

Water Safety and Aquatic Survival

Every year, it is estimated that over 400,000# people drown which makes drowning the second leading cause after road traffic injuries, of unintentional injury deaths globally (*#This total excludes drowning by floods, transport accidents or suicide.*)

Drowning rates increase in low and middle income countries. E.g., In many African nations drowning rates are about eight times higher than Australia. This is likely to be the result of the majority of drowning deaths resulting from everyday activity as compared with recreation or leisure in more affluent countries. In 2000, 129,000 drowning deaths occurred in China, 86,000 in India and around 6,500 in the USA. New Zealand has the highest rate of 1-14 year olds drowning of any OECD (Organisation for Economic Cooperation and Development) country. In most affluent countries the reasons for and statistics of drowning overall mirror that of Australia.

Identified factors by WHO (World Health Organisation) include swimming alone, drinking alcohol (including impairment of supervision of children) and boating.

Worldwide, children have the highest mortality rates.

"No one is such a good swimmer that they cannot drown".



Parental Need

By studying the statistics of drowning and near drowning, swimmers will gain a better understanding of the scenarios likely to be faced when required to respond as a rescuer. This knowledge will enable

Swim Australia Teachers to better focus on the areas of greatest need for students.

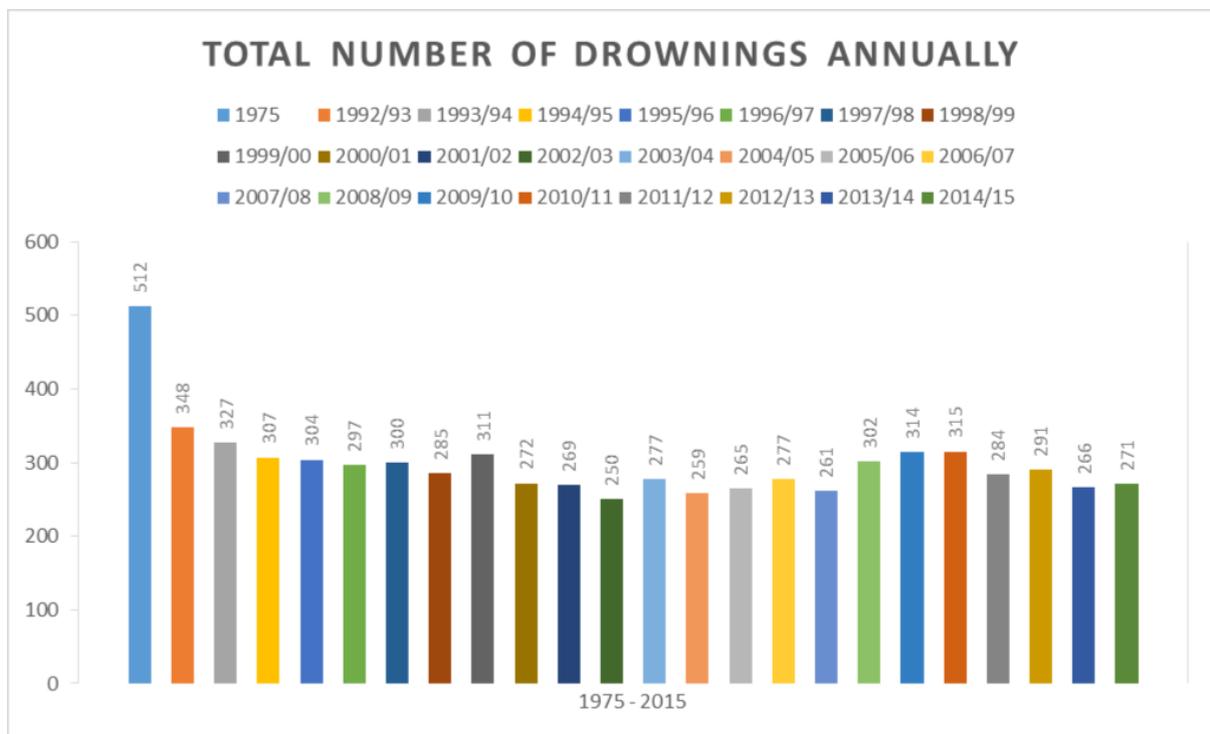
When asked why they take their children to swimming lessons, most parents respond that they do not want their children to drown. In order to teach children to “not drown”, a teacher must have an understanding of what the factors are that lead to drowning.

A study of the circumstances surrounding drowning events promotes to teachers that a holistic approach to water safety involving education of children, parents and the whole community is required.

Drowning Trends

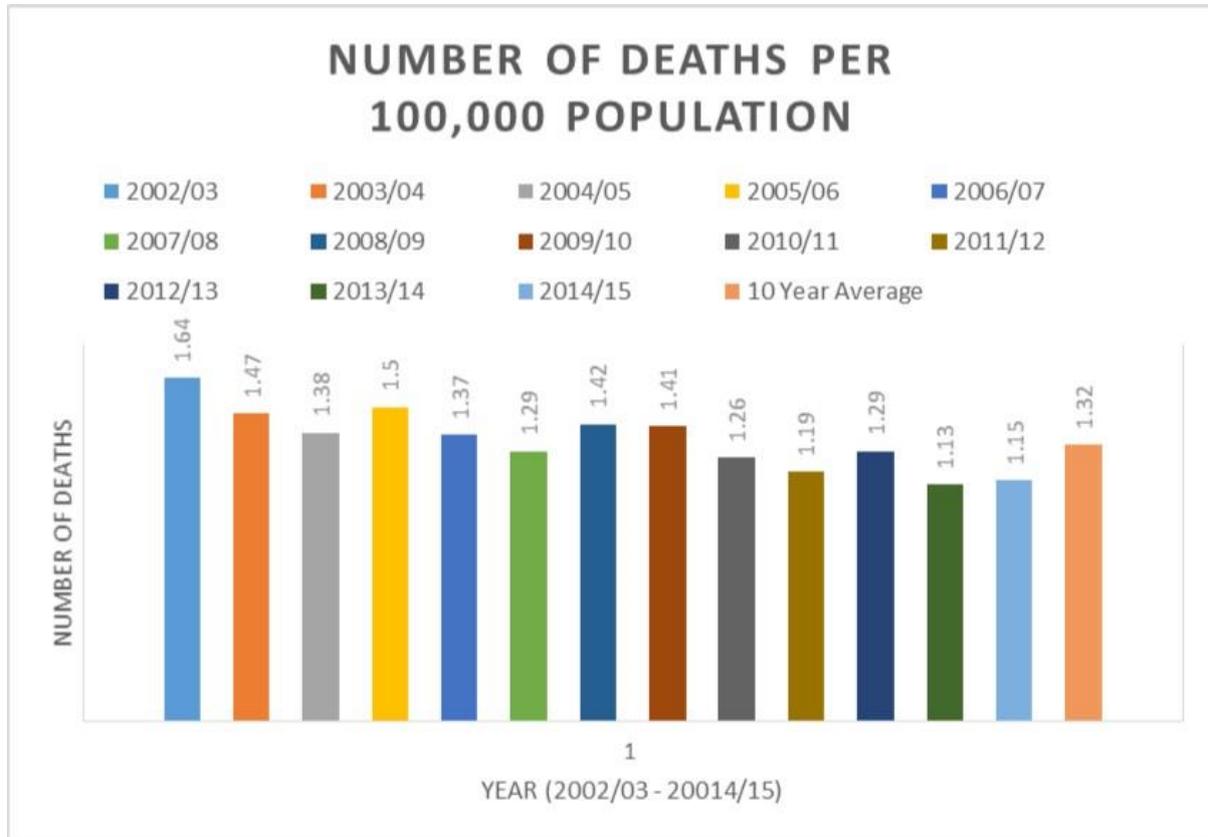
Many of the patterns evident in Australian statistics on drowning are common worldwide.

Approximately 250 - 300 people a year drown in Australia (down from over 500 in the mid 1970's).



The proactive role of volunteer lifesavers and professional lifeguards, personal water safety and community CPR programs

and personal swimming and water safety survival skills taught by teachers, all assisted in achieving this outcome.



Recently, in some states of Australia, State governments have introduced legislation and provided large amounts of funding which has had dramatic impacts upon the yearly toll. Examples of this are the pool fencing legislation in Queensland mimicked by other states; the formation of Aquatics and Recreation Victoria; boating and life jacket legislation in Tasmania and indigenous swimming programs in the Northern Territory.

