



Water Safety New Zealand

Report and
Evaluation on

Learn to Swim and
Survive

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Introduction

For over 60 years, Water Safety NZ (WSNZ) has sought to prevent water related deaths and injury through water safety education. In the past 30 years, despite significant growth in its population, New Zealand has seen a 50% reduction in the annual number of deaths by drowning. However, there continues to be around 100 deaths by drowning each year and over 35,000 water-related injuries, at an estimated cost of \$NZ864 million.

These deaths represent the third highest cause of unintentional death in New Zealand, more than 8 percent of all deaths caused by injury. In August 2005, as part of the wider Injury Prevention Strategy, the Government released the Drowning Prevention Strategy with the aim of 'A water safe New Zealand, free from drowning' (ACC, 2005). WSNZ has been at the forefront of this initiative, which guides the work of the organisations and people who have an interest in, or are responsible for, drowning prevention and water safety.

PricewaterhouseCoopers was commissioned by WSNZ in February 2009 to facilitate their strategic planning and implementation of initiatives with regional organisations to ensure children have access to quality Swim and Survive programmes.

This report describes the WSNZ strategies to reduce New Zealand's drowning rate through Swim and Survive programmes for primary school children; gives an overview of what is happening now to ensure children can swim; discusses the challenges facing the nation in making this goal a reality, outlines the costs associated with teaching children to be safe around and in water and suggests ways the public and sponsors can help.

The Facts

On average 105 lives are lost each year in New Zealand from drowning. This represents a drowning rate of 2.7 deaths per 100,000 population; more than double that of Britain, and nearly double that of Australia and the USA. If New Zealand had the current drowning rate (deaths per 100,000 population) of:

- Australia, an additional 40 lives would be saved per annum.
- USA, an additional 50 lives would be saved per annum.
- Britain, an additional 70 lives would be saved per annum.
- Netherlands, an additional 80 lives would be saved per annum.

For every person who drowns approximately 360 more have water related injuries, over 35,000 injuries in total each year.

Drowning and serious water related injury directly affects approximately 250 families per year¹.

The economic cost to New Zealand of drowning and water related injury is estimated to be in excess of \$864 million per annum².

50% of drowning occurs when there was no intention of entering the water³.

Despite these facts:

- **Children in New Zealand are today less able to swim than a generation ago (ACNeilson, 2008).**
- **42% of schools do not have school pools (NZCER, 2009).**
- **Nearly 20% of school pools have closed in the past decade (NZCER, 2009).**

¹ PricewaterhouseCoopers, 2009

² Ibid

³ DrownBase, 2010

Drowning Prevention

WSNZ research shows that the 50% decline in the New Zealand drowning rate over the last 30 years is attributable to the delivery of programmes, initiatives and campaigns targeting:

- Learning to swim.
- Increased awareness of water safety issues.
- Fencing of pools.
- Parental supervision of babies and young children.
- Lifeguard patrolled beaches and pools.
- Wearing of life jackets.
- Alcohol consumption.

Based on that and other international research⁴, WSNZ believes the two most important factors are knowing how to be safe in, on and around water and the ability to swim. These enable people to make better decisions and, when things do go wrong, to have the best chance of surviving.

⁴ International Life Saving Federation 2010

Why is Swimming Important?

New Zealand has more than 24,000 kilometres of coastline, lakes and numerous fast flowing rivers. Our island nation has the ninth largest coastline in the world, extending over ten degrees of latitude. No place in New Zealand is more than 60 kilometres from a river, a lake or the sea.

With over 3 million New Zealanders accessing beaches, lakes and/or rivers, the aquatic environment is known to be one of the most important sites for leisure and recreation⁵. Claiming 524 lives over the last five years, this diverse environment can be as deadly as it is dramatic.

The ability to swim is not only essential for these activities to be undertaken safely, but it also provides a wide range of other direct and indirect benefits.

Swimming is a low impact activity that builds endurance, muscle strength and cardio-vascular fitness.

Unlike most sporting activities, swimming is open to almost anyone – young and old, men, women and children, both able bodied and the less able. It is the third most popular activity undertaken in New Zealand by those over 16 years of age. Only walking and gardening have greater participation rates⁶.

