

BENCHMARKING AUSTRALIAN CHILDRENS' SWIMMING AND WATER SAFETY SKILLS: SWIM SCHOOL DATA

Part 2: Beyond Primary School
Analysing Children Aged 13-15 Years



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DID YOU KNOW?



At this age, more males than females are in private swimming lessons (57% vs. 43%)



Teenagers were most commonly in lessons for the duration of one swim school level, or the equivalent of 25 lessons over a period of 5.8 months



Very few teenagers enrolled in lessons are achieving the minimum competencies outlined in the National Swimming and Water Safety Framework



Approximately 40% were being taught skills described as 'basic' or 'introduction', 'beginner' or water familiarisation skills



Overall, 30% could swim a minimum 50m of any stroke



21% of swimming levels do not contain any water safety skills or survival skills



14% of swimming levels only contained one water safety or survival skill, the most common skills were: survival backstroke or treading/sculling water



Swim schools are predominately teaching the competitive strokes of freestyle, backstroke, breaststroke and butterfly with a lesser focus on water safety and survival skills such as rescue techniques and lifejacket skills

BENCHMARKING REPORT: SWIM SCHOOL DATA PART 2

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DID YOU KNOW?

Teenagers aged 13 - 15 years attending private swimming lessons:

- Make up approximately 2% of all children in swim schools.
- More males than females.
- Are most commonly in lessons for the duration of one swim school level, or the equivalent of 25 lessons over a period of 5.8 months.
- 50% live in areas of higher socio-economic advantage (deciles 7 – 10).
- The average cost of a lesson is \$15.50.
- Are predominately being taught the competitive strokes of freestyle, backstroke, breaststroke, and butterfly.
- More are learning to swim breaststroke compared to survival backstroke, and more were learning butterfly compared to rescue techniques.
- 21% were learning to tread water/ scull, however only 5% were being taught lifejacket exercises, 5% survival sequences and 4% rescues.
- 21% of swimming levels did not contain any water safety or survival skills.
- 15% of swimming levels only contained one water safety or survival skill, most commonly being survival backstroke or treading water/sculling.
- Overall, 23% could swim between 50m and 200m.
- 76% could only swim a distance between 10 and 25m.
- Only 7% could swim over 200m.
- Of those competent at a freestyle or backstroke skill, approximately 65% could swim 50m.
- Of those competent at swimming breaststroke, 95% could swim 25m or more.
- Of those competent in swimming survival backstroke, 74% could swim 25m or more.
- Of those competent in treading water/sculling, 31% could stay afloat for 2 minutes or more and an additional 19% could tread water/scull for 2 minutes or longer wearing clothes.

EXECUTIVE SUMMARY

This report provides a situational analysis of the swimming ability of Australian teenagers aged 13 - 15 years attending private learn to swim programs. The topic of children's swimming ability has been the subject of much research and debate in recent years both within the wider swimming and water safety industry and at a political level. As a result, this research paper is one component of a broader project investigating Australian children's swimming and water safety ability, including the social context [1], the economic implications and overall health and wellbeing benefits [2-4].

The Australian Water Safety Strategy 2016-2020 [5] prioritises reducing drowning deaths in children aged 0 – 14 (Goal 1), with a particular focus on advocating for compulsory aquatic education for school-aged children 5 – 14 years and developing a mechanism for regularly measuring children's survival swimming skills. The recent Swimming and Water Safety Education Symposium, held in April 2017 identified 'Beyond Primary School' as a key area for future research and action [6].

This paper specifically addresses the swimming, water safety and survival skills of children aged 13 – 15 years old attending private learn to swim programs in Victoria, South Australia and New South Wales (NSW). This research adds to the existing knowledge base of children attending government, school, vacation and Royal Life Saving Society - Australia's (RLSSA) Swim and Survive program [7-10]. The National Swimming and Water Safety Framework [11], endorsed by the Australian Water Safety Council is the guiding strategy by which to measure children's swimming and water safety skills, aligned to school years (Year 1 - Year 7). The Year 4 standards have been determined as the minimum competencies a child should be able to adequately perform prior to leaving primary school at age 11 or 12 years of age, hereafter referred to as the 'Benchmark'. Previous research suggests that at least 1 in 5 Year 6 students in Australia are leaving primary school without being able to swim 50m [7, 8, 10].

Data was extracted from a national database of private swim school providers, consisting of assessment records of children aged 0 - 15 years from July 2014 to June 2017. All information was de-identified, therefore both individuals and swim schools were anonymous. Data was cleaned in Microsoft Excel and analysed using SPSS version 24 [12].

A total number of 2860 individuals were included in this study, ranging from 13 – 15 years of age, 64.4% aged 13 years, and 56.9% were males. Most were from Victoria (83.5%) and 95.1% were from areas classified as major cities. When analysed by deprivation scale, 51.6% were living in areas of higher socio-economic advantage (areas ranked decile 7 – 10). Lesson cost ranged from \$15.00 to \$21.83, with 70.4% being charged \$15.50 per lesson.

For comparison purposes with the analysis of private swim school data among children aged 5 - 12 years, swimming ability has been measured against the Year 4 standard 'Benchmark' competencies, as studies indicate that children are leaving primary school (11 – 12 years) without achieving these skills. The analysis has been broken down into four main sections: 1) what teenagers are learning in private swimming lessons; 2) what are teenagers achieving in private lessons; 3) achieving the benchmark and 4) time in lessons.

Overall, the skills predominately being taught in private swim schools to this age group are freestyle (69%) and backstroke (67%), followed by breaststroke (62%), survival backstroke (55%), and butterfly (31%). In regard to specific water safety or survival skills, 21% were learning to tread water/scull, 5% were being taught lifejacket exercises, 4% rescue techniques and 3% were learning survival sequences. Of the 123 swim school levels recorded 22% (n = 27) of levels did not consist of any water safety or survival skills as outlined in the National Swimming and Water Safety Framework. Approximately 14% of levels only had one water safety or survival skill listed in a swimming program level, most commonly survival backstroke, tread water/float/scull or underwater skills.

This snapshot is consistent with previous findings that at least 40% of children are leaving primary school without achieving the Year 4 minimum competencies for swimming and water safety [7, 8, 10]. These results suggest that many teenagers attending private lessons are achieving well below that expected benchmark standard for their age, and that they may have had little, if any, swimming and water safety education previously. Approximately 40% were being taught skills that were described as 'basic' or 'introduction', 'beginner' or 'water familiarisation' skills. Most teenagers (70%) were in a swim school level aligned to achieving 25m – 100m, with 30% able to swim 50m or more of any stroke.

NEXT STEPS

Policy, Programs and Advocacy

- Utilise this research, along with previous benchmarking research to inform government policy on renewed investment in swimming and water safety programs enabling all school-aged children, particularly those identified as being from 'high risk' populations (such as those from Aboriginal and Torres Strait Islander backgrounds, culturally and linguistically diverse communities, and those residing in lower socio-economic areas) access to quality swimming and water safety education, including provision of facilities and/or provision of subsidised lessons.
- Utilise this research to inform the development of a national database for swimming schools across the country to input their data to provide a mechanism for measuring children's swimming and water safety skills and knowledge competencies at a state/territory and national level.
- Work with industry to determine the most appropriate and effective investment regarding water safety and lifesaving opportunities for teenagers (including financial, program and resource development).
- Consult with key industry bodies regarding the revision of the National Swimming and Water Safety Framework to better reflect the skills and development of children, including teenagers.
- Investigate the current terminology and definitions used within the sector and advocate for agreed and consistent terminology when referring to and discussing 'swimming lessons, learn to swim, water safety, survival skills and, lifesaving skills'.
- Utilise this data as an evidence base to re-introduce swimming and lifesaving skills within secondary schools.