Based upon statistical analysis of drowning and near drowning data education programs promoted in particular by Surf Life Saving and Royal Life Saving targeting specific user groups such as immigrant populations have reduced drowning in these groups.

The Australian Water Safety Council has drawn together most government and non-government stakeholders to create a well-documented and comprehensive national strategy to assist in driving the drowning rate even lower.

More comprehensive drowning data has become available in the last ten years. This has enabled a better understanding of the factors leading to drownings and thus directed the focus of education and training programs for the prevention of drownings.

Drowning by Age

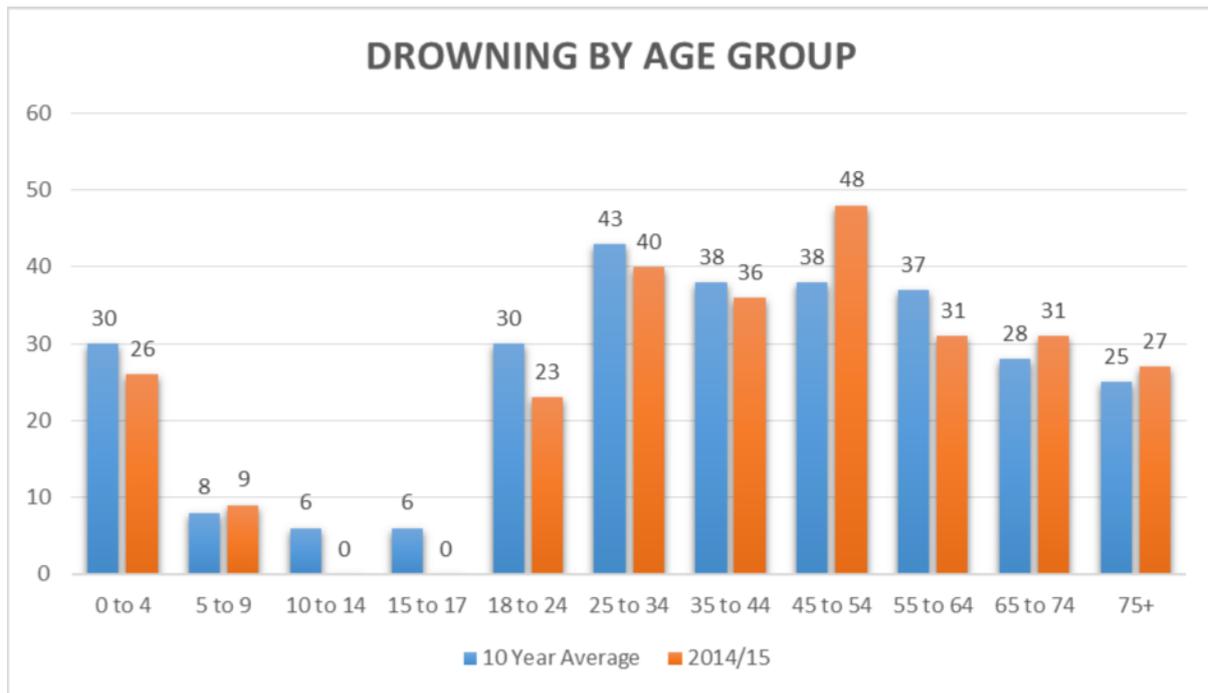
Drowning in all age groups less than 45 years of age are trending downwards whilst older age groups are constant or in the majority of cases up on the 5 year average. Males are still accounting for the highest deaths in the age group, with beaches being the location where the highest number of drownings occur in the 55+ age group.

This may reflect a more active ageing baby boomer population retiring to beach and canal side areas, an increase in the actual number of people in this age group and the fact that they are more recreationally active in aquatic environs.

Aquatic education and activity should be a whole of life experience. Currently very few teachers have specific skills and training in the adult education area. The statistics appear to indicate that this is an area still requiring community education. Alcohol and the lack of life jackets are major factors in many of the recreational activity fatalities in this age group.

In the 0 to 5 year age group drowning rates had consistently been declining in the past ten years, despite a slight rise in 2012/13. Swimming pools continue to be the location where most drownings occur in this age group.

In the 6 to 14 years age group in 2012/13 drowning reduced by 46% on the 2011/12 and is a 40% decline on the ten year average, possibly reflecting the parents educated in aquatic skills 20 years ago passing on the folklore to their children.



Assisting this result is the pervasive nature of:

- Swimming and aquatic recreation in everyday life
- Public education campaigns
- Water and personal safety instruction
- Current education systems inclusion of learn to swim and water safety programs
- Pool fencing legislation in states and barrier safety standards.

Decreasing Childhood Drownings

The prime factors in decreasing childhood drowning, the majority of which occur in swimming pools are to:

- Constantly supervise children at all times. Remember that flotation devices are no substitute for constant supervision
- Maintain fences and physical barriers to water, compliant to Australian Standards
- Maintain gate security – keep the lock operable and self-closing

- Progressively teach water familiarisation, swimming and water safety skills from birth

- Learn resuscitation skills

“Child drowning in Queensland residential swimming pools accounts for one-quarter of paediatric injury deaths and are the most common cause of traumatic death for children aged under 5 years.” “For every toddler drowning there are approximately 14 taken to a hospital emergency department”

Of note is the statistics of drowning in this young age group with containers of water. Water left in containers such as baths and ponds should be emptied out or covered to stop access.

“In Australia, the number one cause of preventable death in children under the age of five is drowning”

These two statements are powerful arguments for teaching personal water safety to preschool children, toddlers and infants.

If Swim Australia Teaches are going to provide water familiarisation, swimming and water safety tuition to infants, toddlers, preschoolers and school age children, then the parents must also be educated as they are the key to reducing drowning in early childhood.

To put it succinctly, renowned Australian swimming and water safety Teacher and former Olympic coach Laurie Lawrence promotes “Kids Alive - do the Five”.

Kids Alive, do the five,

Fence the pool, shut the gate,

Teach your kids to swim,

It's great!

Supervise, watch your mate –

And learn how to resuscitate.

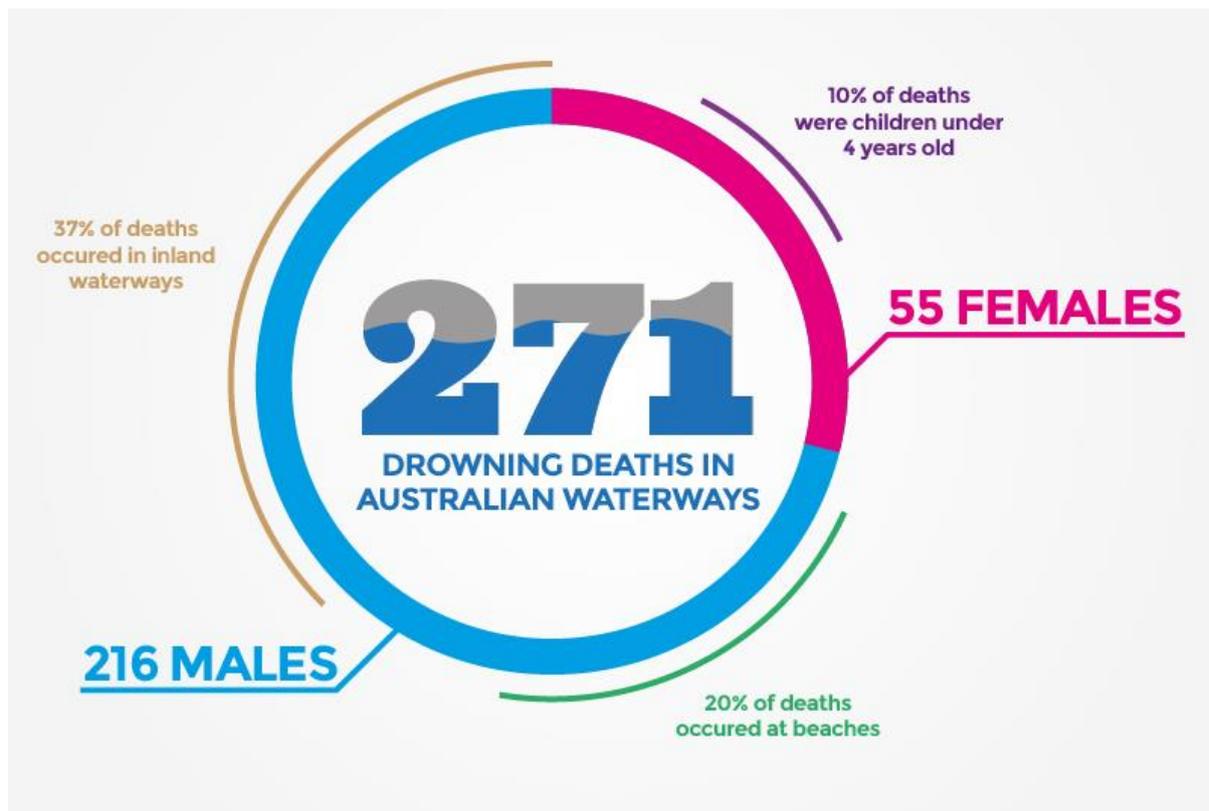


Drowning by Gender

Does this mean that males go swimming four times more often than females? No, it is probably more of an indication of the intrinsic risk-taking mentality of many males.