Children who participate in physical activity such as swimming have been shown to have an increased sense of self-worth and achieve better in school than their peers who do not participate in physical activity.

⁵ Ministry of Tourism, 2008

⁶ SPARC Active NZ Survey 2007/08

The Case for Learning to Swim and Survive

“In the time it took to answer a wrong number on the telephone our toddler had managed to squeeze through the fence and fall into the swimming pool. There was no sound, no cry for help, she silently slipped away and drowned unseen.”

“A day of family fun swimming in a popular swimming hole turned to tragedy when our son disappeared from view. It was calm and sunny but our son could not swim – his body was found two hours later.”

“We went to a great party. My mate was well away when he decided to walk home. He never made it. Police divers found his body in the harbour, he had stumbled and fallen into the water. What a waste, for the sake of a few drinks too many– he had his whole life to live.”

“The three of us decided to dive from this high bank into the river below. While two of us went to check the depth of the water, our mate just wanted to be first, raced up the bank and jumped. We yelled out ‘no!’ but it was too late – he broke his neck but lived, well sort of, he needs a machine to breath, requires 24-hour care and is paralysed from the neck down.”

“We were in a 12 foot aluminium dinghy retrieving our fishing net when we were swamped. I was wearing my life jacket but my cousin was just putting his on when the boat flipped and he lost it. We swam together towards the shore but with only about 50 metres to go we got separated. His body was found washed ashore two days later.”

These are typical examples of situations that happen each year. While drowning occurs among New Zealanders of all age groups, children under five, males, Maori and 15 – 24 year olds are over-represented.

As a cause of unintentional death among children, drowning is second only to deaths involving motor vehicles in New Zealand.

For children under the age of 14 years, accidents involving burns, falls, bikes, poisoning or choking more commonly result in injury only; drowning is more deadly (NZ Child & Youth Epidemiology Service, 2009).

For those children who survive near drowning, around 20% have permanent neurological damage (A Community-Based Approach to Preventing Childhood Drowning, 2010).

At least 80% of all drowning incidents can be prevented through people being able to swim, knowing how to survive in water when unexpected circumstances occur, and through the avoidance of aquatic hazards (International Life Saving Federation, 2007).

Analysis of the WSNZ drowning database has shown that many of the deaths by drowning could have been avoided through one or more of the following:

- Greater awareness of water safety.
- The ability to swim.
- Close supervision of children.

WSNZ is working with key stakeholders in the water safety sector to ensure that Swim and Survive programmes:

- Have a curriculum that teaches safety in, on and around water, as well as how to swim.
- Have teachers that are able to teach all components of the programme effectively.
- Are increasingly accessible for children.

In line with WSNZ's vision, 'Everyone in New Zealand will have the water safety skills and behaviours necessary to use and enjoy the water safely' and mission, 'through water safety education, prevent injury and drowning', WSNZ has set a goal to ensure every child in New Zealand is able to swim 200 metres by the age of 12 years.

The Impact of Swim and Survive Programmes

Saving Lives

In 2008, only 21% of 10 year olds were able to swim 200 metres – the benchmark for being able to swim and survive in the water. 50% could not swim 25 metres and 25% were unable to cover 25 metres of water or manage to keep afloat and tread water (Neilson, 2008). The 2008 survey showed a decline, since 2001, in both swimming ability and water safety knowledge of Year 1 to Year 8 schoolchildren in New Zealand.

In Otago, the Otago Regional Sports Trust's collaborative Swim and Survive Initiative with the Dunedin City Council and Otago University has implemented a Swim and Survive Programme that has reversed this trend over the past 18 months, raising the percentage of children in their programmes who can swim 200 metres from 21% to 59%.

If all children undertook Swim and Survive programmes now, then as adolescents and young adults, they would be equipped to make better choices and be better able to survive in, on and around water. As a result, it is likely that within the next five years New Zealand's drowning rate would fall.

The protective benefits of Swim and Survive programmes can last a lifetime. As these children become parents themselves they are likely to have a better understanding of the importance of their own children gaining aquatic skills and safety knowledge. They are also likely to have a better appreciation of the vulnerability of babies, toddlers and young children unsupervised in, on and around water. The under fives, as a proportion of the population still have the highest rate of drowning.

