



# SINK OR SWIM

The state of Victorian  
primary school  
children's swimming  
ability

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# Executive Summary

A knowledge of swimming and water safety can reduce a child's drowning risk and provide them with skills that may one day save a life. In addition, swimming and water safety skills have demonstrated benefits on child health in terms of social, psychological and physical well-being. Recent trends indicate an increase in drowning in children between 5 and 14 years of age in Victoria. This, alongside suggestions that Victorian school children are missing out on engaging in swimming and water safety education, leads us to ask what our children are learning and what their abilities in the water are. The current study therefore aimed to determine the swimming ability and water safety knowledge of Victorian children exiting primary school, measured against state and national standards, and estimated by parents and teachers.

## Swimming ability

Teachers estimated that three in five Victorian Year 6 students in 2012 could not swim 50 metres and that two in five were unable to float for more than 2 minutes. This translates to over 39,000 Victorian children leaving primary school unable to swim 50 metres. Parents estimated that two in five children could not swim 50 metres and that one in ten could not float for more than 2 minutes. These estimates are poorer than those suggested by research from Royal Life Saving Society Australia which estimated that one in five could not swim 50 metres and highlight a startling need to address the extent of the gap in ability.

The current report supports other Australian studies that suggest regular participation in swimming lessons has the most measurable impact on a child's swimming ability. Based on parent responses, significantly more children who went swimming on a fortnightly or more frequent basis were able to swim 50 metres unaided compared with those who went swimming "about once a month" or less. Regular lessons not only improve swimming ability, they also provide benefits to health, fitness, motor skill

development and influence social, psychological and physical wellbeing.

This study found no significant difference in reported swimming ability between children living in metropolitan areas and those in regional areas, indicating a need for improved access to quality swimming and water safety education across Victoria. Most teachers believed that the swimming ability of children born outside Australia was below that of an "average swimmer". Culturally and linguistically diverse (CALD) communities have been identified as being at greater risk of drowning than other communities in Australia because a large proportion reportedly cannot swim and often have little or no experience with Australian aquatic environments.

## Water safety knowledge

In addition to providing safe and well-supervised locations for people to swim in, there is a need to provide quality swimming and water safety education to children. Teachers estimated that 39% of Year 6 students lacked adequate water safety knowledge. This translates to over 25,000 Victorian students leaving primary school without sufficient knowledge to avoid getting into dangerous situations in and around water. Children living in areas of greatest socio-economic disadvantage were more likely to lack this knowledge and particular attention should be focused on addressing this gap.

## Provision of swimming and water safety education

40% of parents said their child had never participated in a school-run swimming program and 12% of surveyed school teachers reported their school did not run a swimming program. The case for in-school provision of swimming and water safety education is strong because access to swimming lessons is easier if they are part of the school program. This may enable the participation of children who might otherwise not engage in physical activity such as those

from CALD, Indigenous or low socio-economic backgrounds. This highlights the importance of in-school provision of lessons to provide these opportunities for children in a safe, organised environment.

In 2012, 64% of schools taught other water safety programs alongside, or instead of, formal swimming lessons. The most popular were classroom-based water safety programs (44%) and surf/beach safety programs (35%) followed by inland waterway safety programs (14%). With one-third of students potentially missing out on school-based swimming and water safety education, there are theoretically thousands of children who lack the ability to recognise potential aquatic risks, cope with accidental entries, or assist someone else in danger.

### Barriers to participation

Despite the importance of swimming and water safety education, barriers exist that prevent or limit participation for families, schools and the industry itself. For schools, program cost was the greatest barrier to their participation in formal lessons, followed by an already crowded curriculum and transport costs. These findings are not dissimilar to previous studies. A lack of qualified swim teachers was highlighted as an issue particularly for schools in regional Victoria. For schools in metropolitan areas, cultural barriers need addressing in order to increase participation among children from CALD communities.

Due to the high reported participation in swim lessons in the study sample, limited information was collected from parents on the barriers to their participation. Prohibitive factors included the time and financial costs of lessons. Whilst 60% of children had had lessons organised through their school, 81% had undertaken swimming lessons organised externally to school. These results suggest parents are filling the gaps in swimming education provision, therefore increasing the economic burden on families. This also means that those without the resources to pay for their

child to have lessons will miss out, increasing the gap in health inequality for those from low socio-economic backgrounds and CALD communities. These groups must be considered a priority for addressing gaps in swimming skills provision.

Barriers for the aquatic industry were not directly assessed; however, Life Saving Victoria (LSV) has sought feedback from the aquatics industry in the development of the recommendations of this report and will remain in consultation with the industry throughout the implementation process.

### Future research

This study is the first to provide an assessment of the swimming ability and water safety knowledge of Victorian children. However, it did not provide a direct assessment of swimming skills due to limitations in the availability and access to this information. Further research is required to provide direct assessments of children's swimming ability, to determine the most effective methods to increase participation levels and to improve the quality of delivery of swimming and water safety education.

# Introduction

## Background

Drowning is a leading cause of death of children aged 0-14 years. While multiple strategies to address drowning in the 0-4 age year group have been implemented, from legislation through to public awareness campaigns, a greater focus is now required to address drowning in the 5-14 age group. Recent trends indicate an increase in drowning in children 5-14 years of age in Victoria. Between 2006 and 2011 there was a 68% increase in the 5 year average drowning rate in children in this age group compared to the 2001-2006 average (0.51 versus 0.31 per 100,000 population respectively). There was also a 17% increase in hospitalisations in children aged 5-14 years from 2006-2011 as compared to the 2001-2006 average (2.15 versus 1.84 per 100,000 population respectively) (Life Saving Victoria [LSV], 2012).

While there has been widespread focus on the importance of adult supervision on children around water, there are also indications that a lack of swimming ability and water safety knowledge (such as hazard identification and personal survival skills) among children contributes to an increased drowning risk. Swimming and water safety skills have demonstrated benefits on child health and development (e.g. Doherty & Taylor, 2007; Morgan, 2005; Royal Life Saving Society Australia [RLSSA], 2012a) in addition to reducing drowning risk and providing children with skills that may one day save a life (e.g. Brenner, Saluja, & Smith, 2003; International Life Saving Federation [ILSF], 2007). However, an increasing body of research both nationally (RLSSA, 2012b) and internationally (ACNielsen, 2001; Amateur Swimming Association [ASA], 2013) is reporting a lack of swimming ability in school age children. Research from RLSSA estimates that each year 50,000 Australian children will leave primary school without being able to swim 50 metres or stay afloat for 2 minutes, the recognised standard for water safety (RLSSA and

AUSTSWIM, 2010; RLSSA, 2012a). However, this research only included the ACT, South Australia and Tasmania, and different types of assessment methods were used in each state or territory. In other research, 44% of Victorians surveyed (n=61) said their child/children could not swim more than 50 metres and 43% said their child/children could not float for more than five minutes (Matthews, 2012). However, the sample size of this survey was small, limiting extrapolation of the findings to the Victorian population. Therefore, there is a lack of evidence to provide a clear indication of the swimming ability and water safety knowledge of children in Victoria and subsequently the number of children that may be at increased risk of drowning.

## Research outline

The current study sought to understand the swimming ability and water safety knowledge of Victorian children exiting primary school, measured against the current Victorian and national standards and estimated by parents and teachers. In addition, the study aimed to determine the type of water safety education currently being utilised in the community as well as any barriers to participation for students and schools.