From a teacher's viewpoint - watch the boys in your lessons. They are more likely to over-estimate their ability and should be taught what the limitations of their capabilities are. Males tend to drown in the ocean and estuary areas, although they appear strongly represented statistically in drowning accidents involving inland waters and whilst engaged in activities like boating, fishing and SCUBA diving.

“Most females who drowned were under 5 years or over fifty four. Females were most likely to drown in private swimming pools and bathtubs and were far less likely to drown in the ocean”



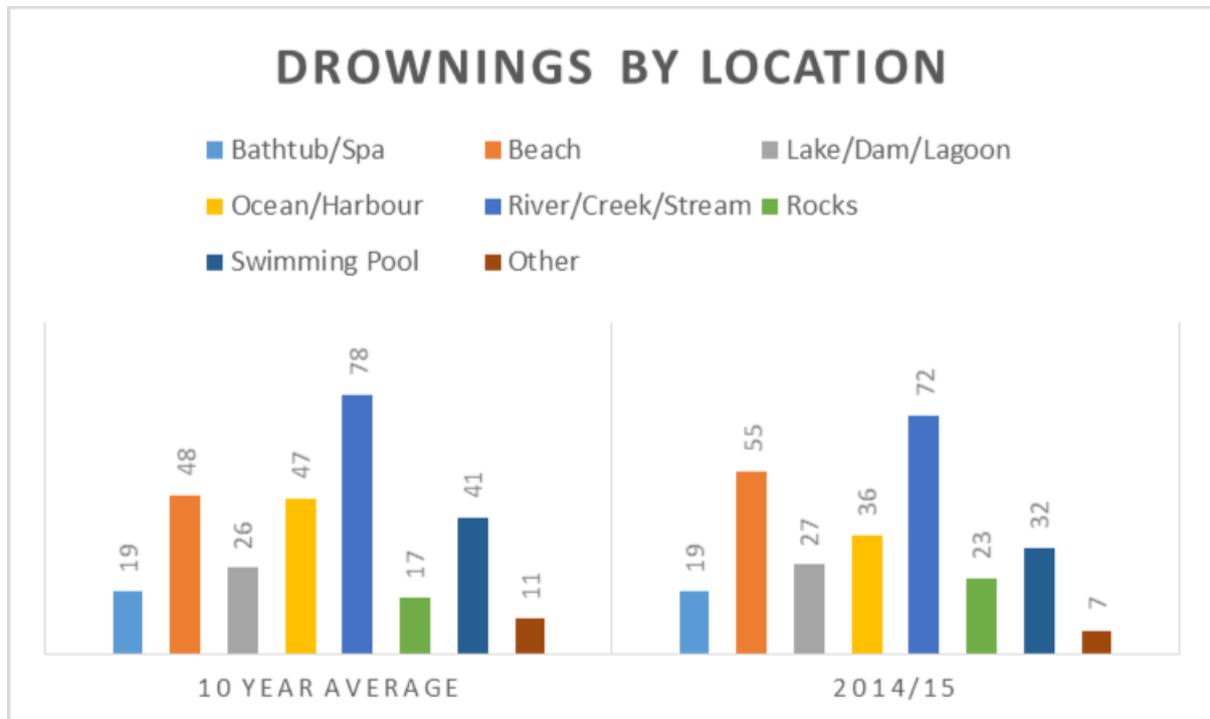
Drowning by Location

Rivers, lakes, dams and creeks are the locations where most drowning occurs. Anecdotal evidence suggests that metropolitan inhabitants are at greater risk in rural areas leading to speculation that people (three out of four being males) are at greater risk when they are away from familiar situations as they are less aware of what the dangers are.

There are a disproportionate number of tourists and indigenous people drowning. Pool lessons should not be the only form of aquatic education. We must teach learners that environments vary from location to location. Ask locals about local knowledge and historical precedents for aquatic environs before you swim.

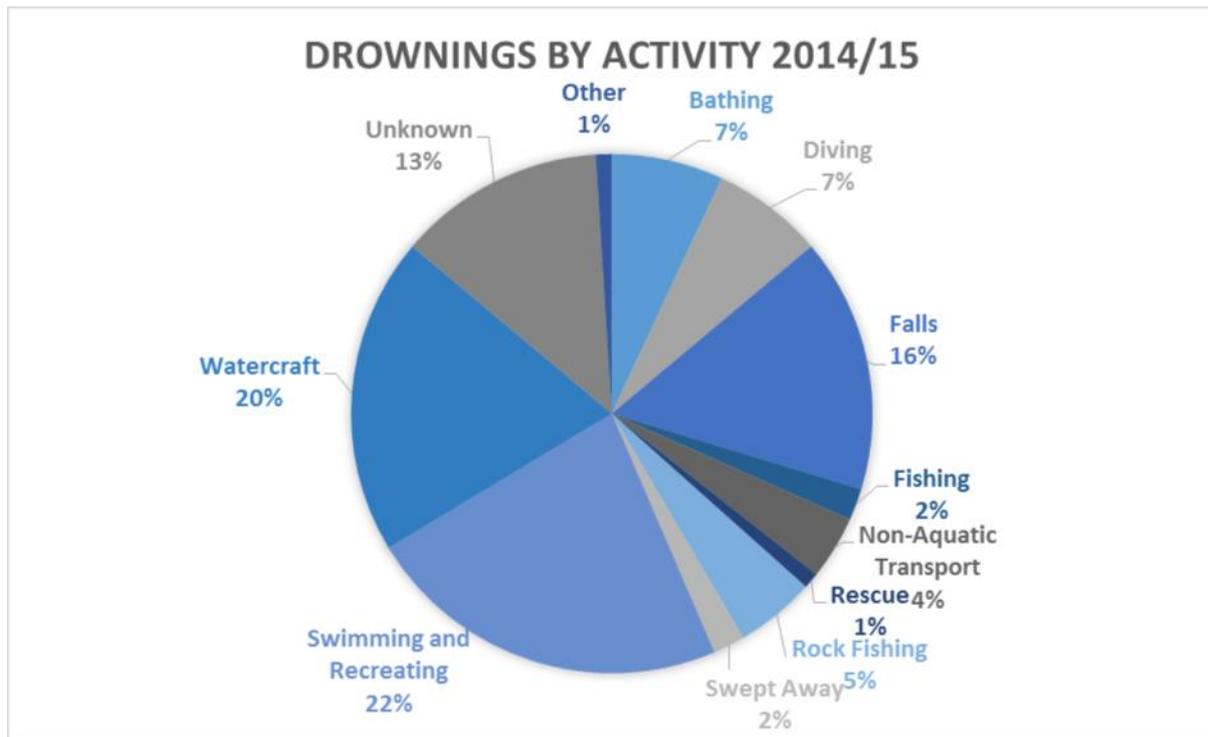
A further illustration of this is the 163 international tourists who died by drowning, recorded in Australia between 2002 and 2014. Overseas tourists were highly represented in ocean related drowning and drowning while snorkelling or diving.

One estimate is that alcohol is a contributing factor in 21% of all drowning cases and possibly up to 50% in drowning cases where the victim was engaged in a recreational activity.



Drowning by Activity

As indicated in the graph below, many who drown did not expect to enter the water and some were clothed.



Drowning Overseas

Extracts from the USA

(http://www.emedicinehealth.com/drowning/article_em.htm)

Compare it to what you have read about Australia and you can see the trend in OECD countries is similar.