Research Agenda

- Explore the factors impacting why some children and teenagers attending private swimming lessons on a regular basis are not achieving key skills.
- Investigate the different types of programs for teenagers and youth and their purpose e.g. swimming and water safety versus survival and lifesaving skills, and if participation in other aquatic programs or activities impacts on swimming and water safety skills competency.
- Extend this study to explore and contrast the retention rate of swimming, survival skills and water safety knowledge taught in childhood with high risk aquatic behaviour of youth and young adults, utilising qualitative and quantitative methods.
- Investigate a mechanism to measure the water safety knowledge, attitudes and risk perception amongst this age group as a future research objective.
- Conduct observational research to allow further understanding and clarification of what and how children are learning such as: how many children per class, how often assessments are being conducted and if children are being tested in all skills in a level before progressing to the next level.
- Work with industry to research the feasibility of developing and introducing a tailored aquatics / lifesaving program that can be integrated into the national health, development and physical education curriculum (secondary schools).
- Further investment into the development, research and evaluation of programs, including quantitative research, specifically related to teenagers and young adults.
- To complete this series of children attending private swimming lessons, an in-depth analysis of children aged 0 - 4 in private swimming lessons is required to estimate the parental investment in learn to swim across childhood, the skills children are learning during and the impact this has on aquatic confidence and skills in later childhood.



BACKGROUND

This research follows on from the report 'Benchmarking Australian children's swimming and water safety skills: swim school data part one', which presented the swimming and water safety ability of primary school children aged 5 – 12 years attending private swim school classes [13]. This report analyses the skills of secondary school children aged 13 – 15 years (hereafter referred to as teenagers) attending private lessons.

The Australian Water Safety Strategy 2016-2020 identifies high risk populations, locations, and activities for drowning and provides recommendations to achieve a reduction in drowning by addressing these key issues [5]. Children 0 – 14 years account for 15% and young people aged 15 – 24 years account for 12% of all drowning deaths in Australia, therefore reducing drowning among these age groups are of high priority in the Strategy [5]. Children aged 5 – 14 years old experience the lowest drowning rate in Australia before rising again in adulthood. At this age, the location for drowning changes from a domestic environment to an open water environment; between 2002 and 2015 the most common location for drowning among this age was a river, creek or stream [7], emphasising the importance of learning the full range of swimming and survival skills to maximise safety in natural water environments.

The National Swimming and Water Safety Framework [11] sets the standards for the swimming and water safety skills children should be able to achieve throughout primary school years. The year 4 standard is commonly referred to as the "Benchmark", with the target of 100% of children being able to achieve all swimming, water safety and survival skills outlined in this standard before leaving primary school (around 11 - 12 years of age). Recent studies indicate that 1 in 5 children are leaving primary school unable to swim 50 metres (m) and low levels of water safety knowledge and awareness among Australian children have been consistently reported [7, 8, 10, 14]. Realistically, this means that children will have limited opportunities to learn these essential skills after leaving primary school and as a result may not develop the skills or knowledge required to participate safely when in, on or around the water throughout adulthood. It has been reported that up to 80% of Australian swim schools may not be including essential water safety and survival skills [15]. The importance of learning water safety and survival skills combined with traditional swimming skills cannot be under-estimated; as discussed older children are more likely to drown in an open water environment than in a domestic environment or swimming pool. There is ongoing debate among water safety researchers and educators as to whether a child's ability to swim 25m in a pool is likely to aid survival in open water, and many advocate that learning water safety skills and knowledge is equally as important as learning traditional swimming skills [16, 17].

Little is known about the swimming and water safety skills of older children, teenagers and youth; resources have largely been targeted towards primary and pre-school children and less attention given to secondary school aged children and young adults. As the drowning rate increases post-school age, and changes from the domestic environment to natural waterways, further research is required to understand the contributing factors for drowning among this population.

Background literature

Overall participation in swimming activity

Based on a nationwide survey of swim schools (n = 834) and 2011 Australian Bureau of Statistics estimates, private swim schools are teaching between 0.74 and 1.01 million (or 17 - 24% of the cohort) Australian children aged 0 – 14 years annually [14]. The most recent national physical activity survey [18] ranked swimming as the highest out-of-school activity for children aged 0 – 14 years (30.0%), with slightly more girls (31.7%) participating than boys (28.3%). These results suggest that approximately 1.3 million children aged 0 – 14 years are participating in swimming activity on a regular basis outside of school hours, accounting for approximately 30% of the 0 – 14 years population, in addition, 66,000 are participating in Surf Life Saving (1.4%). For club sport for children, swimming is 7th out of the top 10 club sports, making up a total of 10% of club sport participation [18]. Swimming continues to be a popular activity for adults, being ranked as the 4th most popular sport and leisure activity participated in by adults (14.5%). Swimming is ranked among the top 10 sports for club participation overall (including for children and adults) [18]. These statistics indicate that learning swimming and water safety skills not only provides essential personal survival skills during childhood years but also delivers lifelong health, safety and well-being benefits [3].

School – based swimming and water safety education programs

In Australia, State and Territory Department of Education swimming and water safety programs generally target only primary schools, with the exception of South Australia and Western Australia. The South Australian program offers access to an aquatics program each year of school, free to government schools. In these two States, the focus changes from swimming and water safety in primary years to a broader aquatics program for secondary schools that can be delivered at open-water locations [6].

Barriers to access and participation

Despite the large number of children estimated to be participating in aquatic activity, research has identified those living in lower socio-economic and rural and regional communities as less likely to access some physical activity and recreational activities, including swimming [19, 20]. Studies have shown that whilst a program may offer free instruction, additional barriers preventing access to these programs also need to be addressed such as transport, pool entry costs and safety in getting to the venue, as well as swimwear and cultural considerations [21].

Programs and strategies

As discussed, swimming and water safety education programs have largely focussed on primary school aged children, however in response to the high numbers of youth and young adults drowning in Australia and other similar high income countries; strategies and campaigns have been developed or adapted specifically targeting youth. Some strategies are starting to consider non-traditional methods in order to increase engagement and embrace innovative methods of communication.

In Australia, the Bronze Medallion can be undertaken by anyone 14 years and over, however the uptake of the Bronze Medallion (and prerequisite awards) appears to be declining [22] and actual numbers of schools and students undertaking this are currently unknown. Other lifesaving and aquatic education programs targeted to high schools include a free e-learning lifesaving program designed for Y7 – 10 students (approximately 12 – 16 years) to engage youth on issues such as risk-taking behaviour. The aim is to teach survival skills, rescue techniques, basic emergency and first aid care for managing situations where their safety or the safety of others may be at risk. This is delivered within the classroom, facilitated by teachers and aligned to the Australian Curriculum [23]. In Victoria, the practical Open Water Learning Experience caters for all school year levels from Kindergarten to Year 12 (last year of high school) [24]. Surf safety programs are available throughout Australia, however programs are generally targeted to primary schools.

Alcohol consumption and aquatic activity have been addressed by a variety of campaigns and programs throughout Australia and internationally. In New South Wales, a 'Swim Sober Swim Safer' classroom resource has been developed for secondary schools and the 'Don't Drink and Sink campaign' targeting males aged 15 – 29 years old [25]. In Western Australia a 'Don't Drink and Drown' campaign has been active since 2004, specifically targeting young people aged 15 – 24 years old. More recently active promotion of water safety messages at school leavers events (also known as 'Schoolies') have been conducted, targeting 17 – 18 year olds leaving high school [26].