The research fits within priority area A of the Victorian Water Safety Master Plan 2012-2015, Reduce drowning deaths in at-risk communities. In particular the work falls under the following strategy:

7.A.1 Using international and local data, establish a baseline of swimming capabilities to assist future water safety skill development programs for implementation as an industry set of core competencies.

## Project Aims

The specific aims of the research were:

1. To estimate the swimming ability of Victorian children exiting primary school based on parent and teacher estimates.
  - To determine the swimming and floating ability of Victorian children exiting primary school.
  - To determine any differences in parent and teacher estimates of swimming ability.
  - To determine any variance in swimming ability according to:
    - Swim frequency
    - Demographic characteristics
    - Area of residence (regional versus metropolitan).
    - To estimate the water safety knowledge of Victorian children exiting primary school based on teacher estimates.
2. To determine any variance in water safety knowledge according to:
  - Demographic characteristics
  - Area of residence (regional versus metropolitan).
3. To determine the nature of swimming and water safety education being provided by schools and the type of instruction organised externally by parents.
4. To determine any barriers to participation in swimming and/or water safety education for children and schools.

Results from this study will be used to provide a benchmark of the swimming ability of Victorian primary school children. This will not only provide an indicator of the current status of the swimming ability of children but can also be used as a baseline to assess change in the ability of children in the years ahead following subsequent intervention programs. In addition the results will be used to guide the broader programmatic and campaign response.

# Methods

## Survey design

The study involved surveys of parents and teachers of children in Year 6 at Victorian primary schools. Year 6 is the final year of primary school where children are typically 11-12 years old. Surveys were developed for parents and teachers based on questions that had been asked previously to assess swimming ability (ACNielsen, 2001; RLSSA and AUSTSWIM, 2010). The surveys were also reviewed by internal and external stakeholders with expertise in the delivery, development and/or evaluation of swimming and water safety programs.

The parent survey sought to determine the swimming and floating ability of each child, their level and type of participation in lessons, potential barriers to participation, swimming frequency and demographic information. The teacher survey estimated the swimming and floating ability of students, identified barriers to schools running swimming and water safety programs and compared the swimming ability of children born in Australia with those born overseas. In order to determine approximate numbers, teachers were asked to provide the total number of students in their class and estimate the proportion that fit within each category.

## Skill level framework

Levels of swimming and floating ability among children were measured against two standards. The Victorian Water Safety Certificate (VWSC) is a State Government initiative that provides a swimming and water safety skill foundation for children that will enable them to safely enjoy aquatic activities in a limited range of environments. The VWSC reflects the level of skill recommended by the swimming and water safety industry for students exiting primary school. It is aligned directly to Level 4 of the current curriculum in Victoria (AusVELS) and is also linked with the Royal Life Saving Society Australia (RLSSA) Swim and Survive Active Level 4 Program. The criteria in the VWSC that were used as comparative

measures of swimming ability in the surveys were that children exiting primary school should be able to: i) Swim competently for a continuous distance of 50 metres and, ii) float, scull and tread water for 5 minutes.

The present study has also used a 2 minute benchmark for floating ability to allow for comparison to national research and the national accepted standard, the National Swimming and Water Safety Framework (NSWSF). As per the VWSC, the minimum target at Level 4 of the NSWSF is for children leaving primary school to be able to swim a continuous distance of 50 metres (RLSSA, 2010).

## Response collection methods

Survey invitations were sent state-wide electronically via a web link in targeted emails and newsletters or delivered in hard copy at community and education events. As an incentive, an iPad was offered as a prize for one teacher and one parent. Participation was voluntary and consent was implied through survey return.

Parent surveys were largely completed at the Royal Melbourne Show in September 2012. In order to increase the response rate from CALD communities and families from lower socio-economic backgrounds, surveys were also collected from local shopping centres, through LSV's water safety education programs which are run for recent migrants to Australia and via a web link on the LSV website. In total, 212 parents completed the survey, representing 215 Year 6 students.

Teacher surveys were predominantly web-based, either via a link sent directly to schools, through LSV's teacher database or advertised via the School Sport Victoria (SSV) and Australian Council for Health, Physical Education and Recreation (ACHPER) newsletters. Hard copy surveys were also collected at the annual ACHPER conference in November 2012. The teacher survey received 253 responses, representing approximately

9,300 students. Physical education teachers or the teacher most likely to have personally observed their students swimming were targeted for the survey.

### Data analysis

Both surveys were uploaded onto the Cvent survey platform. Online surveys were completed directly by parents and teachers. The hard copy responses were entered onto the survey platform at a later date.

The Geographic Information Systems (GIS) tool, ArcMap, was used to produce distribution maps and, in combination with Australian Bureau of Statistics (ABS) data, categorise respondents by postcode into major Australian cities (Melbourne and Geelong), inner regional Australia, outer regional Australia or remote Australia. The latter three categories were grouped into the category 'regional Australia' to allow for comparison with major Australian cities, known as 'metropolitan areas' in this report.

Parent responses were further categorised by their postcode of residence into Socio-Economic Indexes for Areas (SEIFA) using the Index of Relative Socio-Economic Advantage and Disadvantage. Teacher responses were categorised into SEIFA by school postcode to assess for differences in water safety knowledge. The ABS defines relative socio-economic advantage and disadvantage in terms of people's access to material and social resources, and their ability to participate in society (Australian Bureau of Statistics [ABS], 2013a). Each area is scaled from 1 to 10, with areas ranked 1 measured as the most disadvantaged and those ranked 10, the most advantaged. An area with a high score on the index has a relatively high incidence of advantage and a relatively low incidence of disadvantage.

Chi-square analyses and general statistical analyses were performed using IBM SPSS statistics software. The alpha level to determine significant differences between groups was 0.05.

### Terminology

*For the purposes of this report, the term swimming ability refers to the estimated distance children could swim continuously, in any stroke, as well as the length of time they could float unassisted, as reported by parents and school teachers. It therefore does not include assessment of water safety knowledge and survival skills.*

*The phrase swimming and water safety incorporates swimming, personal survival and water safety skills, in line with the National Swimming and Water Safety Framework.*