Drowning claims nearly 8,000 lives annually. It is the fourth leading cause of accidental death in the United States. For children, it is the second leading cause of accidental death for school-age children and the number one cause for preschoolers

Two-thirds of drownings happen in the summer months: 40% occur on Saturday and Sunday. Some 90% occur in fresh water even in states with large coastal regions. More than half of these cases occur in home swimming pools

Although drowning equally affects both sexes, males have a rate 3 times higher than females because of increased reckless behaviour and use of alcohol

Children less than age 1 year tend to drown in bathtubs and buckets because they are not coordinated enough to get out by themselves when they fall in.

Older children age 1-4 drown in swimming pools, while those age 5-14 years tend to drown in lakes, ponds, rivers, and oceans. The adolescents and adults tend to drown because of impaired swimming ability from alcohol or illicit drug use

States with the highest drowning rate are Alaska, Hawaii, Idaho, Louisiana, Montana, Mississippi, Arkansas, Oregon, and Florida

Situational General Knowledge

If every person who went swimming had the ability to correctly critique an environment and the personal water safety skills to stay safe, fewer people would drown.

Swim Australia Teachers will enhance student's ability to remain safe by educating students to be safe in all aquatic environments encountered, knowledge of the likely dangers and safety rules of various aquatic environments (both locally and distant).

For all locations, students should know how to –

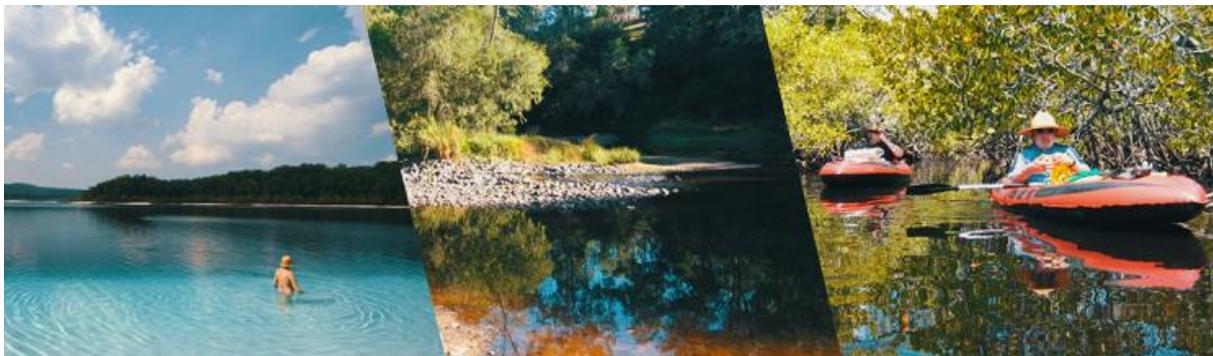
- Stay calm and think before acting
- Always swim with a buddy
- Always let someone know where you are going and when you expect to return
- Always wait after a meal before entering the water
- Check for safety signs in the area and obey them
- Seek local knowledge. Ask someone who knows the area if in their opinion, it is safe to swim?
- Always observe the environment for 5 - 10 minutes before entering
- Enter cautiously and check the depth

- Watch for changes in the weather and environment
- Swim when wearing clothes including shoes
- Judge the survival value of swimming with or removing clothing
- Recover should they fall in unexpectedly
- Judge the best and safest form of rescues. E.g. –whether to perform a rescue or go for assistance.
- Type of rescue - Reach Throw, Wade, Row, Swim, Tow

Anecdotal evidence suggests that students who are exposed to a range of conditions that simulate expected scenarios will respond much better in “real life”. Prior experience is a powerful survival tool!

Inland Waterways

Situations: rivers, lakes, dams, creeks, lagoons, billabongs



Environment:

- Flat surface, calm appearance, sometimes brown or green colour
- Depth unknown
- Underlying obstructions
- Pollution, water quality, algal blooms and rubbish can pose threats
- A concentration of conflicting users can create additional risks

- Seasonal variations, currents, drought, flood and erosion can alter the environment
- Dangers from a variety of natural and introduced animals
- Variable currents

At risk profile:

- Metropolitan people in rural locations, people in unfamiliar situations, many in boating situations
- In rural and remote farm locations, generally young males with a lack of fenced safe play area, left unsupervised whilst the parent/ carer performed work tasks. Young child often followed a pet or animal to the water source. Steep slopes on the dam caused child to slip in. Majority were residents of the farm on which the fatality occurred.

Stay safe actions:

- Throw a twig to see what the current is like
- Check for submerged objects
- Do not stand near overhanging edges
- Be careful of changes in conditions e.g. heavy rain may lead to flash flooding
- Winds may cause wave action especially in large bodies of water
- Reeds, weeds, soft silt deposits
- Thermoclines – temperature differences between the surface and underlying water causing cramp or body shock
- Water sources on farms are often impractical to fence. Farmers should eliminate any unnecessary water sources. Securely cover and/or fence where this is practical
- Create a securely fenced safe play area such as a house yard where a child can play
- Be aware of dangerous animals

- If shooting or fishing and wearing waders ensure you stay in shallows and have quick release buckles
- Swim away from other users, especially those in motorised pursuits

Teacher implications: Teachers should teach students to:

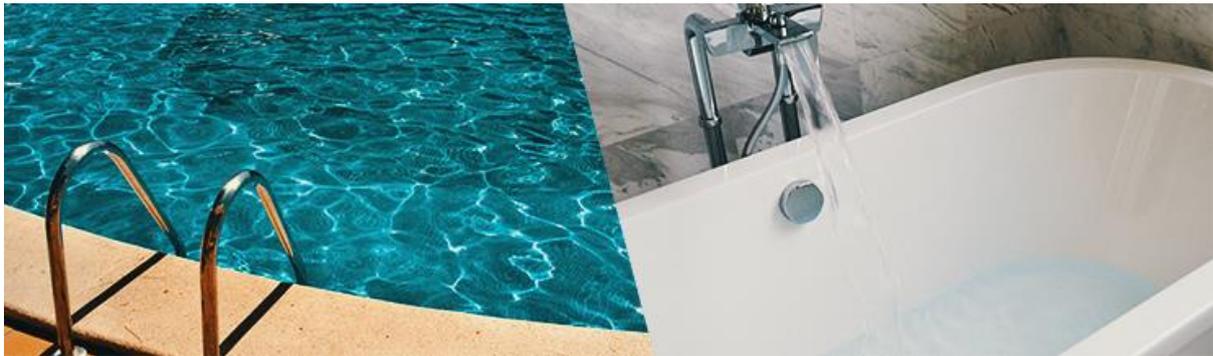
- Know potential botanical, fauna and environmental hazards
- Check for currents, depth and submerged objects
- Understand the use of wade in, step in and slide in entries
- Swim with and without goggles and swim in unclear water (or swim with blacked out goggles to mimic this)
- Use appropriate search patterns for the situation
- Understand that temperature variations can occur between the surface and underneath
- Have respect for other users
- Be aware that boat safety is as important in “fresh water” situations
- Use the correct Personal Floatation Device for the activity

Around the Home

Situations:

- Swimming pools (in ground, above ground and collapsible)
- Bathtubs
- Garden ponds
- Hot tubs, spas, Jacuzzis
- Nappy buckets, pet bowls, fish tanks
- Toilets and washing machines

- Water tanks



Environment:

- A container holding water – usually clear though not always clean
- Depth is known, no currents present
- May have objects that motivate the victim to want to go to the water source
- Lacking an effective physical barrier
- Adult supervision is lacking

At risk profile:

- Primarily 0-5 year olds with the peak age 1-2 years of age. Surprisingly many drowning occurrences are mid week and between 6 pm and 9 pm leading to speculation that many instances occur when both parents are present and supervision is low due to this dichotomy of responsibility. Also surprising is the relatively even spread of drowning incidents across all months of the year
- In swimming pools, a typical victim is a child aged less than 5 years, unsupervised by a carer, the pool is not fenced or inadequately fenced, (i.e. broken gate lock, fence broken or gate propped open) objects were readily available to assist the child to climb over the fence. Tempting objects may also be present in the pool area
- In bathtubs the propensity is for the victim to be 2 years of age or younger, left in the care of siblings a couple of years older and left “unattended” for a short time (i.e. 2 -15 minutes) whilst the carer completed housework or answered the phone

Stay safe actions:

- Continually maintain effective physical barriers to all water sources including removing climbing “possibilities” from all water sources
- Supervise children at all times. Do not rely on other children to take on an adult’s supervision role or rely on water safety aids. Know which adult is responsible for supervision – do not assume the other partner is
- Learn CPR
- Remove all “objects of desire” that may motivate a child to go to water sources
- If possible, empty all containers of water immediately after use
- Replace lids or place covers over water sources where possible
- Do not answer the phone when supervising children, or alternately transfer supervision to another adult

Teacher implications: Teachers should:

- Teach children swimming and personal water safety as one part of the overall “not drown” plan
- Educate parents, carers and the community as well as students of the “make safe” strategies e.g. via newsletters, websites, community presentations
- Ensure all children (students or siblings) in learning environments are fully supervised
- Promote the acquisition of water familiarisation, buoyancy and mobility skills in younger “at risk” age groups
- Make sure aquatic facilities have adequate physical barriers maintained. Students should know to always shut the pool gate
- Reinforce the pool safety rules within lessons. E.g. only walk around the pool; only dive in deep water away from other people; play away from the pool edge; use unbreakable containers around the pool, put toys and swim aids away

- Learn CPR and have a CPR chart on the pool fence. Encourage others to do the same

Coastline and Ocean

Situations:

- Blue water and coastline including cliffs
- Surf and still water beaches
- Harbours, estuaries and canals



Environment:

- Tidal influence alters the environment constantly
- Weather influence can dramatically change conditions
- Conflicts with and between transport, sport, leisure and commercial activities in the same locality
- Environment is unpredictable
- Depths, current, temperature and choppiness vary

At risk profile:

Surf/Beach - Several common factors attribute to the need for surf beach rescues:

- The bather is normally up to 30 years of age
- Many live more than 50 kilometres away from the coast, are not using flotation devices, could not swim

- Nearly all overseas tourists rescued were from rips outside the patrol (flagged) area and many could not swim

Rips - A rip is a current running out to sea. Common signs are:

- Murky brown water from sand stirred up
- Foam on the surface extending beyond the break
- A gap along the wave break line
- Ripple effect on the water surface
- Seems an inviting area to swim in
- Darker colour water indicating deeper water

Undertows - An undertow is a current running out underneath water coming into shore usually on an outgoing tide. Common signs are:

- Waves approaching parallel to the beach
- Waves forming a tube as they break and then dumping down
- A strong current dragging back from the beach, eroding sand
- A strong swirling eddy behind breaking waves

Ocean - Common factors in many boat related drowning actions are:

- Boat capsizes
- Boat occupants fall unexpectedly into the water
- Alcohol use
- Victims not wearing a life jacket, male, usually 20 years or older

Fishing - Shore based fishing victims are usually:

- Rock fishing and swept from the rocks by waves
- Rarely wearing a flotation device, usually male and usually over 25 years of age

- Very high proportion of Vietnamese/ Thai and other South East Asian ethnic groups

Snorkel and SCUBA Diving statistics are:

- Often overseas tourists
- Usually male if a snorkel victim
- Infrequently using a buddy system or have an inexperienced buddy
- Unfit with no flippers
- In hypoxic situations, usually young, fit experienced divers often spear fishing

Stay safe actions:

Surf/Beach

- Find the flags and swim between them if it is safe to do so:
- Red and Yellow flag with feathers – marker of safe swimming area
- Red and Black chequer flag - board riding boundary area
- Red flag – Dangerous conditions - no swimming
- Red and White chequer flag – Emergency Evacuation/Shark
- Yellow flag – Caution!
- Look for safety signs
- Ask lifesavers for advice
- Swim with a friend
- If you need assistance, float on your back and raise your arm

NEVER

- Swim at unpatrolled beaches
- Swim at night

- Swim under the influence of alcohol or drugs
- Run and dive into water unless undertaking a surf rescue or in a supervised beach competition in a known depth and area

Teacher implications: Because the ocean has such a diverse range of ever changing conditions, Teachers should ensure Students experience as many potential scenarios as possible and be provided with folklore and safety rules for a variety of situations as previously detailed. As a broad guide

Students should know how to:

- Handle rough water and waves
- Get into and out of Personal Floatation Devices (PFDs)
- Stay together as a group if in the water
- Dive under waves
- Lie flat on the back and raise arm if in danger
- Identify safe swimming areas. E.g. swim between the red and yellow flags
- Identify currents, tide changes, rips and undertows
- Seek training when using specialized powered or non powered craft
- Swim with clothes on and remove clothing in the water
- Conserve energy and body heat for an extended length of time in the water

Other Situations

Situations: Silo's, wells, post and pot holes, sewerage tankers, meat offal and beer vats, would be rescuers, water slides and theme park rides.

(Not listed in the statistics are envenomations, drugs and alcohol abuse, suicide, car and transport accident victims where water immersion may be a contributing factor to a fatality.)



Environment: Basically, anywhere where water or a fluid is deep enough to immerse a person's face creates a threat of drowning.

At risk profile: Overall, the 0 to 5 year age group and those over 55 years of age are most at risk of drowning with males 4 times more at risk. New sports and activities with a lower knowledge baseline have a greater risk until the folklore develops into formalized training and accreditation.

Stay safe actions: The following actions generally apply to all situations:

- Tell someone where you are going and when you will be back
- Go with someone else
- Maintain physical barriers to water sources or create safe areas away from water
- Seek local knowledge and know the potential dangers
- Get training and qualifications for the activity if these are available
- Know the nearest emergency services and how to contact them
- Know your own personal limitations
- Know how to respond when in a current, rough water, muddy water

- Know basic rescue techniques, search patterns, how to fall in and recover

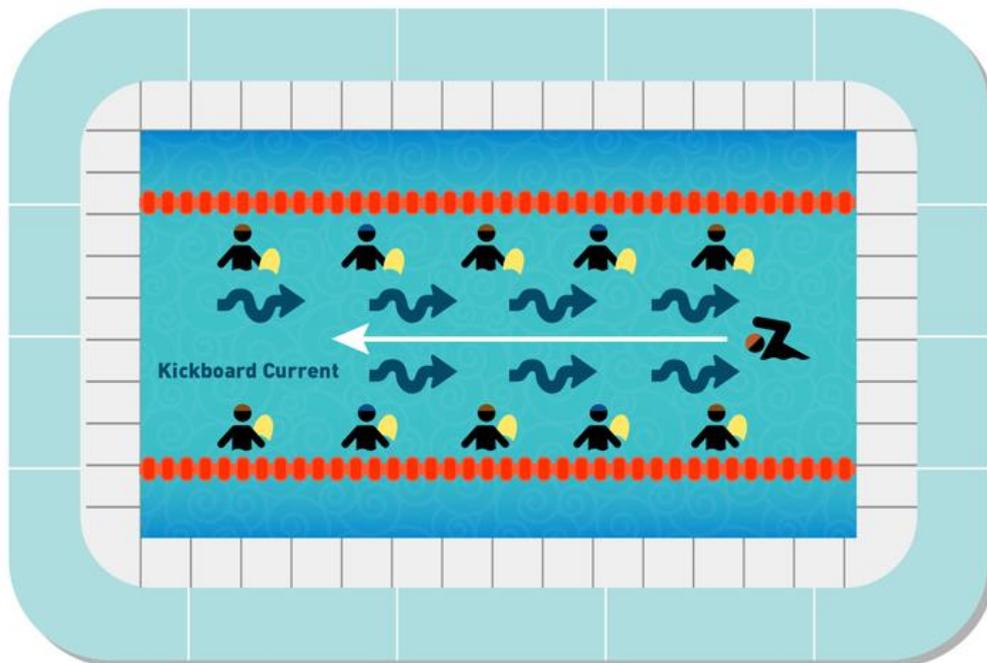
Personal Survival

People will generally show greater respect when they know the potential dangers of an aquatic environment.

Students exposed in a controlled manner to conditions they are unfamiliar with, but likely to encounter in real life situations, are more likely to display appropriate responses when facing an actual life threatening situation.

Teachers must have skills and strategies to ensure learners acquire the ability to respond to challenges from a variety of aquatic environs. Here are some suggestions to simulate “other than pool” situations.