In order to engage more youth in a fun and education manner and utilise technology, the Everyday Lifesaver App was developed, trialled and evaluated by Life Saving Victoria [27]. The Everyday Lifesaver App is delivers interactive learning modules using gamification to make learning water safety, emergency response and CPR more engaging for secondary school students. The app provides an opportunity for secondary school aged students to build their knowledge and awareness on how to give emergency care and is linked to the Victorian curriculum. Approximately 5,000 students aged between 12 and 14 years and their teachers piloted the app and were easily able to incorporate this into their classroom learning [27].

Internationally, water safety campaigns addressing risk-taking behaviour among youth have been developed and implemented. In the United Kingdom (UK) a tombstoning (cliff jumping) safety program was developed to raise awareness of the potential consequences, among young men in particular [28]. More recently, the 'Respect the Water' is a national campaign in the UK, aiming to educate the wider public of the potential dangers of water and to encourage them to think about their actions and consider safer behaviour. Although it is a national public awareness campaign, the target audience is males aged 16 – 39 years old [29].

In Auckland, New Zealand, a practical community-based water safety program based on leadership and teamwork for young adults aged 16 – 24 years has been in place since 2010. Early evaluations of this program indicate that participants increased their personal knowledge and water safety awareness, as well as increased swimming and water safety skills. Outcomes of the pilot program also included young parents enrolling their children into swimming lessons [30].

AIMS

- To provide a situational analysis or 'snapshot' of what teenagers are learning in private swimming lessons
- To examine the level of achievement of swimming and survival skills among Australian teenagers aged 13 – 15 years attending private swimming lessons against the 'Benchmark' skills
- To identify and provide a better understanding of achievement levels in relation to demographic factors and participation on a national basis

METHODS

Information and data for this study was obtained between June 2016 and July 2017 as a part of a database of private swim school assessment records of children aged from 0 -15 years attending private swimming lessons. This data contained assessment information that was recorded every time a child was assessed for a particular swimming or water safety skill. It should be noted this is a sample of records of children who have participated in lessons from July 2014 to December 2016 and does not represent the entirety of children participating in private swimming lessons nationwide. All information was de-identified, therefore neither individuals nor swim school were able to be identified.

Data manipulation

These records were provided and cleaned in Microsoft Excel format and then imported into IBM SPSS Statistics Version 24 [12] for data analysis. Due to the scale of the data, manipulation was required to condense it to a workable file for data analysis.

Data analysis

Descriptive statistics were utilised, as well as chi squared analysis. Statistical significance was deemed $p < 0.05$. Average was based on the median to account for skewing of data in such a large dataset. Data has been displayed as bar graphs and pie charts.

Variables

Variables analysed were: student ID, sex, age, date of birth, residential and swim school postcode, state, remoteness classification, duration of lesson, cost per lesson, date started in swim level, name of swim level, calendar days in level, date of last assessment, skill name, competent/not competent.

Inclusion criteria

1. Key swimming and water safety skills based on the National Swimming and Water Safety Framework: Movement and Swimming Strokes (freestyle, backstroke, breaststroke, survival backstroke); survival and lifejacket skills (treading water/sculling water); rescue skills (be rescued or perform a reach/throw rescue).
2. Percentage of skills being taught were analysed by the number of individuals being taught at least one element of each swimming and water safety skill.
3. Only children that have been assessed as competent in performing a particular skill, meaning they have achieved that skill.
4. Distance criteria for swimming freestyle, backstroke, breaststroke and survival backstroke in its entirety was from 5m up to 1km unaided and without support (i.e. without a kickboard or instructor aid).
5. Only the highest level or distance of a specific skill that a child had achieved competency in was analysed to reduce duplication of student records. For example a child could have 4 different freestyle skills listed in the dataset - 10m freestyle with side breathing competent, 10m freestyle aided competent, 25m freestyle competent, 50m freestyle with correct technique not yet competent. Only the 25m freestyle competent record would have been included for analysis.

Definitions

The National Benchmark for Swimming and Water Safety

The Australian Water Safety Council (AWSC) outlines the minimum competencies (The Benchmark) within the National Swimming and Water Safety Framework. The National Benchmark is outlined as 100% of the population achieving skills and knowledge equivalent to Year 4 Standard prior to leaving primary school (11 - 12 years old/ Year 6). These skills include: swim continuously 50m of strokes with above-water arm recovery (e.g. freestyle or backstroke); swim continuously 25m of strokes with underwater arm recovery (e.g. survival backstroke or breaststroke); dressed in swimwear and clothes; sculling, floating or treading water for 2 minutes; throw a rescue flotation aid to a partner at 5m distance (Table 1).

Decile rank

Deprivation scale was based on the Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) [31], based on decile level 1 – 10, 1 being the lowest area of socio-economic disadvantage and 10 being the area of highest advantage.

Remoteness classification

The remoteness classification of residential and swim school postcodes was defined using the Australian Standard Geographical Classification – Remoteness Area (ASGC-RA) system [32]. Postcodes were classified into the following categories: major cities, inner regional, outer regional, remote and very remote.

Number of lessons

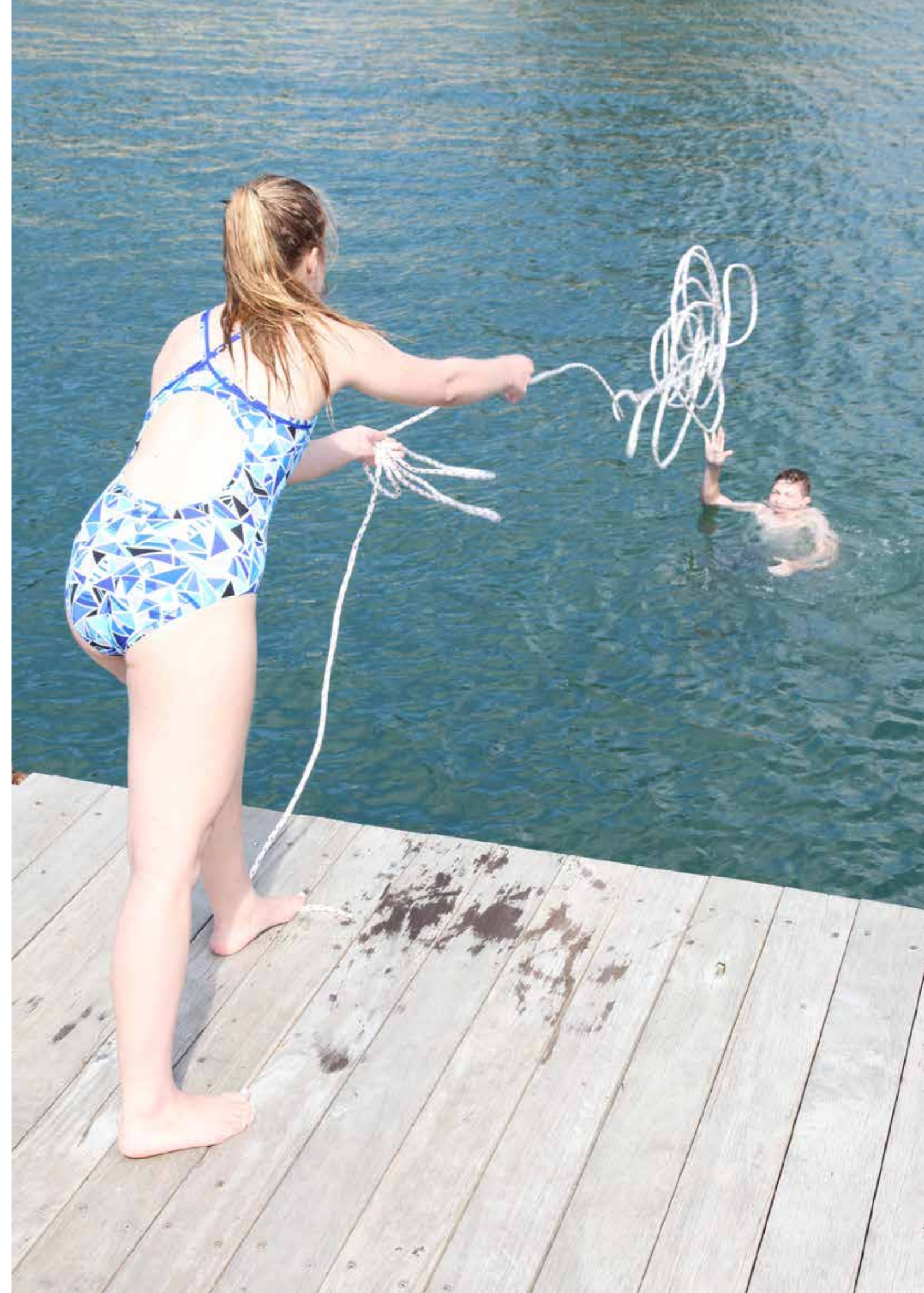
Number of lessons were calculated by taking total days in lessons recorded (calendar days) and dividing by 7 days as children were taking one 30 minute lesson on a weekly basis.