*Aquatic education is used to describe swimming and water safety education.*

# Results

## Demographic information

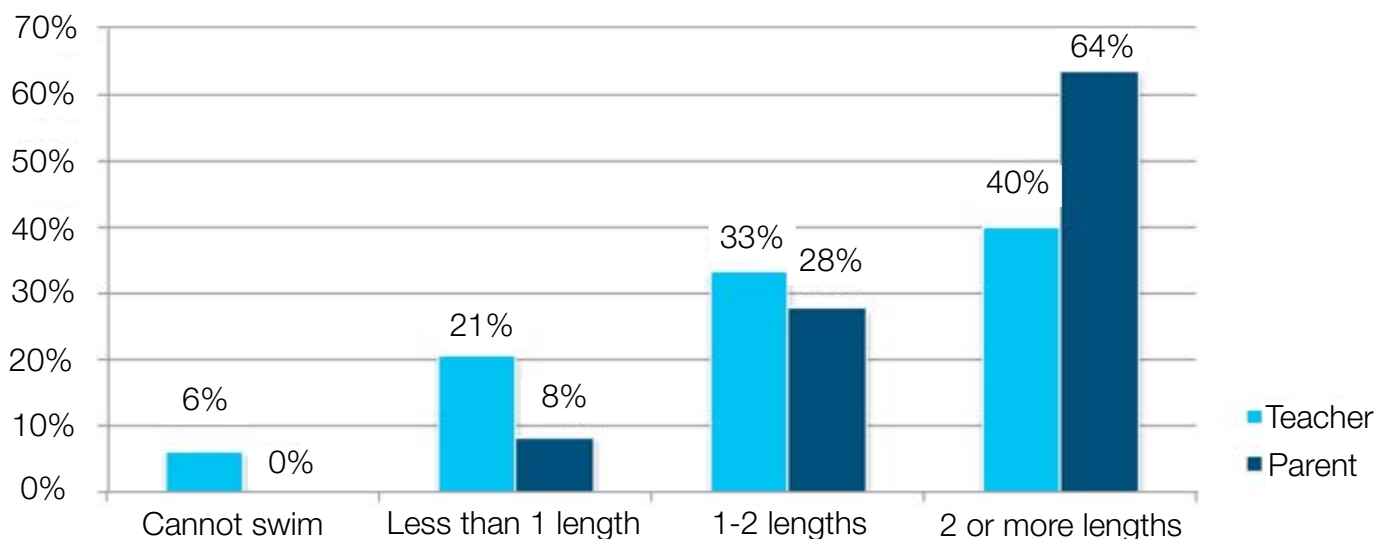
Of 212 parent respondents, 83% were born in Australia, 70% were aged 40-59 years and 72% were from a metropolitan area (Melbourne or Geelong). This is representative of the wider Victorian community, in which approximately 70-80% of the population within this age range were born in Australia (ABS, 2006), and where 76% live in metropolitan areas (ABS, 2011). Females comprised 76% of respondents. Almost half the respondents (47%) resided in suburbs within the top three levels of socioeconomic advantage.

Of the teacher respondents, 55% were aged 40-59 years and 68% were female. Over half (54%) of schools were in metropolitan areas with the remainder in regional Australia. Government schools made up 75% of responses followed by 13% from Catholic schools, 8% from independent schools and the remaining from specialist schools. This is representative of wider Victoria, which comprises 69% government schools and 31% non-government schools (ABS, 2013b). The teacher surveys represented approximately 9,300 children, of whom approximately 13% were born overseas and who spoke a language other than English at home. Females were overrepresented in both surveys.

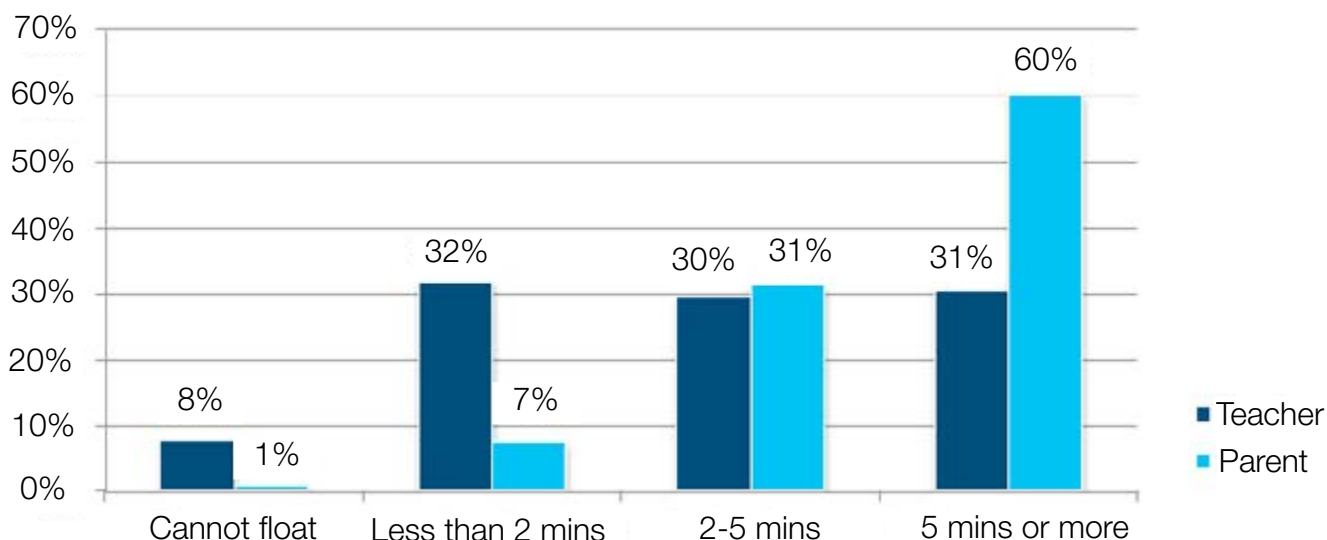
## Aim 1: Swimming ability

Parents and teachers were asked to estimate the swimming ability of Year 6 children; specifically, the maximum distance they could swim and the maximum amount of time for which they could float, both without stopping or touching the bottom of a 25 metre swimming pool. In terms of the maximum distance a child could swim, parents estimated that 36% were unable to swim two lengths of a 25 metre pool, the minimum competency requirement for the VWSC and NSWFS. Teachers estimated that 60% of Year 6 students were unable to swim two or more lengths. If this estimate is accurate, this result suggests that over 39,000 Victorian children leaving primary school would be unable to swim 50 metres (Figure 1). There was a significant difference in parent versus teacher estimates with parents providing a higher estimate of their children's abilities. Teachers also estimated that a significantly greater proportion of children could swim less than one length of a 25 metre pool compared to parents (27% versus 8%), including 6% of children who were reportedly unable to swim at all.

**Figure 1: Estimated number of lengths of a 25 metre pool Year 6 children could swim (teacher and parent estimates)**



**Figure 2: Estimated floating ability of Year 6 students (teacher and parent estimates)**



A similar pattern was observed for children’s floating ability, with parents again providing higher estimates of their children’s abilities (Figure 2). Parents estimated the proportion of children that could float or tread water without stopping or touching the bottom for 5 minutes or more to be significantly higher than teachers’ estimates (60% compared with 31% for teachers). Nevertheless, parent estimates highlight that 40% of children did not meet the minimum competency requirements of the VWSC. Teachers estimated that 40% of students could not float or tread water for 2 minutes, compared with 8% of parents, which is below minimum competency for both the VWSC and NSWFS.

Based on parent responses, significantly more children who went swimming on a fortnightly or more frequent basis were able to swim 50 metres unaided, compared with those who went swimming “about once a month” or less. Parent responses were further categorised by their postcode of residence into SEIFA, with no difference in the proportion of children who could swim 50 metres or more based on SEIFA. However, it should be noted the majority of those surveyed resided in an area ranked higher on the index and would therefore have a relatively higher

incidence of advantage. There was also no significant effect of location (metropolitan areas versus regional areas) on parents’ assessments of their children’s swimming ability.

Teachers were asked to compare the swimming ability of children born outside Australia with that of an “average swimmer”, with 68% reporting their ability as less than an “average swimmer”. There was no effect of whether a parent was born in Australia on their child’s level of swimming or floating ability; however it should be noted that just 25 respondents (12%) were born outside Australia, New Zealand, the USA and the UK.