Not only do these children derive positive benefits from learning to swim, but also their friends and families avoid the pain and suffering caused through drowning and water-related injury.

Costs

Providing basic Swim and Survive programmes for all children in years 1-6 so they understand how to be safe in, on and around water and are able to swim 200 metres is estimated to cost \$200 per child per annum for six years. In contrast, the estimated cost to New Zealand of one person drowning is over \$3.5 million, receiving a serious water-related injury is over \$340,000, or receiving a minor water related injury is over \$13,600. (PricewaterhouseCoopers, 2009).

WSNZ Strategy

Leadership and Co-ordination

In 2008 WSNZ established the National Learn to Swim Committee with the specific purpose of providing a strategic and co-ordinated approach to increasing the percentage of children who can swim. The Committee, which includes the NZ Swim Coaches and Teachers Association, the NZ Recreation Association, Swimming NZ and WSNZ, leads the water safety sector's strategic approach in providing effective swim and survive education to children.

Through the committee WSNZ has established and championed the nationally-led, regionally-driven approach to ensure children have access to Swim and Survive programmes. This has involved working closely with Regional Sports Trusts, Territorial Local Authorities, School Principals and Community Partners to support the establishment of a managed approach to water safety education with appropriate resources to ensure accessibility for all children in years 1-6.

WSNZ is raising the awareness of the need for better infrastructure to support all children being able to learn to swim. This has commenced by encouraging all regions to develop asset management plans in relation to swimming pools.

WSNZ is also providing guidance on setting the standards schools should adopt for their aquatic education or water safety programmes. The Skills Achievement Framework sets the benchmarks and pathway for what children should be able to achieve as they progress to swimming 200 metres.

Facilitation and Support

Regional Sports Trusts, Territorial Local Authorities and Schools can all play a part in enabling children to learn to swim and survive. To ensure the best use of infrastructure, funding and resources to make the programme affordable for all year 1-6 children, WSNZ:

- Supports and encourages regional initiatives by facilitating collaboration between agencies, and provides resources and funding where required.
- Provides funding for the professional development of school teachers (in 2010, 1,200 teachers attended Swim Start (SNZ) courses to gain the requisite skills to teach swimming to children.
- Targets additional resources where they are most needed.

Advocacy and Promotion

Since there is no single government agency responsible for drowning prevention, WSNZ adopts an all-of-government approach to advocating for, and promoting the benefits of, children learning to swim and survive.

Sustainability and Quality

Sustainability of the Swim and Survive Programmes depends on five prime factors:

1. Accessibility to suitable facilities

WSNZ has undertaken a stock take of school pool facilities and other community swimming pools. Many school pools are in need of refurbishment or replacement and are not fit for the purpose of teaching children to swim effectively. WSNZ is in the process of GIS mapping all school and public swimming pools and overlaying this with population data to identify areas most in need of additional facilities and support.

2. **Ongoing commitment of schools and their boards to implement programmes**

WSNZ works with schools, Regional Sports Trusts and TLAs to gain commitment to swimming as part of the curriculum.

3. **Parental/caregiver support**

At a national level, WSNZ seeks to engage the support of parents and caregivers through targeted social marketing campaigns. At a regional level, support is further encouraged by surmounting potential barriers; e.g. subsidising transport to pools for all children, togs where children do not have any, and specially tailored tuition for those children with special needs.

4. **Adequate funding**

WSNZ currently provides over 25% of its funding to support regional Swim and Survive initiatives for children and also provides support to regions to obtain additional regional-based funding. However, to enable every child in New Zealand to be able to swim 200 metres and have the necessary education to be safe in, on and around water, further capital and operational funds will be required, particularly for improving accessibility to suitable facilities.

Quality management is achieved by WSNZ's ongoing research, monitoring, analysis and evaluation of the Swim and Survive programmes, student progress (achievement levels captured in the Sealord Swim For Life Database) and the professional development of teachers through the internationally acclaimed AustSwim programme.

The Way Forward

If WSNZ is to further reduce drowning, there needs to be nationwide commitment to ensure every child by the age of 12 is able to swim 200 metres and understands the essentials of water safety.