Simulated Water Conditions



Waves – Form 2 lines of students facing each other about 3 metres apart. Each student should firmly hold a kick board. Students push the kick boards up and down creating choppy water whilst one student attempts to swim up the middle of the two lines. By

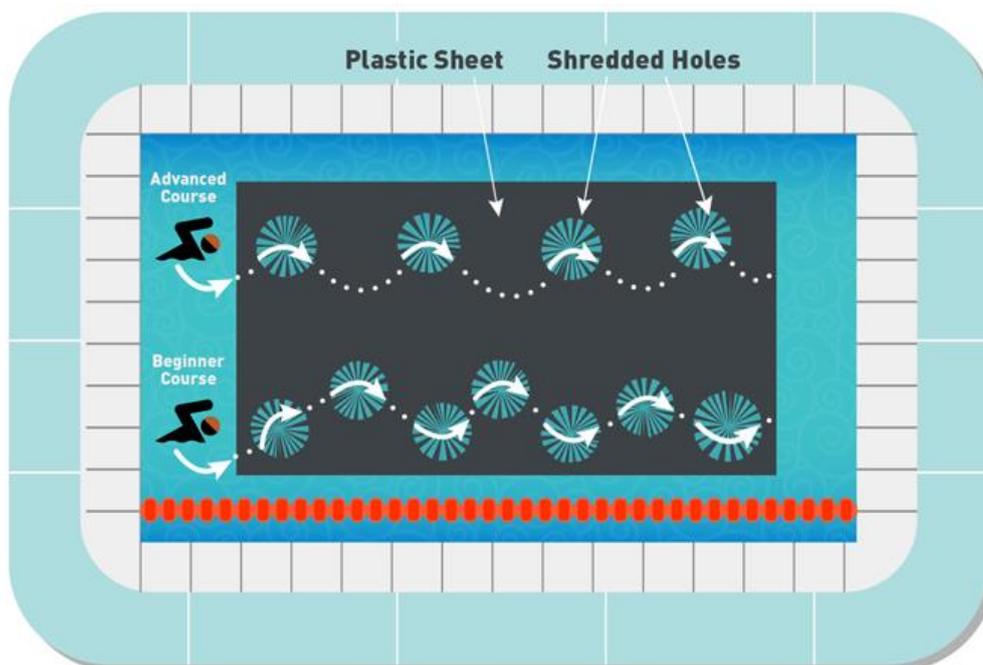
undertaking this activity in shallow water, students may stand if they experience difficulty breathing.

Other options are to line students up along the side of the pool in waist deep water. Have them as a group hold on to the side and all move into the wall and out again on a 3 second cycle. Alternately, have students as a group run in one direction and then reverse direction several times. Either method will create choppy, wavy conditions. Be warned that it may also deplete your pool of water and is less effective with anti-turbulent lane ropes or a wet deck.

Currents - Same as the previous wave challenge, but with the students, all paddling their hands in the same direction and the swimming student trying to make headway against the current created.

Muddy water - Find a pair of old goggles. Cover the inside with black paint or permanent texture pen so that the student cannot see through. Then place an object on the floor of the pool and have the student “search for it”. Alternately play “Marco Polo” - one swimmer calls out “Marco” and the others respond with “Polo”. The object is to tag another swimmer.

Whirlpools - Have Students running around in a circle and then reverse direction.



Reeds and Kelp - Obtain a piece of black plastic sheeting about 10 metres long and 2.5 m wide. Punch holes in a grid pattern approximately every 30 centimetres. Every 2.5 metres shred a circle section by cutting in strips from the centre outwards, but leaving the strips attached on the outer circle. Float the sheet between two lanes ropes.

Under close supervision, one at a time, allow swimmers to take a breath and swim underwater. When surfacing, swimmers should use their hands to gently push aside the “reed strands” take a breath then gently submerge again and swim on. The capacity of each swimmer can be taken into account by varying the distance between each surfacing.

Hypothermia and Hyperthermia

If a person is going to be in the water for an extended period of time, hyperthermia or hypothermia can become an issue.

What is the difference?

Hyperthermia is a condition occurring when the body retains excessive heat, often commonly referred to as heat stroke or sunstroke. It is usually preceded by heat exhaustion, characterised by general lethargy, dehydration, increase heat of the body extremities and headaches. A mild form of this can occur in very warm water such as an indoor heated pool where a swimmer is doing vigorous exercise. A more moderate form of hyperthermia can occur on very hot summer days in an outdoor venue where water conditions can become extremely hot and a swimmer is doing vigorous exercise. The condition is further exacerbated by a lack of rehydration. Long-term immersion in tropical sea areas will also induce the condition. The person should be removed from the water, and slowly cooled and rehydrated if possible. Extreme cases will require immediate hospitalisation.

Hypothermia is the lowering of the core body temperature. In a swimming sense, this is usually due to immersion in cold water for an extended time, though the colder the water, the shorter the period required for onset of symptoms.

A reduction in only two degrees of the body's core temperature is enough to cause:

- mild to severe shivering
- the hands to become numb
- goose-bumps
- reduction in muscle function e.g. cannot get the thumb to touch the little finger

A two to four degree reduction in body temperature usually results in:

- violent shivering
- difficulty in talking
- unfocused thinking
- irrational behaviour
- decreased pulse and respiration
- lips, ears, toes and fingers turning blue

A temperature loss of more than four degrees usually results in:

- shivering stopping
- amnesia
- inability to use limbs
- incoherent and irrational behaviour
- metabolism slowing leading to organ failure and then death
- To treat hypothermia it is important to understand that rapid heating will actually make the condition worse by causing cold blood from the limbs to rush back to the body core.

Treatment should consist of:

- removal from the water
- drying the person, especially the head
- shelter from the elements
- wrap in warm blankets and share body heat (a hypothermic person is not capable of reheating oneself. Do not rub the person)
- drink warm (not hot) sweet drinks
- hospitalization for severe hypothermic patients

Obviously, prevention is the best option. **A person in cold water can do the following to delay the onset of symptoms:**

- wear a lifejacket to save energy losses
- individually go into the Heat Escape Lessening Position (HELP) that is similar to a foetal tuck position. By having the arms and legs tucked in close to the body, the body surface area is reduced and thus heat losses will decrease. Students in swimming lessons conducted in cold water will often assume this position whilst stationary
- as a group go into a Huddle. This is when a group of people gather as close as possible to share heat. A sideline benefit is the psychological benefit of group support
- keep the head out of the water and dry if possible or wear a beanie or cap to reduce heat losses. In a swimming lesson situation, wearing bathing caps will provide some benefit

Personal Flotation Devices (PFDs)

PFDs are an essential item for increasing long-term survival in the water.

All PFDs should be:

- regularly checked to ensure belts, straps, buckles and webbing are useable
- rinsed in fresh water and thoroughly dried out of sunlight after use
- of the correct size for the user
- There are three basic types of PFDs under the Australian standards.

A Type One PFD is designed:

- to keep the wearer in a face up position
- to if necessary roll an unconscious person from a face down to a face up position
- in either bright red, orange or yellow colour

The Type One PFD is commonly referred to as a “lifejacket” and is recognisable by the collar, reflective tape and often has a torch, whistle or sometimes an EPIRB (Emergency Position Indicating Radio Beacon) attached. Some Type One jackets are filled with a solid buoyant material (such as on passenger boats) whilst others will self inflate or alternately have an inflating tube for the wearer to manually inflate (such as on aircraft).

Type Two and Type Three PFDs are designed:

- for use in water sports such as kayaking, jet skiing, kite boarding etc
- to be less buoyant than a Type One PFD
- with larger arm holes and a higher waist to allow a range of movement
- Type Two must also be a bright red, orange or yellow colour whilst Type Three can be any colour.
- Swim Australia Teachers should provide opportunities for students to use PFDs in the water.

The following skills are important:

- how to get into and out of a PFD on land, in a boat, and in the water
- knowing what are the best strokes to use when wearing a PFD
- how to enter and exit the water in a range of situations including:
 - entering from a height holding the jacket down with the hands so the jacket does not ride up the body, potentially damaging the neck or causing injury due to the PFD crutch strap
- climbing up rocks, steep banks, into or out a boat or onto or off a surfboard
- how to stay balanced whilst wearing a PFD in a HELP or huddle position



Treading Water

Treading water is also a skill often used in a variety of rescue and personal survival situations. E.g., the skill could be used to:

- support a patient whilst Expired Air Resuscitation is performed in the water
- to remain stationary whilst checking your surroundings
- whilst waiting for a boat to circle and pick up
- to raise yourself out of the water to signal for help

Treading water is a highly refined skill that advanced swimmers can usually master as it requires refined sculling techniques and an alternating Breaststroke kick (egg beater kick) so generally a reasonable level of Breaststroke ability is a prerequisite. To tread water, the swimmer positions their body in an upright position with the head out of the water. Learners can commence learning a basic treading water skill by walking in water combined with a dog paddle type action with a semi-vertical body position.