**Aim 2: Water safety knowledge**

Teachers were asked what proportion of their Year 6 students had sufficient knowledge of water safety issues to avoid getting into hazardous situations in and around water. An estimated 39% of students were believed to lack adequate knowledge. If this value were generalised to all students leaving primary school, it could be suggested that over 25,000 Year 6 students may have lacked sufficient water safety knowledge to avoid getting into dangerous situations in and around water and cope if they found themselves, or another person, in trouble.

There was no difference in the estimated water safety knowledge of students in schools in metropolitan areas or regional Australia. However, the proportion of students with sufficient knowledge increased with levels of socio-economic advantage. An estimated 26% of students in areas of highest advantage lacked sufficient water safety knowledge, compared to 60% of children in areas of greatest disadvantage. This highlights a need to focus education efforts on children from lower socio-economic backgrounds.

### Aim 3: Provision of swimming and water safety education

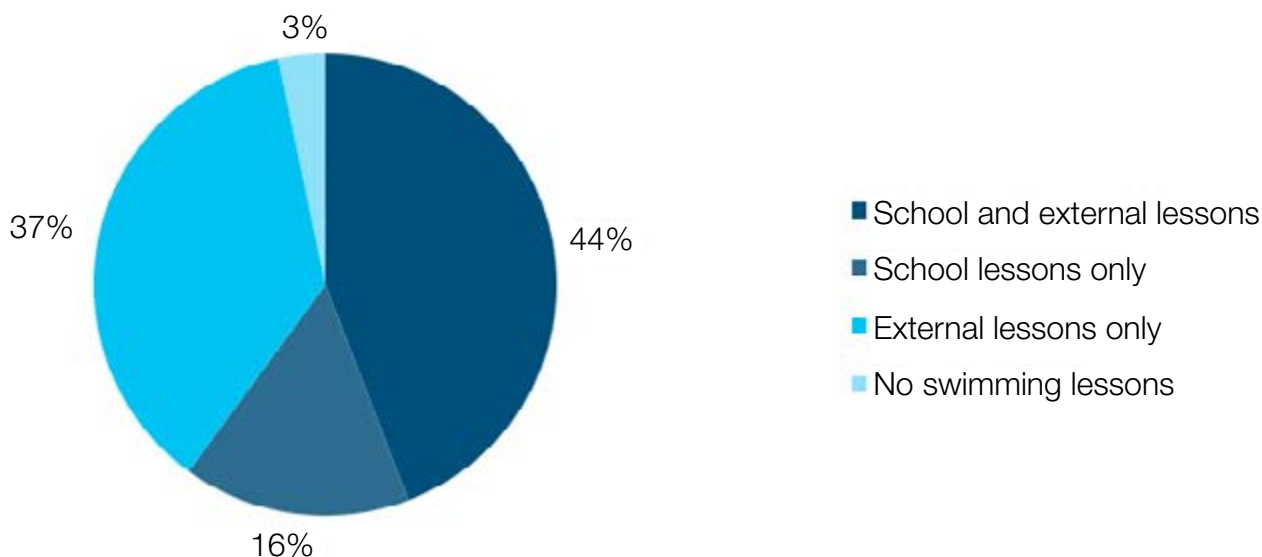
In 2012, 64% of teachers surveyed reported that their school provided water safety programs alongside, or instead of, formal swimming lessons. The most common programs provided were classroom-based water safety programs (44%) and surf/beach safety programs (35%) followed by inland waterway safety programs (14%). Schools in metropolitan areas were significantly more likely to run no water safety program at all (8.6% vs. 3.5%) and regional schools provided significantly more inland waterway safety programs (9.6% vs. 2.3%).

According to teachers, 86% of schools provided

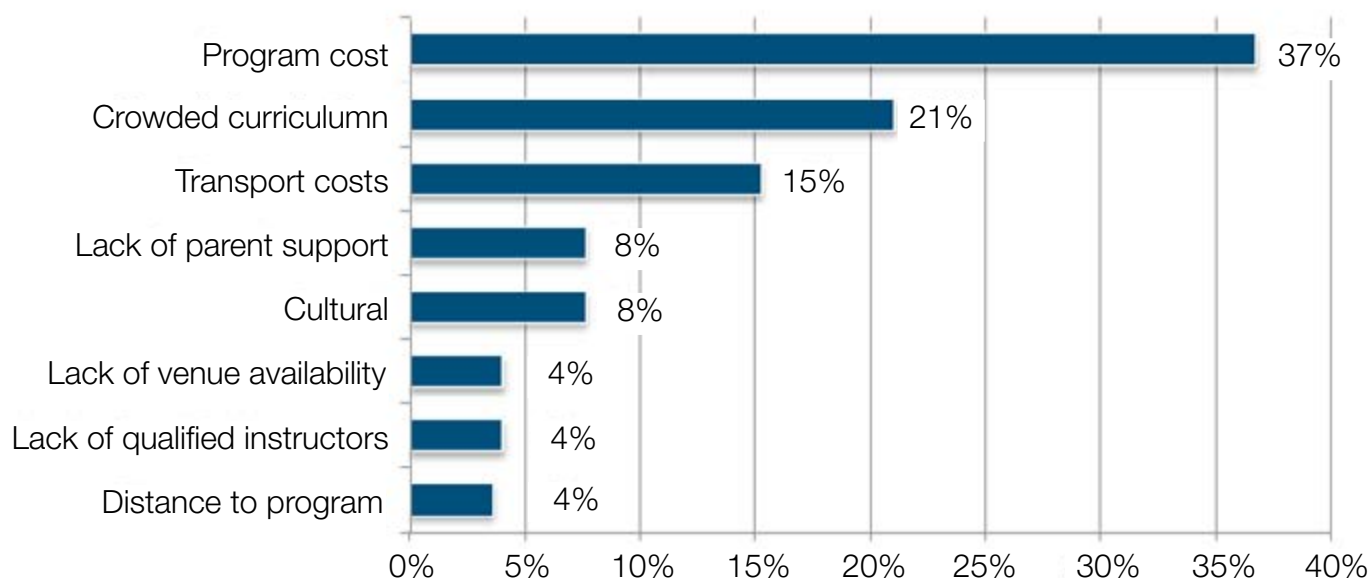
some form of swim instruction to students in Years 4-6. However, it was unknown whether or not this instruction was in the form of regular, formal swimming lessons. Swim instruction was mainly conducted at local council pools (64% of schools), private pools (17%) or another school's pool (14%). Parents reported that 81% of children had participated in swimming lessons organised externally to school whilst only 60% had had lessons organised through their school. Figure 3 illustrates the breakdown in participation by type, showing that 44% of children had engaged in both school-run lessons and lessons organised externally and that 40% had not participated in school-run swimming lessons. There was no significant effect of lesson type on reported levels of swimming ability or floating ability.

In terms of swimming frequency, parents reported that 47% of children had been swimming (in any environment, e.g. beach, pool, river, lake) at least weekly over the previous 12 months. This contrasts with data from the ABS (2012b), which found that just 26% of children aged 5-14 engaged in swimming (or diving) on a weekly or more frequent basis. Thirty-seven per cent of parents in the current study said that their child went swimming "about once a month" or less, which equates to roughly 24,500 children going

Figure 3: Year 6 student participation in swimming lessons by lesson type



**Figure 4: Barriers to school provision of formal swimming lessons**



swimming no more than a dozen times per year. As previously mentioned, these children are more likely to be unable to swim 50 metres unaided.