Combination swims

A swim where more than two different strokes are used to swim a set distance continuously without stopping.

Table 1: Year 4 Benchmark of the National Swimming and Water Safety Framework

Year 4 Standard of the National Swimming and Water Safety Framework	
1. Entry and Exit	<p>Compact Jump Safely perform a compact jump, a fall in entry and exit from deep water</p>
2. Sculling and body orientation	<p>Scull – feet first Demonstrate sculling feet first on the back</p> <p>Body Rotation Demonstrate rotation of the tucked body, keep the face above the surface of the water</p>
3. Movement and swimming strokes	<p>Swim Swim continuously:</p> <ul style="list-style-type: none"> • 50 metres of strokes(s) with above-arm recovery and • 25 metres of strokes (s) with underwater arm recovery <p>Recognised stroke technique must be used</p>
4. Survival and lifejacket skills	<p>Survival Skills Dressed in swimwear, shorts and a t-shirt, demonstrate the following as a continuous sequence:</p> <ul style="list-style-type: none"> • Sculling, floating, or treading water for 2 minutes • Swim slowly for 3 minutes using actions which resemble 3 recognised survival strokes, changing after each minute to another stroke <p>Float with a buoyant aid Float for 1 minute using an open-ended flotation aid thrown to the candidate</p>
5. Underwater skills	<p>Underwater Search Demonstrate a surface dive, swim underwater, search for and recover an object from water of depth equivalent to the candidate's height</p>
6. Rescue skills	<p>Throw Rescue Throw a rescue flotation aid to a partner at 5 metres distance and instruct the partner to kick to the edge</p>
7. Water safety knowledge	<p>Answer questions about dangers in the aquatic environment</p>
8. Extension skills	<p>Butterfly Demonstrate introductory butterfly arm action for a distance of 5 metres.</p>



RESULTS

Overall

A total of 2860 teenagers aged between 13 – 15 years were included of which 56.9% were males. Almost two-thirds (64.4%) were aged 13 years, 24.9% aged 14 years and 10.7% aged 15 years (median 13.0 years). Most were from Victoria (83.5%) and 95.1% were residing in areas classified as major cities. When analysed by deprivation scale, 51.6% were living in high areas of socio-economic advantage (areas ranked decile 7 – 10). Lesson cost ranged from \$15.00 to \$21.83, with 70.4% being charged \$15.50 per lesson. All were attending one 30 minute lesson after-school on a weekly basis (Table 2).

Characteristics	Frequency N	Percent %
Total	2860	100.0
Sex		
F	1232	43.1
M	1628	56.9
State		
NSW	122	4.3
SA	344	12.0
VIC	2389	83.5
QLD	5	0.2
Remoteness classification		
Inner regional	86	3.0
Major cities	2721	95.1
Outer regional	53	1.9
Cost per lesson		
\$15.00	14	0.5
\$15.50	2013	70.4
\$15.60	170	5.9
\$16.50	74	2.6
\$16.60	162	5.7
\$17.00	1	0.0
\$19.00	49	1.7
\$21.83	56	2.0
Unknown	321	11.2
Home decile rank		
Low (1-3)	489	17.7
Mid (4 - 6)	790	27.6
High (7 - 10)	1477	51.6
Unknown	104	3.6

Table 2: Characteristics of teenagers attending private lessons

What are teenagers learning in private swimming lessons?

The most common swimming skills being taught are: freestyle (72.6%), backstroke (69.9%), breaststroke (64.6%), survival backstroke (56.9%), butterfly (33.3%), sidestroke (20.7%), and combination swims (12.27%). Water safety and swimming skills are being taught to a lesser degree: treading water/sculling (21.3%), dive and recover an object (12.4%), lifejacket exercises (5.2%), survival sequences (4.9%) and rescue techniques (4.2%) (Figure 1).

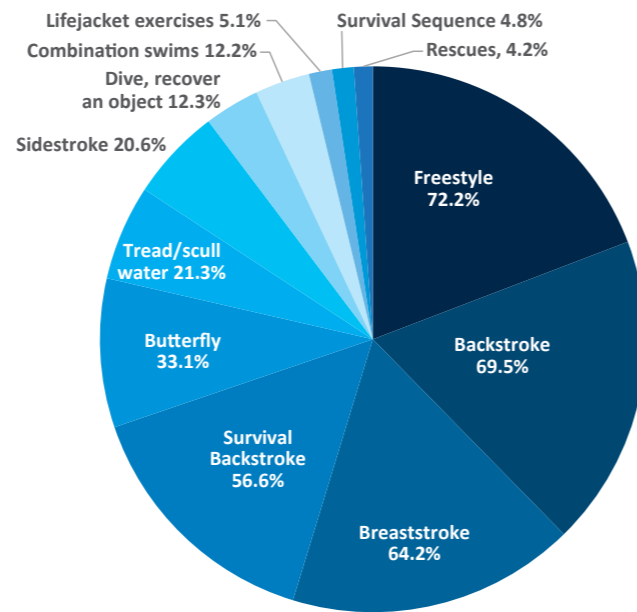


Figure 1: Swimming & water safety skills being taught in private lessons

Content of swimming lessons

In this sample, 123 individual swimming skill levels were recorded, from water familiarisation to development squad level. One fifth (21.9%, n = 27) of levels did not consist of any water safety or survival skills as recommended by the National Swimming and Water Safety Framework, 14.6% only consisted of one water safety skill in a level, most commonly survival backstroke, tread/float/scull or an underwater skill. By the level name and description of the specific skills outlined in the level, 10 levels (8.1%) were determined to be 'Squad' levels/classes, where stroke development, technique and endurance are the focus rather than learning and further developing a range of swimming, water safety or survival skills. Examples of skills in swim school levels are in Table 3.

Level with swimming skills only:

Backstroke 200m
Butterfly 25m
Correct tumble turns
Freestyle 200m
Tumble Turns

Level with a broad range of skills:

Answers questions on water safety and personal survival
Backstroke 12m
Duck dive and recover an object from chest deep water
Float, Scull, Tread water 30sec, signal for help
Freestyle 12m
Jump entry into deep water and recover
Open water simulated experiences including clothes swim
Throw a buoyant aid to a partner and direct to safety
Torpedo 5m
Torpedo on back 8m
Wearing a lifejacket enter and exit the water safely

Table 3: Example of swim level with/without water safety skills

What are teenagers achieving?