Short term (1-2 years), such a commitment requires:

- A curriculum for years 1-6, with consistent standards for aquatic education and comprehensive coverage of water safety skills.
- Increased investment in professional development for teachers in Swim and Survive, for up to 2000 teachers per annum.
- Investment in school and public pools to maintain/build the required infrastructure, targeted initially at those areas of greatest need.
- Better utilisation of existing facilities, resulting in improved return on investment and reduced demand for new capital investment.
- Increased awareness, both within the community and central government.
- Delivery of quality programmes through professional swimming instructors working alongside teachers; in suitable facilities sufficient for children to have a minimum of ten lessons per annum; supported by the collection and analysis of achievement data to ensure the programmes are producing the desired outcomes.

Medium term (3-5 years) requirements are:

- The adoption of the Swim and Survive curriculum by all primary schools.
- Increased investment in further research into drowning prevention and provision of resources, including maintenance of school pools, funding of transport, and equipment.
- Management of the redevelopment of school pools to maximise their use.
- Ongoing analysis of programme effectiveness and introduction of any changes required to further improve outcomes.

Ideally, the Swim and Survive curriculum should be extended to those in years 7-10, focussing on maintaining swimming stamina, introduction to water sports and further safety in water. This would reinforce messages as students enter the most at-risk age group, 15 to 24 year olds.

Longer term, the focus will continue to be on access to Swim and Survive programmes; quality of the teaching; and the further development and revision of the curriculum in response to the research and analysis of outcomes and updates in pedagogy in this field.

Costs

The high level cost model below shows projected costs over 5 years of providing 360,000 schoolchildren in years 1 -6 with 10 x 0.5 hour swimming lessons plus 1 x 0.5 hour assessment session per annum. In addition to maintaining existing school pools, the model introduces 10 new static pools and 10 portable pools each year.

This model shows, that based on the underlying assumptions stated, the annual costs of providing these lessons along with the proposed capital expenditure and maintenance plan over a five year period, ranges between \$27.8m and \$29.4m. Cumulative costs over those five years are approximately \$144m.

Whilst this is undoubtedly a substantial cost for WSNZ and for which it does not yet have sufficient funding, it is still significantly less than the costs of not undertaking such lessons. These are outlined in the introduction to this report and estimated at \$864m in relation to the current costs of drowning and water-related injuries each year.

It is not expected that by undertaking the education programme outlined herein, all drowning and water-related injuries will be eliminated. However based on the projected annual costs of undertaking the programme outlined herein, a reduction of less than 5% in the costs of these drowning and water-related injuries each year is all that is required to compensate for the additional costs of the programme.

However it is also important to note that the work of WSNZ has been a major contributing factor to the drowning rate being halved since the 1980's despite a rising population in New Zealand. It is imperative therefore that this work and funding for it continues so as to maintain the momentum that has been gained over the last 30 years.

Assumptions and notes on the model are shown below and the model is shown overleaf.

Assumptions

Of approximately 2,000 primary schools, 30% have their own working pool. The remaining 70% travel to a local public pool, thereby incurring pool entry fees and transport costs.

In addition to annual maintenance, 600 existing school pools require refurbishment after 30 years to extend their life by a further 20 years after which they need total replacement. Given an even annual distribution, 20 pools p.a. (600 / 30) will need to be refurbished and 12 p.a. (600 / 50) will need replacement. See next page for Notes to Cost Model.

Notes to Cost Model

- (1) Programme management overhead at \$250K p.a. + 3% p.a.
- (2) 25 regional co-ordinators at \$80K + 3% p.a.
- (3) Lessons delivered by swim tutor at \$25 p.h. + 3% p.a.
- (4) Lessons delivered by school teacher at no cost
- (5) For lessons in public pool, entry fee at \$20 p.h. (\$1 per child, 10 children per 0.5 hour class) + 2.1% p.a.
- (6) For lessons in public pool, transportation at \$30 per return trip + 2.1% p.a.
- (7) Equipment at \$5 p.h. + 2.1% p.a.
- (8) 1,500 teachers at \$50 + 2.1% p.a.

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- (9) 1500 teachers at \$50 + 2.1% p.a.
 - (10) Annual software licence
 - (11) 600 school pools + 20 new pools p.a. maintained at \$5K per pool + 2.1% p.a.
 - (12) One-off software purchase
 - (13) 20 new pools p.a. (10 static at \$500K each + 10 portable at \$50K each) + 2.1.% p.a.
 - (14) 12 replacement pools p.a. at \$500K per pool + 2.1% p.a.
 - (15) 20 refurbished pools p.a. at \$40K per pool + 2.1% p.a.