**Aim 4: Barriers to participation**

A number of barriers to schools engaging in swimming lessons were identified, as well as some barriers that prevent families from enrolling their children in formal swimming lessons. Over one third (37%) of schools selected program cost as the greatest barrier to schools engaging in formal swimming lessons. This barrier was significantly more common than the other main barriers: an already crowded curriculum (21%) and transport costs (15%) (Figure 4).

There were differences in the types of barriers impacting schools in metropolitan and regional areas. Whilst all schools ranked program and transport costs and a crowded curriculum as the greatest barriers, significantly more metropolitan schools highlighted cultural barriers as the main barrier (14% versus 1% regionally). Cultural barriers may include that swimming is a foreign concept and/or low priority, particularly among

children from CALD backgrounds. Regional schools also reported a lack of qualified teachers as an issue (8%), while no metropolitan schools reported this as a barrier.

Parents reported that 97% of children in the survey had engaged in formal swimming lessons at some stage, and therefore limited information was gathered on common barriers to participation for families. Seven children had never received any formal swimming lessons, with the main barriers being: the time and financial costs of lessons, lack of enjoyment of lessons, and parents preferring to teach their children themselves.

# Discussion

## Swimming ability

### *Overall assessment*

Teachers estimated that three in five Year 6 students could not swim 50 metres and that two in five were unable to float for more than 2 minutes. Parents estimated that two in five children could not swim 50 metres and that one in ten could not float for more than 2 minutes. Generally, these estimates of ability are lower than those suggested by research from RLSSA (2012a), which estimated that one in five Australian children leaves primary school unable to swim 50 metres or stay afloat for 2 minutes, which is the minimum level of competency recommended by the NSWFS. This highlights a startling need to address the extent of the gap in ability. It should be noted also that a number of research papers cite the tendency for parents to overestimate their children's abilities (e.g. Callan Stoiber, 1992; Hunt & Paraskevopoulos, 1980; Rindge, 2005; Stevenson & Lee, 1990), and it may therefore be assumed that the figures provided by parents are a best-case scenario.

People who cannot swim the recommended 50 metres or float, scull or tread water for several minutes may place their lives at significant risk should they find themselves in a hazardous situation in or around the water. In addition, swimming ability in a standard swimming pool does not necessarily translate into an equivalent ability in open water environments or in the event of an accidental entry. Therefore if children cannot swim even short distances in a swimming pool, they may be at even greater risk when recreating in open water environments such as surf beaches and lakes. Furthermore, it is important to understand that possessing these skills is not necessarily enough for a person to survive. People also need a practical knowledge of how to recognise potential dangers, behave safely around water and cope with accidental entries. This includes knowledge of hazard identification, appropriate entry and exit techniques, rescue

throws and an ability to perform survival swimming strokes whilst fully clothed. Although this study does not report directly on indicators of survival ability, it demonstrates that many children lack even basic swimming and water safety skills and thus there is a critical need to provide water safety education as well as regular swimming lessons to children in the primary school years.

While there is currently no evidence for a definitive number of lessons required for a child to become proficient in swimming and water safety, it is likely that a child needs a number of lessons over several years. A recent Australian study by RLSSA (2012a) suggested weekly participation in lessons had the most measurable impact on swimming ability. This is supported by the current study, which found that children who participated in swimming lessons on a fortnightly or more frequent basis were more likely to be able to swim 50 metres unaided. Furthermore, regular lessons improve health, fitness, and influence social, physical and psychological wellbeing as well as motor skill development (Jorgenson, 2012; Morgan, 2005).

### *CALD communities*

Most teachers believed that the swimming ability of children born outside Australia was below that of an "average swimmer". This is consistent with similar research, which suggests that children from CALD backgrounds, as well as those from Indigenous and/or low socio-economic backgrounds and remote areas are underrepresented in learn to swim programs and often do not achieve the required levels until an older age (RLSSA, 2012a). CALD communities comprise 26% of the Victorian community (ABS, 2012a) and they have been identified as being at greater risk of drowning than other communities within Australia (Australian Water Safety Council [AWSC], 2008). This is essentially because a large proportion reportedly cannot swim and often have little or no experience with Australian aquatic environments. Programs such as LSV's

multicultural aquatic education programs are a significant step towards improving this statistic; however, increased inclusion in school-based programs would reach a greater proportion of children.

Participation in organised physical activity by recent immigrants can assist in their settlement into a new country. Physical activity is not only fun and healthy, but helps people improve their language skills and assists their assimilation into the mainstream culture in a new country (Doherty & Taylor, 2007). Schools with a highly multicultural composition should be particularly encouraged to participate in school-based swimming and water safety education programs and provided assistance where required. This would not only facilitate the settlement of recent arrivals, but deliver an important lifelong skill that many do not possess.

#### *Metropolitan versus regional areas*

There was no significant difference in the proportion of children who could swim 50 metres or more between children living in metropolitan areas and those in regional areas. This indicates that the problem is similar across the state and highlights a need for improved access to quality swimming lessons across Victoria. The unique issues facing children in regional areas should not be overlooked however. Rural and remote populations account for a large proportion of the drowning deaths in Victoria and have been reported to be twice as likely to drown compared to those in metropolitan areas (LSV, 2011). This is suspected to be due to those in rural and remote locations having greater access to open waterways where they face a range of specific aquatic risks and hazards that metropolitan populations commonly do not. These include dams, rivers, unpatrolled beaches and irrigation channels (AWSC, 2010). Therefore, children need to be taught to recognise common dangers, such as strong currents, submerged objects, rip currents, muddy banks and turbid water.

#### **Water safety knowledge**

The current research highlights that tens of thousands of Victorian children are potentially leaving primary school each year lacking sufficient water safety knowledge to help them avoid getting into dangerous situations in and around water and cope if they find themselves, or another person, in trouble. Children living in areas of greatest socio-economic disadvantage were more likely to lack this knowledge and attention should be focused on addressing this gap.

According to a survey of 372 Australian swim school managers (RLSSA and AUSTSWIM, 2010), by age 11 children should have a knowledge of: water safety skills for specific aquatic environments, aquatic hazards, how to read water safety signs, how to perform survival techniques and strategies, how to perform deep water exits and to tread water and float. The pilot year of the national Water Safety Quiz run by RLSSA identified areas where knowledge is lacking as: CPR, personal awareness (e.g. cold water safety) and swimming (RLSSA, 2012a). International research suggests that this failure to meet the requirements for basic swimming ability and water safety knowledge is commonplace (e.g. ACNielsen, 2001; ASA, 2013); thus, there needs to be a commitment to teaching these skills to children from a young age.

Drowning among children and adolescents occurs in a variety of environments and circumstances, making prevention a significant challenge. This further illustrates the need to provide quality swimming and water safety education to children in the school years, in addition to providing safe and well-supervised locations where people can swim. Then, when faced with situations where there may be a drowning risk, these individuals will be able to make informed decisions and take appropriate actions to prevent drowning.