Overall, 46.1% of teenagers in this study (n = 1310) could swim a distance between 10m and 400m without stopping, 11.6% could swim 50m, 11.5% could swim 100m, and 7.1% could swim 200m or more (Figure 2). Approximately 40% were learning skills considered 'beginner' or 'basic' swimming skills, with 17.0% competent.

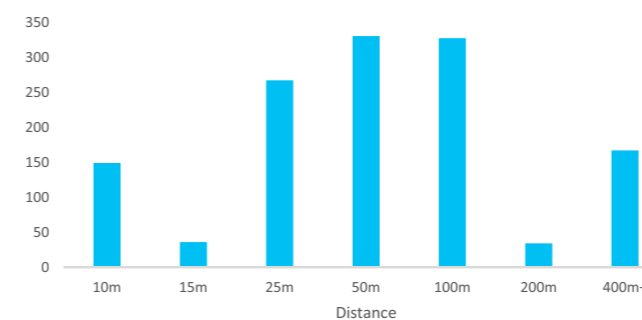


Figure 2: Distance competent at any stroke (non-stop)

Freestyle

A total of 2064 teenagers were being taught to swim freestyle. Of those, over half (58.4%, n = 1026) could swim a distance between 5 – 400m. The highest proportion (37.7%) could swim 100m, 24.5% could swim 50m, 19.5% could swim 25m, and 12.4% could swim between 10 – 15m (Figure 3).

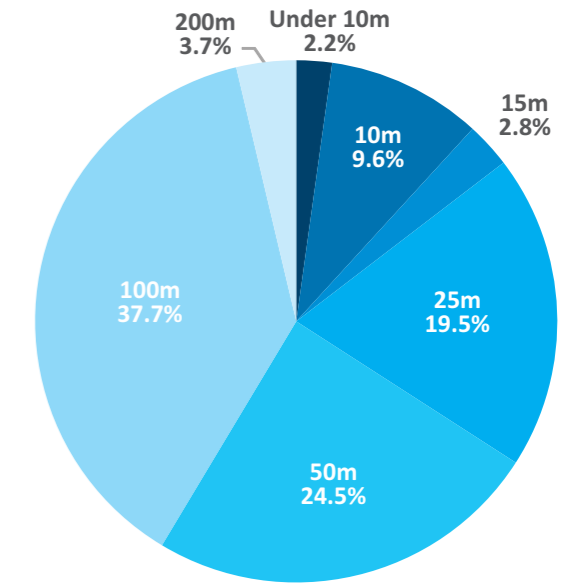


Figure 3: Proportion competent in freestyle

Backstroke

A total of 1987 were being taught to swim backstroke, with over half (52.8%, n = 1049) able to swim between 5 – 400m. The highest proportion (37.0%) could swim 100m, 25.9% could swim 50m, 21.0% could swim 25m and 12.8% could swim between 10 – 15m (Figure 4).

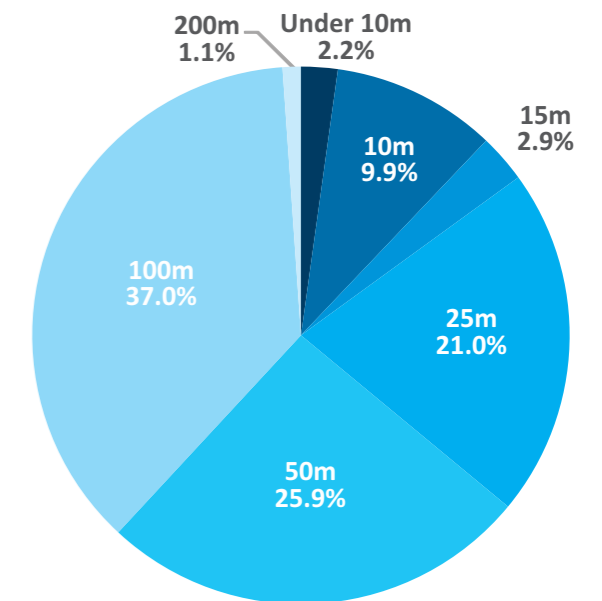


Figure 4: Proportion competent in backstroke

Breaststroke

Of those being taught breaststroke (N = 1836), 29.3% (n = 538) could swim between 5 – 200m. The same proportion could swim 50m and 25m respectively (42.6% each), 10.0% could swim over 100m and 4.8% could swim 10 – 15m (Figure 5).

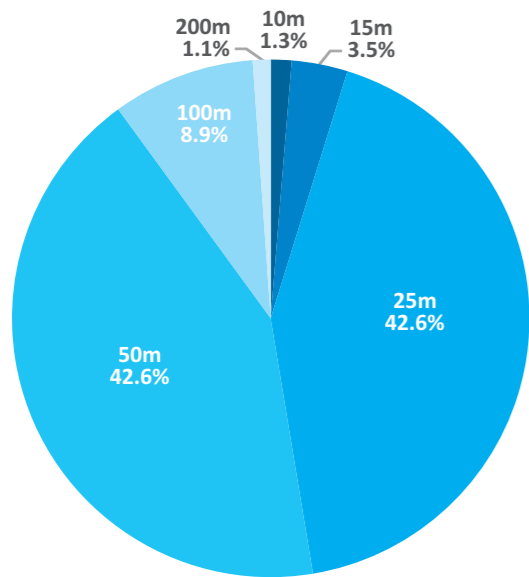


Figure 5: Proportion competent in breaststroke

Survival backstroke

Of those being taught to swim survival backstroke (n = 1619), 48.9% (n = 791) could swim between 5 – 100m. The highest proportion could swim 50m (43.5%), 28.4% could swim 25m, 23.3% could swim 10m and 2.0% could swim 100m. (Figure 6).

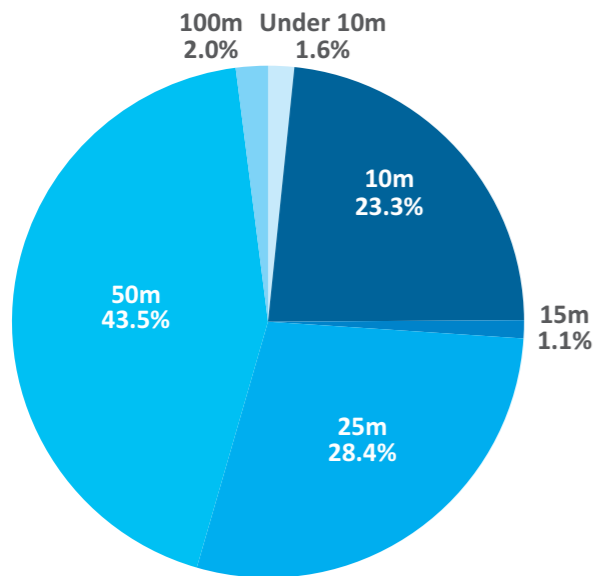


Figure 6: Proportion competent in survival backstroke

Butterfly

Of those being taught to swim butterfly (N = 948), 29.3% (n = 298) were competent in swimming a distance of butterfly stroke between 10m – 50m. The highest proportion could swim 15m (60.7%), 17.1% could swim 25m, 14.1% could swim 50m and 8.1% could swim 10m butterfly (Figure 7).