Once treading water has developed to a reasonable level of proficiency, moving and sculling skills such as sculling forwards or backwards, on the front or back, with the hands by the side or extended above the head can be attempted.

This then develops the skills required to learn competitive stroke turns (information to teach this is provided in the ASCTA's Swim Australia™ Teacher of Competitive Swimming) and defence and reverse positions for rescues discussed in the Safety and Health unit of study for this course.

To scull, commence with both hands together in front about half way to full stretch. The hands are turned outwards at 30 - 45 degrees angle and the elbows are bent between 70 and 110 degrees. The hands and arms then move apart until the hands are just wider than shoulder width apart. The angle of the hands is then changed to face inwards at about 30 - 45 degrees. The hands and arms then move towards each other.

Repeat this together and apart motion with the hands whilst the legs do an alternate Breaststroke kick. One leg kicks down and around whilst the other leg recovers upwards. As this skill is not taught until the swimmer has a good grasp of basic skills, it should only take a few simple teaching steps to master the skill. Here is a suggested sequence:

The Kick

Teach your Student to:

- in water of shoulder depth, hold two kickboards – one under each arm

- lift the feet off the floor of the pool and support the body in an upright position with the two kick boards or floatation devices
- commence doing a Breaststroke kick
- while still doing a Breaststroke kick, rock from side to side
- continue this action and change the kick to an alternating kick (most swimmers will automatically change from a double kick to an alternating kick whilst rocking from side to side without instruction)
- stop rocking and continue the alternating kick (called egg beater kick)
- discard one kick board, hold the remaining kick board with two hands and continue to eggbeater kick
- once the swimmer can feel that their kick is strong enough to support their body without the board, they may discard the remaining kick board
- if further challenges are required, try just kicking with hands out of the water. Harder still? Try the arms fully out of the water and the body being supported by the leg kick only

IMPORTANT NOTES

Treading water can be practised with an eggbeater kick (the most efficient way), Breaststroke kick action, a Freestyle type flutter kick, a scissor kick or a cycling action as young learners do in the early stages. Teachers of Swimming and Water Safety should allow Students to experiment and establish which is the most effective method for them.

The Arms

Teach your swimmer to:

- in water of shoulder depth, swim Breaststroke on the spot
- rock from side to side and change the kick to an alternating egg beater kick

- modify the hand and arm movement to a together and apart action in the same horizontal plan
- cease kicking and just support the body with the hand and arm action
- try spinning or vertically rotating the body around by pushing with the palms of the hands more one direction and less the other as the hands move in and out. Try this with and without kicking
- try reversing the direction of the body rotation

Currents

Currents can occur in a range of locations. In beach situations, rips are currents moving perpendicular to (away from) the beach and gutters have currents that are travelling parallel to the shore. Rivers and creeks can have flowing currents and flooding, whilst in estuaries and harbours there are tidal currents and eddies. Specific situations such as around bridge pylons, storm water drain openings etc may create whirlpools, suction and other peculiar currents.

Currents by themselves do not drown people, but what may is:

- the turbulence created by the current
- the panic caused to the swimmer in difficulty
- the place the current takes the swimmer to (pinning against rocks, down a drain or into large waves)
- the struggle fighting against the current

Generally, it is recommended that a swimmer swim diagonally across a current or “go with the flow”. A current flows faster on the outside of a bend as the water has a further distance to travel. As a current moves into deeper water it will usually dissipate.

Prevention is the best course of action. Thoroughly check out any potential swimming area for currents and hazards before entering the water.



Surface Dives

Surface Diving is a necessary skill for swimmers to learn so that they may:

- go underwater to do searches
- duck under oncoming waves
- swim under objects or underwater
- evade oncoming dangers such as boats
- retrieve a fallen person or object\
- snorkel

There are two forms of surface dives: **Head First & Feet First**

A **Head First** is often referred to as a “duck dive” because it mimics the action of a duck going under water head first. From a forward facing or treading water position, the action requires the swimmer to rapidly bend or pike at the waist and then tuck the knees into the beginning of a somersault. As the swimmer’s body starts to somersault over assisted by the arms sculling and is a quarter of the way through the rotation, the swimmer straightens out the legs vertically above the body. The weight of the legs in the air, combined with the body being in a vertical streamlined position with

the hands in front drives the body downwards. This surface dive is used in clear water where the swimmer can see where they are going head first.

The **Feet First** surface dive commences with the swimmer in a vertical position with the head out of the water, either floating or treading water. The swimmer uses the arms and legs to lift their body as high as possible. At the highest point out of the water, the swimmer then reverses the palms of the hands so they face up and sculls upwards either in one large sweeping action or a series of smaller upward sculls. The result of gravity pulling the body downwards combined with the sculling action results in the body going under feet first. This method is used where the water is unclear or the environment floor unknown. It is better in this instance to risk damaging the feet instead of the head!

With either surface dive, once the swimmer is underwater, they can then go into a horizontal position to swim or search. Surface dives can also be adapted by bending less at the waist so it is a gentle dip under the water or commencing in a more horizontal position so that it becomes more of a “bob down” such as when swimming through waves or when gaining a great depth is less important.

Searching

There are three commonly used search patterns. Each suits different conditions. In each case, it is important for searchers to:

- Try and observe, or determine from bystanders where the object to be searched for, submerged
- Gauge some landmarks which can act as search reference points
- Remember that a current may move an object until it comes into contact with the bottom. Once in contact, the object may snag or continue to bump along
- Be cognisant that when they surface from searching a sector they should rise vertically, back-peddle a small way then submerge vertically back down.

This ensures the searcher doesn't swim over the object

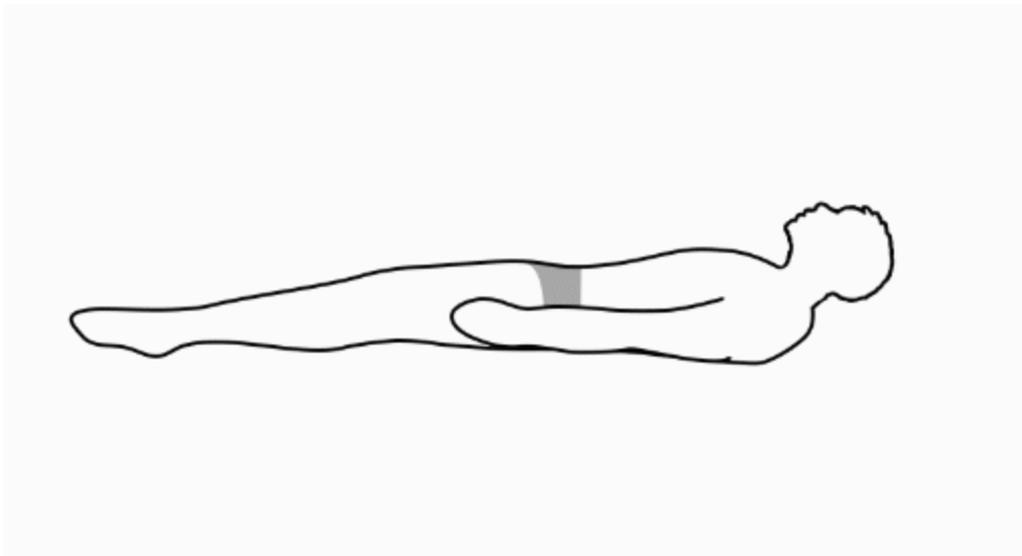
Zigzag. Used by one or two people in a current. Commencing upstream of where the object had submerged, gradually move downstream zigzagging diagonally across the current using the reference points to ensure the searcher covers the area completely.

Circular. When there is little or no current such as in a dam, commence where it was estimated the object submerged and move around in a circular pattern gradually expanding the circle each time.

Note: Both circular and ZigZag search patterns should be undertaken with a "spotter" or "buddy" present to help provide direction and maintain safety.

Emu Parade (Straight Line). A well-organised search with more people is more likely to succeed. Line searchers up side by side and do a sweep across an area. Move the line downstream, remembering to overlap the coverage and then repeat. The search organiser can decrease the risk of dangerous physical contact with other searchers by staggering the start or sending off every second searcher in a wave then intermediary searchers in a second wave.

Survival Strokes



There are three defined survival strokes. They are Breaststroke, Survival Backstroke and Sidestroke.

All survival strokes have an underwater arm recovery which reduces the energy expended but makes each a slow stroke when compared with those strokes having an over the water arm recovery.