## Provision of swimming and water safety education

In 2012, almost two thirds of schools taught other water safety education programs alongside, or instead of, formal swimming lessons. The most popular were classroom-based water safety programs and surf/beach safety programs. However, one third of Year 6 students missed out on receiving classroom-based water safety education, some of whom would also not have participated in formal swimming lessons.

### *A lifelong skill*

Swimming is “the only sport that can save lives and prevent unnecessary deaths. It has a lasting legacy throughout later life” (ASA, 2013, p. 4). This is particularly so in Australia given our love of water sports and recreational activities and our unique access to a range of aquatic environments. It is essential that we address the issues of injury prevention and particularly, swimming and water safety education in order for children to enter adolescence and adulthood equipped with at least a basic swimming ability and the necessary hazard identification and survival skills to enjoy Australia’s outdoors safely throughout their lives. The International Life Saving Federation (ILSF) also recommends that “accessible and affordable training in water safety and swimming skills should ideally be made available for everyone, particularly children, in all countries, to a level consistent with the ILSF’s international water safety and swimming education guidelines” (2007, p. 376). These recommendations come regardless of the person’s ability and background and should be a right for everyone.

The ILSF (2000) suggests that children aged 11 to 12 years should be able to swim 50 metres, to scull, float or tread water for 3 minutes, enter deep water using a feet first entry, perform a throw rescue and answer questions on water safety and personal survival techniques. This should enable them to recognise potential dangers, reduce risk-taking behaviours and cope with accidental entries (of oneself or another person) whilst fully clothed.

Some researchers suggest that, on a population scale, increased swimming ability could actually lead to a higher drowning rate as a result of increased exposure to water (including at unpatrolled beaches or remote rivers) and increased risk-taking behaviour (Brenner et al., 2003). However, many drowning incidents occur as a result of accidental entries into the water (slips, trips and falls), and better swimmers are more likely to survive such incidents. In fact, unintentional entries (slips/trips/falls) accounted for 40% of all drowning deaths in Victoria over the past decade (LSV, 2013). Furthermore, parents who over-estimate their children’s swimming ability are likely to be less vigilant when their child is in or around water, putting them at heightened risk of drowning (Brenner et al., 2003). This demonstrates the value of providing quality water safety education to children from an early age. They may also pass on this vital information to their parents as children have the potential to influence their family’s behaviour.

### *The case for teaching swimming and water safety in the primary school years*

The increased drowning rate in later adolescence further supports the idea of providing swimming and water safety education from an early age. Studies indicate that children should be taught basic swimming and water safety skills in the primary school years as this is the ideal time to target children in order to create lasting behavioural patterns (RLSSA, 2012b). Between the ages of 5 and 12, children are more eager to learn new skills and are forming lifelong behavioural patterns. By the time they move through adolescence they may display self-consciousness towards learning new skills and have developed body awareness issues and/or a fear of the water (ASA, 2013). Parents, grandparents and carers are also very important in ensuring that children in their care participate in swimming lessons. They should be models for safe behaviour in and around water and in unfamiliar aquatic environments.

### *The case for in school provision of swimming lessons*

Forty per cent of parents said their child had not participated in a school-run swimming program and over 10% of schools surveyed reportedly did not run a program. This may be an underestimate, because it is conceivable that teachers in schools that did not run swimming and water safety education programs were less likely to have participated in the survey. The case for in-school provision of swimming and water safety education is strong. If included as part of the school program, it would be easier for children to attend lessons as it forms part of their weekly school routine or timetable. It also enables the participation of children who may otherwise not engage in physical activity. Three areas have been identified that affect a child's physical activity – family involvement, neighbourhood characteristics and program characteristics. Children living with positive family involvement, in safe neighbourhoods and where there are

numerous opportunities and resources available are more likely to participate. Conversely, children in unsafe neighbourhoods or in families in disorder and where activities are poorly organised will be less likely to participate (Holt et al., 2009). Again, this highlights the importance of in-school provision of lessons to provide opportunities for children in a safe, organised environment.

Anecdotal evidence suggests that children from CALD, Indigenous, low socio-economic backgrounds and those in remote areas are most at risk of not receiving even basic swimming and water safety education (RLSSA, 2012b). This demonstrates a need to provide swimming lessons to these groups so they have the same opportunities as Australian born peers living in metropolitan areas.

Successful integration of swimming lessons in the school curriculum requires the facilitation of a better understanding between schools and aquatic facilities of what lesson providers should cover in lessons and what school teachers can expect from lessons. In order to achieve this it is necessary to develop resources that support facilities to provide a school aquatic education program that supports the needs of schools and delivers both swimming and water safety skills.

## Barriers to participation

Despite the importance of swimming and water safety education, barriers exist that limit or prevent participation for families, schools and the industry itself. Water safety advocacy groups in Australia are concerned that access to this education is being constrained by cost and time barriers, legal liability concerns, heavy teacher workloads, inadequate staff/student ratios as well as a lack of adequately qualified staff, particularly in regional areas (AWSC, 2008; Whipp & Taggart, 2003).

### *Barriers for families*

The barriers for families to enrolling their children in swimming and water safety education must be addressed to increase the participation of young Victorians. Though few, the surveyed parents who did not enrol their children in formal swimming lessons listed the most prohibitive factors as cost (e.g. pool entry and lesson fees) and time. Surveys of the industry in Australia have also highlighted the main barriers to participation for families as: the cost of lessons and pool entry, distance to water or swimming facilities and limited access to qualified swim teachers and available space in lessons (RLSSA, 2012a). Similarly, parents in a UK study cited the two main obstacles for families as lesson affordability (40%) and schools not providing lessons (40%) (ASA, 2013). The report identified that if swimming lessons were provided through schools, children would be more readily able to participate. This is expected to have a positive impact in Victoria as well.

Certain groups in the community are faced with an even greater range of barriers to participation in swimming and water safety education. Children living in remote areas often have reduced access to safe, well-supervised facilities and qualified swim teachers as do children from CALD and low socio-economic backgrounds. The barriers faced by the latter two groups may be:

- Socio-economic – such as poor education and literacy, a general lack of access within

the community, and poverty status preventing the ability to pay for pool entry or lessons;

- Environmental – including a reluctance to leave home in an unfamiliar neighbourhood where there will be difficulties communicating, a fear of crime and violence in low socio-economic areas, the distance to a facility and a lack of transport to get there;
- Cultural and religious – such as language barriers, a lack of water safety as a priority in the home country or gender restrictions (e.g. female-only swimming lessons are required by some groups); and
- A lack social support causing feelings of isolation (Caperchione, Kolt, & Mummery, 2009; LSV, in press; Office of Multicultural Interests [OMI], 2009).

While beyond the scope of this study, it is important to note that children with disabilities also face a range of difficulties in learning to swim. Adapted aquatics programs are important for teaching swimming and water safety skills to children with disabilities, whilst allowing them to safely and successfully participate in physical activity (Lepore, Gayle & Stevens, 1998). These at-risk groups are often overrepresented in drowning statistics and there is a need for cultural and social sensitivity and prioritising the needs of these groups to provide access for all. Incorporating lessons into the school curriculum provides many children, including those with disabilities, with an opportunity they may otherwise not have.