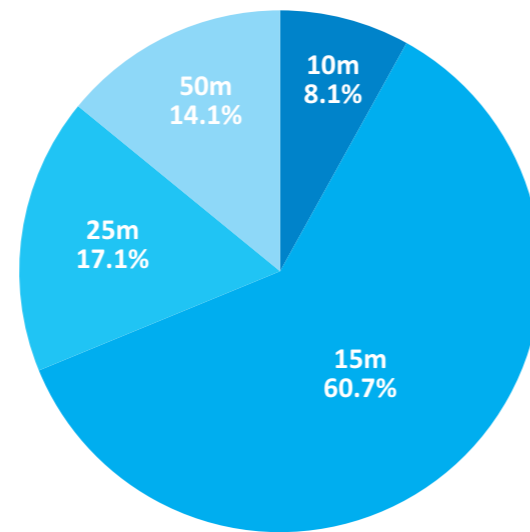


Figure 7: Teenagers competent in swimming butterfly

Combination swims

Of those learning combination swims (that is a being able to swim a combination of different strokes over a certain distance non-stop) (n = 349), 55.3% (n = 193) could swim a distance between 30m – 1km continuously using a variety of strokes. Over three quarters (77.1%) could swim 400m, 11.0% could swim 100m, 7.8% could swim 800m and 3.1% could swim 75m using a combination of strokes (Figure 8).

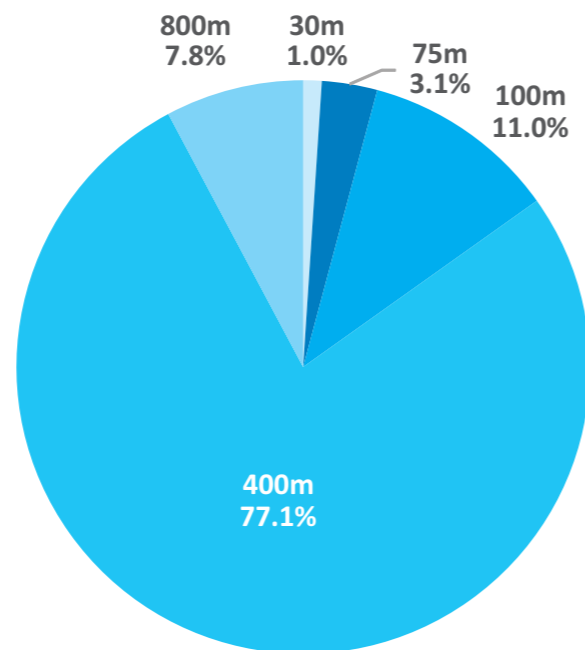


Figure 8: Competent swimming non-stop using a combination of strokes

Treading water/sculling

Of those being taught treading water/sculling skills (N = 608), 19.4% (n = 118) were competent in treading or sculling for a set period of time from 30 seconds up to 10 minutes. A quarter (24.6%) could tread, float or scull unassisted for between 1 and 2 minutes, 12.7% could stay afloat for 1 minute in clothes, 9.3% for 2 minutes in clothes and 5.1% in clothes for 5 minutes or longer (Figure 9).

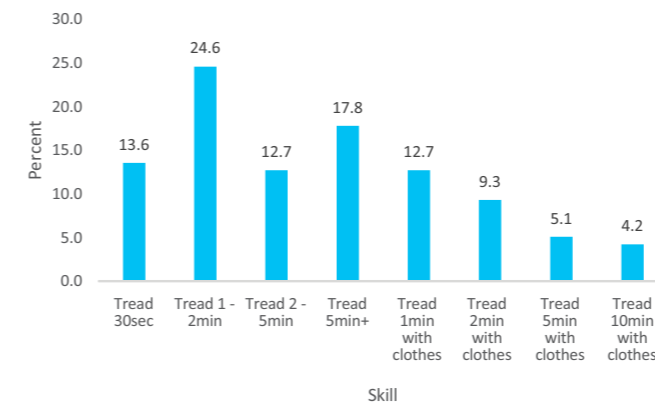


Figure 9: How long can teenagers keep themselves afloat?

Rescue skills

Of the 115 teenagers being taught rescues (4.0%), 60 individuals (52.2%) could perform at least one rescue technique. Teenagers are most commonly competent in reach rescue (27.0%), followed a rope rescue (21.6%). Cumulatively, 35.2% were competent in performing either 5m rope rescue or a 5m throw rescue (Figure 10).

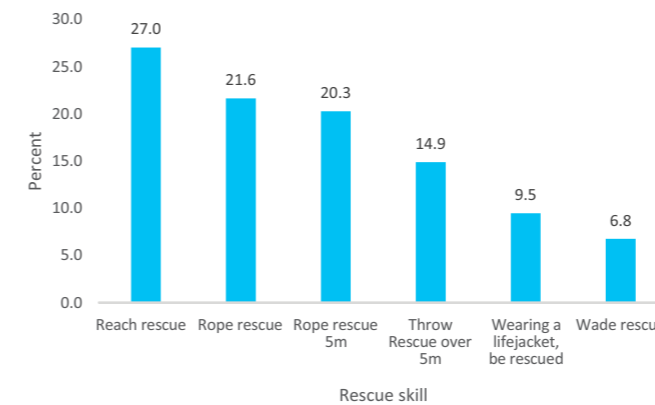


Figure 10: Rescue skills

Achieving the Year 4 Standard Benchmark

Of those being taught and are competent in swimming strokes and performing water safety skills, 65.9% are meeting or exceeding the 50m freestyle and 64.0% are meeting or exceeding the 50m backstroke minimum benchmarks, 73.9% could swim at least 25m survival backstroke, 95.0% could swim at least 25m breaststroke, 49.1% could tread water or scull for at least 2 minutes (with/ without clothes), and 35.2% could perform a rescue over 5m (Table 4).

When analysed by sex, similar proportions of males and females could achieve each of the skills outlined in Table 3, with the exception of treading water for 2 minutes or more with clothes on; females were 3.2 times more likely than males to be competent in this skill (15.0% vs. 4.6%). Significant differences were not found among any of the skills when analysed by sex. When analysed by decile grouping (low, medium, high), teenagers from high decile areas were most likely to be achieving or exceeding all the Year 4 standard benchmark skills with exception of treading/sculling water whilst wearing clothes.

When analysed by socio-economic status teenagers from low-decile areas are most likely to be achieving these skills; 1 minute (30.4% vs. 5.9% mid, 9.5% high); 2 minutes (26.1% vs. 5.9% mid, 4.9% high) and 5 minutes or more (21.7% vs. 2.0% mid, 12.2% high). Less than half of all teenagers in low and mid-decile areas were able to meet the 50m freestyle benchmark (48.5% low, 49.9% mid vs. 74.0% high). Cumulatively, over 90.0% from all decile areas could meet the 25m breaststroke benchmark (94.0% low, 96.9% mid, 94.8% high) and over 50.0% could swim at least 25m Survival Backstroke (56.6% low, 69.9% mid, 81.7% high) (Table 4).

Skill	Total (%)	Male* (%)	Female* (%)	Low Decile (1 – 3)	Mid Decile (4 – 6)	High Decile (7 – 10)
Freestyle 25m	19.5	19.6	19.4	29.0	22.9	14.2
Freestyle 50m*	24.5	23.7	25.5	18.3	21.2	28.7
Freestyle 100m+	41.4	42.2	40.4	30.2	28.7	45.3
Backstroke 25m	21.0	19.3	23.1	28.0	25.8	16.4
Backstroke 50m*	25.9	25.5	26.4	23.8	23.4	28.0
Backstroke 100m+	38.1	39.8	35.9	25.0	36.8	42.3
Survival Backstroke 25m*	28.4	28.6	28.3	27.6	27.8	29.2
Survival Backstroke 50m	43.5	44	42.9	29.1	36.3	51.8
Survival Backstroke 100m	2.0	1.6	2.6	0.0	5.8	0.7
Breaststroke 25m*	42.6	40.3	45.7	50.7	46.5	40.2
Breaststroke 50m	42.6	45.8	38.3	34.3	34.1	47.1
Breaststroke 100m	10.0	8.8	11.7	9.0	16.3	7.5
Tread 1 min	24.6	30.8	17.0	0.0	33.3	24.4
Tread 1 min with clothes	12.7	13.8	11.3	30.4	5.9	9.8
Tread 2min*	12.7	12.3	13.2	0.0	13.7	19.5
Tread 2min with clothes*	9.3	10.8	7.5	26.1	5.9	4.9
Tread 5 min+	17.8	16.9	19.8	4.3	27.5	14.6
Tread 5min+ with clothes	9.3	4.6	15.0	21.7	2.0	12.2
Rope Rescue over 5m*	20.3	19.5	21.2	28.9	33.4	4.8
Throw Rescue over 5m*	14.9	14.6	15.2	0.0	16.7	42.9

*Year 4 Benchmark skills

Table 4: Achievement of key skills analysed by sex and decile rank

Time in lessons

Overall, teenagers were taking an average of 31 swimming lessons over a time period of approximately 7.2 months. When analysed by how many swim school levels teenagers progressed through during their time in lessons, 74% (n = 1873) had only been in 1 level (Figure 11).