		Year 1		Year 2		Year 3		Year 4		Year 5	
No. of school pools		600		620		640		660		680	
Programme mgmt/delivery	Note	\$000s									
Management overhead	1	250		258		266		274		282	
Coordinator	2	2,000		2,060		2,122		2,185		2,251	
Group		%	students								
School pool / swim tutor		15	54,000	15	54,000	15	54,000	15	54,000	15	54,000
School pool / school teacher		15	54,000	18	65,880	22	77,760	25	89,640	28	101,520
Public pool /swim tutor		35	126,000	35	126,000	35	126,000	35	126,000	35	126,000
Public pool /school teacher		35	126,000	32	114,120	28	102,240	25	90,360	22	78,480
Swimming Class		Sp.h.	\$000s								
Swim tutor	3	25	2,250	25.8	2,318	26.5	2,387	27.3	2,459	28.1	2,532
School teacher	4	0	0	0	0	0	0	0	0	0	0
Pool entry fees	5	20	2,520	20.4	2,452	20.8	2,379	21.3	2,303	21.7	2,222
Transportation	6	30	3,780	30.6	3,677	31.3	3,569	31.9	3,454	32.6	3,333
Equipment	7	5	900	5.1	919	5.2	938	5.3	958	5.4	978
Assessment Class		Sp.h.	\$000s								
School teacher		0	0	0	0	0	0	0	0	0	0
Pool entry fees		20	252	20.4	245	20.8	238	21.3	230	21.7	222
Transportation		30	378	30.6	368	31.3	357	31.9	345	32.6	333
Professional Development		\$000s		\$000s		\$000s		\$000s		\$000s	
Manual	8	75		77		80		82		84	
School teacher Development	9	75		77		80		82		84	
Maintenance		\$000s		\$000s		\$000s		\$000s		\$000s	
CRM system	10	10		10		10		10		10	
School pool	11	3,000		3,165		3,336		3,512		3,695	
Capital Expenditure		\$000s		\$000s		\$000s		\$000s		\$000s	
CRM system	12	50									
New school pools	13	5,500		5,616		5,733		5,854		5,977	
Replacement school pools	14	6,000		6,126		6,255		6,386		6,520	
School pool refurbishment	15	800		817		834		851		869	
Total annual costs		27,840		28,184		28,582		28,985		29,393	

Appendix: Restrictions

- This Report has been prepared solely for Water Safety New Zealand and for the purposes stated herein and should not be relied upon for any other purpose.
- To the fullest extent permitted by law, PwC accepts no duty of care to any party other than Water Safety New Zealand in connection with the provision of this Report and/or any related information or explanation (together, the “Information”). Accordingly, regardless of the form of action, whether in contract, tort (including without limitation, negligence) or otherwise, and to the extent permitted by applicable law, PwC accepts no liability of any kind to any third party and disclaims all responsibility for the consequences of any third party acting or refraining to act in reliance on the Information.
- We have not independently verified the accuracy of information provided to us, and have not conducted any form of audit in respect of the matters herein. Accordingly, we express no opinion on the reliability, accuracy, or completeness of the information provided to us and upon which we have relied.
- The statements and opinions expressed herein have been made in good faith, and on the basis that all information relied upon is true and accurate in all material respects, and not misleading by reason of omission or otherwise.
- The statements and opinions expressed in this report are based on information available as at the date of the report.
- We reserve the right, but will be under no obligation, to review or amend our Report, if any additional information, which was in existence on the date of this report was not brought to our attention, or subsequently comes to light.
- We have relied on forecasts and assumptions supplied by representatives and management of Water Safety New Zealand concerning future events which, by their nature, are not able to be independently verified. Inevitably, some assumptions may not materialise and unanticipated events and circumstances are likely to occur. Therefore, actual results in the future will vary from the forecasts upon which we have relied. These variations may be material.
- This report is issued pursuant to the terms and conditions set out in our original Engagement Letter and the Terms of Business attached thereto.

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