysis:

- W65 and W66 – Bathtub
- W67 and W68 – Swimming Pool
- W69 and W70 – Natural Water
- W73 and W74 – Other or Unspecified location

Data were provided in aggregate format by the AIHW, whereby individual drowning events could not be distinguished. As such, no identifying data or case histories were available.

Hospitalisations related to a drowning incident were excluded for one of two reasons. Firstly, if the patient died in hospital, and secondly, if the patient was transferred from another acute care facility. The mode of separation field was used to exclude patients who died in hospital.

This was done to avoid an overlap between fatal and non-fatal drowning cases. The mode of admission field was used to exclude patients who were transferred from another acute care hospital. This was done to avoid double counting drowning cases where the patient was admitted to one hospital but then transferred to another facility, within the same episode of care.
**RESULTS**

**Overall**

**Non-fatal**

Between 1 July 2002 and 30 June 2017, there were 7,374 cases of non-fatal drowning in Australia (hospitalisations). This is an average of 492 non-fatal incidents each year. Since the beginning of the study, non-fatal incidents have increased by 50%. The crude non-fatal drowning rate reached a high of 2.63/100,000 in 2015/16 (Figure 1).

![Non-fatal drowning by year with crude drowning rate, 2002/03 to 2016/17, n=7,374](image)

**Sex**

Across the 15 years of the study, males accounted for 66% of all non-fatal drowning cases, with females accounting for 34% (Figure 2).

![Non-fatal drowning by sex, 2002/03 to 2016/17](image)

**Age**

Children aged 0-14 years accounted for more than half of all non-fatal drowning incidents (54%). Adults aged 55 years and over accounted for the smallest proportion of incidents (11%) (Figure 3).

![Non-fatal drowning by age, 2002/03 to 2016/17](image)
Location
Swimming pools were the leading location for non-fatal drowning (35%), followed by natural water (26%). The location of non-fatal drowning was classified as ‘other or unspecified’ in 32% of cases (Figure 4).

- Other or unspecified: 2325 cases
- Bathtub: 576 cases
- Natural water: 1921 cases
- Swimming pool: 2552 cases

Figure 4: Non-fatal drowning by location, 2002/03 to 2016/17, n=7,374

Remoteness
Almost two thirds of non-fatal drowning incidents occurred in major cities (65%). Information on remoteness was not available in 5% of cases (Figure 5).

- Very remote: 100 cases
- Remote: 145 cases
- Outer regional: 878 cases
- Inner regional: 1348 cases
- Major cities: 4507 cases

Figure 5: Non-fatal drowning by remoteness classification, 2002/03 to 2016/17, n=6,978

Activity
More than a third of non-fatal drowning incidents occurred while ‘engaged in sports’ (36%), with a further 12% occurring while ‘engaged in leisure’. Activity prior to non-fatal drowning was classified as ‘unspecified’ in 34% of cases (Figure 6).

- While engaged in sports: 2614 cases
- While engaged in leisure: 881 cases
- While working for income: 44 cases
- While engaged in other types of work: 78 cases
- While resting, eating, etc.: 514 cases
- Other specified activity: 697 cases
- Unspecified activity: 2521 cases

Figure 6: Non-fatal drowning by activity, 2002/03 to 2016/17, n=7,351
The incidence of non-fatal drowning is rising, with hospitalisations increasing by 50% between 2002/03 and 2016/17. - By comparison, fatal drowning has decreased over this time (4). It is important that all drowning prevention campaigns include information on non-fatal drowning and promote the importance of cardiopulmonary resuscitation (CPR) and lifesaving skills.

Males account for approximately two thirds of all non-fatal drowning cases. Although overrepresented, this is less than the 80% of fatal drowning which occurs among males (4). - This indicates that the outcome of a drowning incident is more likely to be fatal among males than females. The reasons for this are unclear but could be related to situational risk, such as swimming or recreating alone.

Children are disproportionately affected by non-fatal drowning, with 0–14-year-olds accounting for more than half of all non-fatal drowning incidents. - Drowning prevention campaigns should include information about non-fatal drowning to raise awareness of the heightened risk in this demographic. It is important that parents and carers know how to prevent child drowning, fatal and non-fatal.

Based on the findings of this report, the following next steps are recommended:

- Continue to highlight the full burden of drowning in public settings to raise awareness of those who survive a drowning incident
  - Expand drowning prevention messaging to incorporate non-fatal drowning, with a focus on child drowning prevention campaigns
  - Educate practitioners, policymakers and the media on correct terminology and reporting practices
  - Ensure reports on drowning include non-fatal drowning statistics alongside deaths and other water-related injuries

- Maintain collection and analysis of hospitalisation data to allow ongoing monitoring of trends and the identification of emerging issues of concern

- Strengthen non-fatal drowning data collection, including the investigation of additional data sources to broaden data coverage and improve accuracy

- Investigate long-term health, social and economic outcomes of non-fatal drowning, including impacts on families, communities and emergency responders
References


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