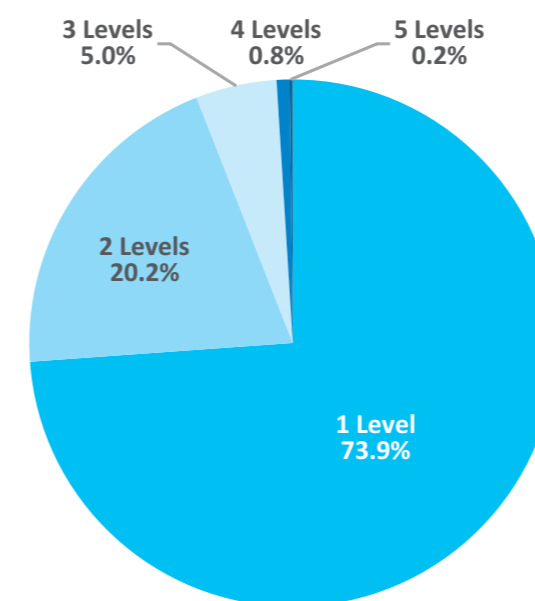


Figure 11: Total swim levels teenagers progress through

For the majority (73.8% n = 1874) that progressed through one swim school level, the average number of lessons taken was 25 lessons over 5.8 months. Unsurprisingly, the more levels teenagers progressed, the longer they had been taking lessons for.

Teenagers in two levels (n = 512, 20.2%), had an average of 45 lessons across 11 months; for those in three levels (4.9% n = 126) they had taken an average of 54 lessons over 12.4 months. A small number had progressed through four or more levels, and had been in lessons for between 11 – 14.5 months (about one year) (Figure 12).

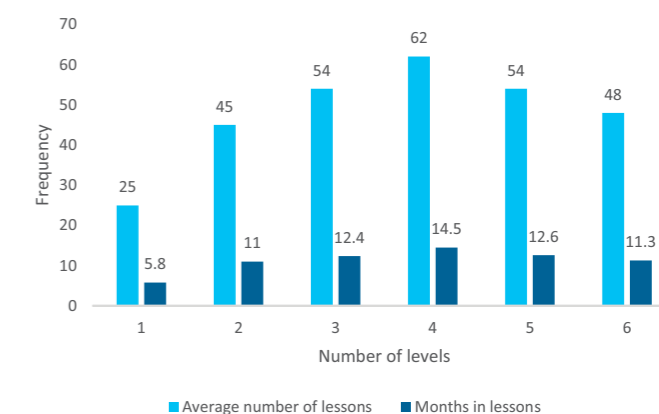


Figure 12: Length of time in lessons analysed by number of levels achieved

In this sample, most teenagers started lessons at age 12 years. Based on the average lesson cost of \$15.50 (Table 1), the average total amount being paid for swimming lessons for one person ranged between \$387.50 as a minimum and \$961 at the most, depending on the time in lessons (Table 5).

Number of levels attained	Percent of sample	Average age at start	Average number of lessons	Average time in lesson (months)	Average total cost (\$15.50 per lesson)
1	73.8	12.1	25	5.8	387.5
2	20.2	12.2	45	11.0	697.5
3	4.9	12.1	54	12.4	837.0
4	0.79	12.4	62	14.5	961.0
5	0.16	12.6	54	12.6	837.0
6	0.04	12.4	48	11.3	744.0

Table 5: Time in lessons based on average age when started, number of lessons and average cost

DISCUSSION

This study presents a snapshot of what teenagers aged 13 – 15 years are learning and achieving in private swimming lessons. This study is the second part of a study investigating swimming and water safety skills of Australian children in private swim schools [13].

This study is a cross-section sample of teenagers enrolled in private swimming lessons from three States during a specific period of time and may not be nationally representative of all in this age bracket attending private swimming lessons. This study fills a previous knowledge gap pertaining to what age groups are participating in private lessons, who is accessing lessons and what teenagers attending private swimming lessons are learning and achieving.

Who is accessing private swimming lessons?

Overall, those aged 13 – 15 years made up 2.1% of the entire database included in the larger study. The initial study showed a decline of children in swimming lessons from the age of 10 years [6], and it is likely that children over the age of 11 years make up a very small proportion of children in swimming lessons nationwide. In this study of teenagers, more males than females were attending lessons (57% vs. 43%), 64% were aged 13 years, 95% were from major cities.

Over half (51%) were living in high decile areas (decile 7 – 10), compared to 75% in the primary school aged study [6], suggesting a wider distribution of teenagers attending private lessons. The majority started lessons in their current swim school at 12 years of age, for approximately 6 months, with 70% learning to swim between 25m and 200m.

What are teenagers learning?

Similar to the initial study of primary school aged children, freestyle, backstroke and breaststroke related skills are most commonly being taught, followed by survival backstroke and butterfly.

It is concerning that overall, only 56% were being taught survival backstroke, of which 48% were competent. One fifth (21%) were being taught treading, sculling (19% competent) or sidestroke (20% of which 45% competent), 12% were doing combination swims (55% competent) and less than 5% were being taught lifejacket exercises (65% competent), survival sequences (63% competent) and rescue techniques (48% competent). This study showed that up to 40% of teenagers enrolled in private lessons are learning beginner or basic skills, suggesting that teenagers attending private lessons may be receiving swimming instruction for the first time and there are more teenagers at the beginner end of the spectrum than those with advanced skills. Further research is recommended to investigate socio-demographic and cultural factors, as well as prior experience in relation to swimming activity participation and achievement.

Overall, 21% of all the swim levels recorded did not contain any water safety or survival skills, only swimming development or technique skills, implying that some swim schools are not aligning their programs to the National Swimming and Water Safety Framework. It is highly concerning that water safety and survival skills (with the exception of survival backstroke) are not being taught to the majority of teenagers in lessons when at this age they are more likely to start visiting open water environments and participating in aquatic sport and recreation with and without supervision [33, 34].

What are teenagers achieving?

Results suggest that overall, the achievement rate of teenagers enrolled in swimming levels appears relatively low. These findings reveal that of the 2860 teenagers enrolled in private lessons, one third (33%) are able to swim a minimum of 50m. Of those that were competent in swimming or performing each individual stroke/skill, more than half were achieving or exceeding the Year 4 minimum standards of 50m freestyle (66%), 50m backstroke (64%), 25m Survival backstroke (74%), 25m breaststroke (96%). In regard to water safety and survival skills, 4% were competent at treading or sculling for a set period of time, 2% could perform a rescue technique and 3% could perform a survival sequence.