While 60% of children had participated in lessons organised through their school, 81% had undertaken paid swimming lessons organised externally to school. These results suggest parents are filling the gaps in swimming and water safety education provision, therefore increasing the economic burden on families. This also means that those without the resources to pay for their child to have lessons will miss out, potentially increasing the health inequality for

those from low socio-economic backgrounds and CALD communities. Therefore these groups must be considered a priority for addressing gaps in swimming and water safety skills provision. Further, preliminary research by LSV revealed that of 128 adults surveyed, 75% had lessons in primary school and 45% had paid swimming lessons. This was reversed in their children aged 0-14 years in 2012, with 56% having lessons at primary school, and 91% having paid lessons. These findings suggest that provision of swimming lessons through the school system has decreased and that parents with the means are filling the gap (Matthews, 2012).

Parents, particularly those from CALD communities, should be included in discussions on drowning risk and the importance of parental supervision into the primary school years to coincide with a child's swimming and water safety education. This is because parents can be relatively poor judges of their child's swimming ability and may underestimate their capacity to prevent themselves from drowning (Morrongiello, Sandomierski, Schwebel, & Hagel, 2013). There are also benefits for parents who may not be able to swim as they could be provided opportunities to learn about water safety and how to swim themselves. This would promote active participation between parents and children and also provide parents with the skills to prevent their child getting into hazardous situations around water, or assist them if they do get into trouble.

### *Barriers for schools*

The teacher survey identified the greatest barrier to schools participating in formal swimming lessons as program cost, followed by an already crowded curriculum and transport costs. These findings are not dissimilar to previous studies. For example, a survey of primary school teachers and stakeholders from Australian state/territory departments identified major barriers as: cost of pool entry and transport, an already crowded curriculum, a lack of qualified staff to

provide instruction and supervision, a lack of access to water space and the need to take a risk management approach (RLSSA, 2012a). The issues of cost (of lessons and transport to a venue) require significant attention in order to improve access for all children. RLSSA has committed to exploring options for increased collaboration between schools and the learn to swim industry. This includes ensuring that swimming and water safety education programs align with school terms and addressing gaps in delivery among certain populations (RLSSA, 2012a). LSV is investigating the feasibility of establishing a program that provides swimming and water safety education before school and/or through outside school hours care programs.

This study highlighted the lack of qualified swim teachers as an issue, particularly for schools in regional Victoria. Further work is required to grow the number of people trained as qualified teachers of swimming and water safety in regional areas. Cultural barriers in schools in metropolitan areas also need addressing to increase participation among children from CALD communities. Strategies may include educating the school community (particularly CALD groups) on the value of learning to swim, and accommodating cultural needs by providing female-only lessons.

### *Industry barriers*

The aquatics industry itself faces impediments to the provision of swimming and water safety education. Again, the main barrier identified in previous studies is the cost of providing subsidised programs to school groups. Another barrier is sacrificing water space for lessons at the expense of more lucrative activities such as aqua aerobics. Furthermore, the aquatics industry and local government cite rising costs of water, energy and labour as contributing to increasing costs of access (RLSSA, 2012a). LSV will continue to collaborate with schools and the industry to develop innovative solutions to address these barriers.

## Study strengths and limitations

This study is the first to provide an assessment of the swimming ability of Victorian children. However, it did not provide a direct assessment of swimming skills due to limitations in the availability of this information. Standardisation of assessment is problematic because assessment of competencies is largely subjective. For example, a pilot project run by RLSSA (2012a) that assessed swimming ability of children in the ACT identified a number of variables that impacted upon consistent assessment including the instructions given to students, the order in which the skills were tested and when the assessment was conducted (e.g. beginning or end of the lesson). More work is required to provide a direct assessment of children's swimming ability. LSV will collaborate with industry, universities and schools to work towards making this research feasible.

The survey sample was representative of the wider Victorian community in terms of respondents' age range, place of residence and country of birth, and for schools, by SEIFA and school type. Females were overrepresented in both surveys, as were parents living in areas of higher socio-economic advantage. The parent surveys were largely collected at the Royal Melbourne Show, which may be more likely to be attended by active families with the resources to attend such events with their children. This may explain why the parent sample was skewed towards areas of higher socio-economic advantage, with 47% of respondents residing in areas considered in the top three levels of advantage (on a scale of 1-10), and just 14% within the three most disadvantaged levels.

The parent sample may have represented a more active section of the community as indicated by the reported frequency with which they said their children had been swimming in any environment, with 45% saying they had been at least weekly all year. While this may be accurate given that

most children surveyed had had swimming lessons, which typically occur on a weekly basis, it contrasts with data from the ABS (2012b), which found that just 26% of children aged 5-14 engaged in swimming (or diving) on a weekly or more frequent basis.

Parents reported that 97% of children had engaged in formal swimming lessons in their lives, and therefore limited information was obtained on the barriers that prevent participation. Again, this high proportion is likely the result of the survey collection methods, with potentially more active families from areas of higher socio-economic advantage. Whilst attempts to reach a broader cross-section of the Victorian community were made through attendance at multicultural water safety education programs and shopping centres, future assessments should target a wider segment of Victoria in terms of socio-economic advantage, cultural background, and those with disabilities.

For the teacher survey, 12% of teachers surveyed said their school didn't provide swimming lessons. This may be an underestimate, because it is conceivable that teachers in schools that do not run swimming lessons were less likely to participate in the survey.

Despite the limitations, this study highlights a significant issue. The status of Victorian children's swimming ability would almost certainly be worse if it included a higher proportion of families from areas of lower socio-economic advantage as well as more families from CALD, regional and Indigenous communities. In addition the situation may also be worse if teacher estimates of student ability are found to be the most accurate. Previous studies have reported a tendency for parents to overestimate their children's abilities (e.g. Callan Stoiber, 1992; Hunt & Paraskevopoulos, 1980; Rindge, 2005; Stevenson & Lee, 1990). Further studies are required to directly assess student swimming ability as mentioned above.

# Recommendations

The recommendations provided below are designed to initiate discussion and planning to address the lack of swimming ability and water safety knowledge among Victorian primary school students. Recommendations are based on the results of this report and feedback provided through consultation with the aquatic industry, education sector and local councils. It is important to note that while the research project focussed on particular swimming skills and general water safety knowledge these are not the only skills required for drowning prevention. The ILSF (2007) suggests that children aged 11-12 years should be able to continuously swim 50 metres (using a number of strokes), scull, float or tread water for 3 minutes, enter deep water using a feet first entry, perform a throw rescue, fit a lifejacket correctly and answer questions on water safety and personal survival techniques.

## 1. Swimming and water safety education should be a compulsory skill taught at school

Every child has the right to access swimming and water safety education and the school setting is the ideal environment in which to provide this. Therefore, it is LSV's position that swimming and water safety education should be made compulsory within the school curriculum, ideally at the primary level. The complexities of achieving this are recognised and innovative solutions are therefore required.

### EXAMPLE ACTIONS

- Investigate the provision of swimming and water safety education before school or even through outside school hours care programs
- Create targeted opportunities at schools in low socio-economic areas and with a high percentage of CALD communities.

## 2. Impart upon all aspects of the community the importance of swimming and water safety education for all

In order to reduce the drowning rate in Victoria, it is imperative that participation in aquatic education is increased. Therefore, schools, teachers and parents need to be informed about the importance of their children receiving aquatic education. Children need to be taught these valuable lifelong skills at an early age so they are equipped to deal with future dangerous situations in and around water, in turn building personal and community resilience. The value of learning these skills is further demonstrated by those drowning due to unintended water entry as a result of slips, trips and falls.