It was expected that a higher number of teenagers attending private lessons would be achieving at a more advanced level and be in development or squad type classes. Whilst some teenagers were certainly in 'squad' type classes, these results suggest that in reality only a small proportion of teenagers in squad or development levels and the more advanced swimmer are likely to be in competition squads, other aquatic sports or have stopped swimming altogether. The results clearly show that this is not the case and teenagers in private lessons at this age were more likely to be at the beginner levels. These teenagers are not achieving the Year 4 benchmark let alone the Year 6 or Year 7 standards that corresponds to their actual age. Overall, 7% of the sample could competently swim 200m; of the small number competent in treading and sculling skills (n = 118), 36% could keep themselves afloat for a minimum of 2 minutes or longer and only 8 people total could perform the specified Y6 survival sequence of fitting a lifejacket whilst treading or sculling and swimming 25m using survival strokes. More information on achievement rates of secondary school students in Department of Education and Vacation programs is required to ascertain if these achievement rates are representative of all teenagers attending lessons, whether private or school-based.

What are the implications of these findings?

These results may indicate that the teenagers in this sample may have received little, if any, swimming and water safety education prior to completing private swimming lessons.

Whilst it might be expected that teenagers are being taught water safety and survival skills, this research clearly shows that the traditional competitive strokes of freestyle, backstroke, breaststroke and butterfly are still the priority for swim schools.

The importance of providing teenagers with the opportunity to learn and develop water safety and survival skills cannot be underestimated.

The 15 – 19 year age group experiences a higher rate of drowning compared to children aged 5 – 14 years, and this is when more risk-taking behaviour starts to occur [34-36]. By including water safety and survival skills in the early teenage years when they start to visit open water environments with their friends, this would reinforce safety behaviour, increase awareness and better equip teenagers with the skills required should they get into a difficult situation when in, on or near the water. These results challenge the minimum competencies set out in the Framework and if the benchmarks are realistic, appropriate and relevant, especially for teenagers and young adults? Survival swimming programs in Bangladesh and Thailand are delivered in ponds, lakes and rivers [37]; reflecting the common locations where people are most likely to get into difficulty. Programs designed to develop skills in a realistic environments and simulating likely situations should be considered for teenagers and youth.

The lack of swimming and water safety skills also impacts participation in aquatic sport as part of secondary school activities. Some education departments require students to be able to swim a minimum distance, for example in Tasmania students must be able to swim 200m in the conditions where the activity will take place in order to participate in school surfing [38]. If teenagers do not have these minimum requirements, this then restricts the activities that they can participate in the future. However research shows that they are still likely to participate in non-formal aquatic activity outside of school with friends or family regardless of swimming ability [34, 36]. This research supports the need for re-introducing or increasing lifesaving programs into secondary schools.

Role of learn to swim and water safety program providers

These results suggest that if children are not gaining the swimming and water safety skills prior to leaving primary school, and the reason for attending private swim lessons at this later age could be for remedial or 'catch up' lessons where smaller classes and more one-on-one attention can be provided. The overall results of the swim school study suggests that swim schools focus more on traditional swimming strokes and development with a lesser focus on water safety, in comparison school-based and vacation programs tend to be more holistic, enabling a wider population to learn a range of swimming a water safety skills appropriate to their age [7, 14, 39].

However, given the results of this particular paper, swim schools may be the preferred method for older children to learn to swim, especially if a fear of water or a negative experience is evident. Studies suggest that a negative childhood experience in the water or a fear of water will impact on future participation and may prevent willingness to learn swimming and water safety skills, perhaps cause embarrassment that they cannot swim [40]. Information on participants prior experience was unavailable, further research is required to investigate the reasons why teenagers are attending private swim lessons. Swim schools may be better positioned to provide specialised lessons catering for teenagers and adults that focus on mastering the basics and increasing confidence in the water. Building partnerships between schools and local swim schools are recommended to ensure that 'high risk' children have the opportunity to develop aquatic skills in an environment that best suits their needs.

Addressing the issue and engaging effectively with youth

In order to make a difference within this population, a unique, holistic approach promoting the wider benefits of gaining aquatic skills should be considered, including employment and career pathways. Strategies need to look beyond the traditional television, print and radio messaging in order to effectively engage with this age group. The use of apps, such as the Everyday Lifesaver developed by Life Saving Victoria [27], uses relevant technology and gamification as an effective and relevant method to engage teenagers and youth to teach them about water safety, personal survival and first aid skills. By using an app, it can be played by anyone, anywhere and is not restricted to the classroom or a particular demographic. A plethora of information is readily available via the internet and websites that may or may not be accurate, along with the strong influence of friends, family, peers and social media. Social media is a relatively new phenomenon but can influence a large number of people. For example, over the 2016/17 summer photos posted on social media of rock pool in Sydney's Royal National Park attracted thousands of people to this beautiful but dangerous rocky outcrop along the coastline and exposing them to hazards such as large waves and slippery rocks [41].

As discussed earlier, all State and Territory Departments of Education offer options for swimming and water safety education that targets different year levels and ages [6]. South Australia and Western Australia programs offer options for all students to access an aquatics program up to the end of secondary school. Whilst these program can be commended for their inclusive approach, given the consistent findings that children are not achieving the prescribed benchmark prior to leaving primary school, a national approach to extend aquatic education to all year levels is recommended.

Aquatics education, both swimming and water safety/ personal survival skills, can be integrated into the Australian secondary school health, development and physical education curriculum (HDPE). At both the Year 7 & 8 level and the Year 9 & 8 level, water safety and personal aquatic survival skills and knowledge fit under the 'Personal, social and community health' strand, particularly the following units: Year 7 & 8 HDPE: 'Practise and apply strategies to seek help for themselves or others' (ACPPS072) and Y 9 & 10: 'Plan, rehearse and evaluate options (including CPR and first aid) for managing situations where their own or others' health, safety and well-being may be at short or long term risk' (ACPPS091) [42].

To better engage with this age group, changing the focus from swimming lessons to learning 'Lifesaving' skills linking to vocational, career or employment pathway may more appropriate and relevant. Another option would be to introduce options in a staggered or phased process in order to build the knowledge, skills and confidence in a controlled manner which could involve a range of industry programs utilising classroom based, technology such as apps, and practical programs in the pool or open water environments.

LIMITATIONS

This information was obtained from a third-party database, restricting the ability to make further assumptions and comparisons against previous benchmarking data that has been collected.

Demographic data such as Aboriginal and Torres Strait Islander status, participant's country of birth and pre-existing medical conditions are not routinely collected by swim schools, and hence were unable to be included in analysis. Lesson specific information to allow further understanding and clarification of what and how children are achieving such as how many children per class, how often assessments are being conducted and if children are being tested in all skills in a level before progressing to the next level were also not available.

This study does not provide any information about children who participate in other programs such as school based or vacation swimming and water safety programs and the impact of participating in more than one type of program on their swimming competency; nor is exposure to aquatic locations and/or facilities or participation in aquatic activity known.

In – depth assessment information on children's water safety knowledge was also not available and could not be compared to previous benchmarking data. Not all skills outlined in the Year 4 standard were analysed due to small numbers and difficulty in mapping skills.

CONCLUSION

The findings from this study have revealed that teenagers attending private swimming lessons are more likely to be learning beginner level skills rather than advanced, with only about a quarter achieving the Year 4 benchmark of swimming 50m freestyle and backstroke.

A key outcome from the National Swimming and Water Safety Education Symposium recognised the importance to addressing high risk populations outside of the primary school spectrum. This report is unique in that it provided information on the actual competency of teenagers in swimming lessons, compared to other research based on self-reported and perceived swimming ability among this population.

Whilst efforts towards reducing drowning of primary school aged children continue to be a key priority, more work needs to be directed towards older children, teenagers and young adults in order to address the high drowning rate among this high risk age group and to ensure they are equipped with the skills and knowledge to ensure safe aquatic participation throughout adulthood.

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