### EXAMPLE ACTIONS

- Continued forums and engagement with schools, parents and the aquatic industry and active messaging through targeted campaigns and media.
- Clearly identify for the public what aquatic education involves i.e. that swimming lessons should include swimming and water safety skills not just swim stroke development and swimming distance.
- Increased promotion of existing State Government initiatives including the Victorian Water Safety Certificate; a valuable tool for schools, teachers and parents to highlight the recommended benchmark skills for children leaving primary school.

### 3. Develop a consistent definition of what comprises effective swimming and water safety education to better inform the community.

Expert discussion is needed to define the ideal swimming and water safety aquatic education program to deliver children with the skills for drowning prevention. The industry can then work to change the Australian perception of what it means to be competent in aquatic environments. Communities need to understand that swimming and water safety education is not just about competitive swimming strokes, stroke correction and swimming distance; but in order to prevent drownings, survival swimming and water safety knowledge (danger and hazard identification) is imperative. This will equip a person with skills and knowledge that will assist them should they encounter dangerous situations in and around water.

#### EXAMPLE ACTIONS

- *Consult with industry and aquatic safety experts through forums or conferences to define competencies required.*
- *Review research to ensure an evidence-base for the most appropriate type of swimming and water safety education to provide ideal educational and learning outcomes.*

### 4. Develop innovative solutions to address barriers to participation in aquatic education

Increased collaboration between schools, the aquatic industry and government is required to establish innovative solutions to common barriers to participation. This includes the initiation, funding and support of school aquatic education programs and in particular, increasing the provision of lessons for access by children from low socio-economic, CALD, Indigenous and regional communities. Adapted programs for those with special needs should also be promoted further.

#### EXAMPLE ACTIONS

- *Encourage all levels of government to assist in funding school swimming programs by meeting a proportion of the cost for every student, including transport costs. In addition, provide discounts for students on health care and pension benefits.*
- *Focus on presenting water safety knowledge and lifesaving fundamentals where access to water means swimming 'skills' cannot be taught.*
- *Encourage innovative programs, such as programs sponsored by industry that provide free swimming lessons to all children of a certain age group who receive an Education Management Allowance.*

### 5. Campaign that practical aquatic education be re-introduced as a compulsory aspect of teacher training in all Physical Education tertiary courses.

All physical education teachers in training should hold a teacher of swimming and water safety qualification. Cooperation with industry is needed to establish a modified, cost-effective, time-efficient method to continue providing this. This will enable more teachers to coordinate and deliver aquatic education and provide a variety of aquatic activities for their students. Incorporating aquatic education into Physical Education teacher tertiary courses would also serve to impart general knowledge and appreciation for the importance of all students learning swimming and lifesaving skills.

#### EXAMPLE ACTIONS

- *Support for a 1-day teacher of swimming and water safety course specifically for teachers, as is being delivered in NSW.*
- *Develop online learning components for teacher of swimming and water safety courses.*

## 6. Develop curriculum resources that support in-school delivery of aquatic education

The aquatics industry should continue to heavily promote existing innovative curriculum materials and initiatives that are comprehensive, engaging and designed to empower and support classroom teachers to incorporate water safety education in the school curriculum. Providing children the opportunity to physically practice the fundamental movement skill of swimming is essential; however, classroom based aquatic education programs focussing on risk identification, behaviour modification and basic survival skills can reinforce swimming and lifesaving skills practiced in the pool. The continued and expanded delivery of these programs, particularly in regional areas, is a vital aspect of extending student learning from the pool into the classroom.

### EXAMPLE ACTIONS

- *Increased marketing of existing classroom materials.*
- *Promotion of classroom resources for integration into AusVELS that focus on aquatic education theory.*
- *Introduction of a school aquatics-focused conference to provide further support as well as professional development opportunities for school teachers who deliver aquatic education.*

## 7. Increase the provision of training and support for teachers of swimming and water safety

There is a need to grow the number of people trained as teachers of swimming and water safety and provide a consistent approach for increased professional development for existing swim teachers, particularly in regional communities. State-wide consistency in knowledge and ability among entry level teachers should be ensured. For facilities this will assist their capacity to deliver aquatic education programs. For teachers this will assist with engagement and delivery.

### EXAMPLE ACTIONS

- *Create avenues for people in transition to retirement to become teachers of swimming and water safety.*
- *Promote those centres that provide professional development.*

## 8. Ensure participation in swimming and water safety education is conducted in safe environments for all involved

It is essential that risk management practices are included in the delivery of every swimming and water safety program to minimise risk to participants, teachers and schools. The aquatics industry, schools and government should assist with the ongoing review and promotion of existing Department of Education and Early Childhood Development risk management tools.

### EXAMPLE ACTIONS

- *Ongoing review and promotion of existing risk management tools.*
- *Development of a clear, easy to use online risk assessment application for teachers and schools based on current risk management principles.*

## 9. Develop standardised aquatic education reporting systems

Schools, industry and government should work to provide a standardised, simple approach to the reporting of swimming and water safety skills of children. This would enable more accurate measures of skill and would also facilitate monitoring of change in skill levels as a result of the implementation of strategies to address the lack of swimming and water safety skills among many Victorian children. Linking such records to schools would provide a further risk management strategy for those schools undertaking various aquatic activities and excursions as they would have an independent measure of a child's swimming and water safety skills to enable appropriate management of children with different levels of competence.

### EXAMPLE ACTIONS

- *Support the development of an online national database such as the existing Water Safety New Zealand model.*

## 10. Undertake further research

Further research is required to determine the most effective methods to increase participation levels, to provide direct assessments of children's swimming and water safety skills and to improve the quality of program delivery. Findings would guide parents, schools, industry and government as to the most appropriate swimming and water safety provision.

### EXAMPLE ACTIONS

- *Determine the ideal stage for children to engage in swimming and water safety education; specifically the most appropriate type and number of lessons and the age at which lessons provide maximum educational and learning outcomes.*
- *Determine the effectiveness of programs that include water safety education (e.g. hazard identification, personal survival skills) versus those that only include swimming stroke development.*
- *Trial of a direct assessment of children's swimming skill levels to compare with reported skill levels.*

# Conclusions

At least one in three Victorian children is thought to be leaving primary school without the required skills to keep them safe in and around water for the rest of their lives. Furthermore, an estimated two in five children are leaving primary school each year without sufficient water safety knowledge to help them avoid getting into dangerous situations in and around water. If this lack of swimming ability and water safety knowledge is not addressed, the drowning rate is likely to increase across all age groups in Victoria.

LSV recommends extensive consultation between schools, industry and government to develop innovative solutions to increase participation of Victorian primary school children in swimming

and water safety education. There is a need to break down the barriers that prevent individuals, schools and the industry from participating in swimming and water safety education. The most urgent barriers are the cost of pool entry and lessons for families, the cost to schools of running programs as well as transport to facilities and an already crowded curriculum. In addition, schools in metropolitan areas also face cultural barriers and regional schools suffer from a lack of qualified teachers of swimming and water safety. LSV is committed to a greater understanding and working with stakeholders to engage children in swimming and water safety education regardless of a child's location, physical capability, cultural background or socio-economic circumstances.

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