Having a lower energy usage potentially increases the survival time in the water. All strokes may be swum with the head out of the water, though this lowers the legs and reduces speed via increased resistance. Energy usage thus will increase in this situation.

Breaststroke is covered in depth in the Swimming Strokes chapter. Breaststroke used for searching and underwater swimming is dealt with in this chapter as is Sidestroke and Survival Backstroke (also referred to sometimes as Lifesaving Backstroke) these last two strokes being useful for towing patients in rescues.

Underwater Breaststroke

If swum without breathing and with the head down and a wide slow stroke, Breaststroke can be used for underwater searching or swimming a distance underwater such as may be required if escaping from a burning boat. The arm stroke is usually longer with the arms pulling and pushing to the legs and the kick commencing as the arms recover along the torso.

For Underwater Breaststroke where attaining a distance is important:

- the body is parallel to the surface of the water
- the arms are pushed forcefully down towards the feet similar to a Butterfly arm stroke
- then a short glide occurs followed by a forceful kick with the propulsive part of the kick occurring after the arms have passed the chin and are in the forward phase of their recovery

Searching

Search Pattern Breaststroke requires a different approach with coverage by the feel of the hands being the most important consideration:

- the arms sweep wide
- the hands feel for the desired object
- the body tends to be more “head down and butt up!”
- the kick is relatively non propulsive and is mainly used to assist the searcher to remain down under the water

Survival Backstroke

Survival Backstroke is also referred to as Lifesaving Backstroke, though technically the two styles vary. The lifesaving style is used competitively in lifesaving competitions and requires the swimmer to keep their **hands** under the water at all times, though parts of the **arms** may recover out of the water. Another feature is the arm stroke may be lengthened to a full stretch above the head.

When used in rescues, the stroke can be modified to a Backstroke one arm stroke (the other arm being used to tow the patient) with a Breaststroke kick. The altered arm stroke of Lifesaving Backstroke means higher energy usage than Survival Backstroke.

In survival mode, the arm stroke recovery remains underwater and is shortened to conserve energy.

The stroke is basically Breaststroke swum on the back. The timing is different though, with the arms and legs both catching the water at the same time and propelling the body forward at the same time.

This makes the stroke “jerky”. Swimmers must ensure the arm and leg recovery is slow, or the result is a stop or even backward direction of the body.

The stroke enhances the swimmers skills for Breaststroke by encouraging a slow recovery and fast propulsive phase with both arms and legs. Also modified is the leg action so that less bend is exhibited in the hip area and more kick is undertaken by the knees and lower legs.

The body should be kept up on the surface, with the arms and legs under the water. The kick is a classic Breaststroke kick, whilst the arms are drawn up along the body to under the arm pit then out to level with the shoulders unless using the method where the arms are extended beyond the head, then press back towards the feet in a fast forceful motion as the legs kick forcefully. This mass of propulsion pushes the body forward rapidly. The swimmer then glides for an extended pause, taking advantage of the momentum generated. As the body slows, recovery of the arms and then the legs commences so that the arms and legs arrive at the point of commencing propulsion at the same time. Breathing in on the recovery of the arms and legs and out on the propulsive phase of the stroke will assist in maintaining a constant buoyancy level

The swimmer usually has a range of skills including Freestyle and Backstroke to a reasonable standard and a good comprehension of Breaststroke prior to their introduction to Survival or Life Saving Backstroke. For this reason, the number of steps required by a swimmer to gain this new skill is relatively small.

A suggested teaching sequence:

- holding a kickboard to the chest, Breaststroke Kick on the back
- holding the kickboard down over the knees, Breaststroke kick on the back. Knees can be drawn to either side of the kickboard but should not raise out of the water any more than necessary
- with hands by the side, Breaststroke kick on the back
- with hands on the chest, Breaststroke kick on the back
- with hands behind the head, Breaststroke kick on the back
- with hands extended at full reach above the head, Breaststroke kick on the back

- swim Survival Backstroke, making sure that there is variation in speed between the propulsive phase and the recovery phase

Common faults expected from the description of the skill progression are:

- a low body position increasing resistance, caused by raised knees or head
- lack of variation in the speed of the arms and legs causing “water into the nose” each stroke and a stop start appearance in the swimmer’s movement through the water
- a wide arm or an “elbows sticking out” recovery increasing frontal resistance, exacerbating the stop/start jerkiness and slowing forward velocity

Note: The arm action should mimic the second half of underwater pathway of Backstroke with a 90 degree elbow bend when the hands are adjacent to the shoulders and the hands pushing down towards the feet, the only difference being there is no body roll or rotation in this stroke.

Side Stroke

Sidestroke is primarily used as a survival stroke because of the energy-saving underwater arm recovery and for rescue work because of the ability of the swimmer to look forwards and back, and can be swum proficiently with one arm, allowing the other arm to tow a person in difficulty. The face being clear of the water also enables verbal communication with the person in difficulty.

In lifesaving competition, the hands must be kept under the water during the entire stroke though elbows sometimes break the surface of the water.

The body is on the side at all times. The side of the head resting in the water enables the body to remain close to the surface. The scissor kick has the legs moving in a horizontal plan, allowing propulsion without fear of kicking a towed person.

The timing of the stroke can be likened to a concertina effect, where the hands and feet are slowly drawn into a tuck position at the same time, then explosively circle and straighten. At the end of each kick and arm stretch there is a long glide on the side, taking advantage of the momentum gained from this forceful propulsive movement.

As Sidestroke is usually the last stroke to be taught. Students should attain a level of proficiency within a small number of lessons due to their already proficient skill levels in other strokes. The stroke should initially be taught using both arms and then be taught utilising only the lower leading arm with a kick as an introduction to towing skills used for rescues. For similar reasons to Survival Backstroke, the breathe in is taken whilst the lower arm and legs recover and the breathe out occurs on the propulsive phase of the stroke.

Often the swimmer will attempt the stroke with the side of the head raised out of the water. This causes the legs to drop, increasing frontal resistance, slows forward speed and increases energy usage. Another cause of legs dropping is the swimmer using a Breaststroke kick instead of a scissor kick. The leg nearer to the surface is likely to lift out of the water or cause the hips to drop as the foot kicks. When Sidestroke is used for a rescue tow, the patient is more likely to be kicked if a Breaststroke kick is used because of the upward pathway taken by the foot closest to the water surface.

Should the body not be kept in a buoyant, “parallel to the surface” position, the number of strokes for the distance swum is likely to increase and energy efficiency decrease, decreasing the usefulness of the stroke for survival and towing.

To teach the stroke, commence with Students placing their lower hand on the wall of the pool with their upper arm holding a kickboard and their body floating on the side. Draw both knees up, bending the legs as this occurs. Open the legs, with the top leg stepping forwards and the lower leg around behind, scissor kick and bring the legs and feet forcibly together. The leg closer to the surface circles around like a “horse pawing the ground with its front leg”, whilst the back leg “kicks a soccer ball”.

Here is a suggested teaching sequence:

1. on land, pretend you are stretching a rubber band and one end is stretched above the head while the other end is stretched towards the feet let the band. Bring hand back together as if the band was recoiling. And repeat
2. standing about 30 centimetres away, facing the wall, move the arms in a Breaststroke action with the arms (as they leave the chest) moving apart in opposite directions.
3. next, glide in a side position with the lower arm extended out in front and the upper arm extended over the hips. Ensure the side of the head is resting on the surface and allow the body to be supported by the water
4. try the same glide as previous, holding on to two kickboards, one in each hand and kick with a slow recovery and a fast propulsive phase.
5. glide on the side as in step 3 and use arms
6. glide on the side as in step 3 and use arms and legs
7. swim sidestroke and tow a kickboard trying to keep the kickboard in the slipstream with towing arm (upper arm) extended over the hips
8. swim sidestroke using legs and the lower arm only
9. sidestroke and tow a kickboard with a patient holding on to the kickboard
10. tow a patient in a non-contact tow (i.e. a pole, stick, item of clothing is held by both rescuer and patient)
11. tow a patient without any flotation or reaching aids using a variety of contact points such as hair, chin, clothing, wrist, armpit, cross-chest, on hip carry etc to determine which is best and easiest for individual rescuers
12. try similar series of holds using a Lifesaving Backstroke style to replace Sidestroke

Rescues

The number of would be rescuers who drown is of concern. Lifesavers and lifeguards are fit, trained people prepared to respond in a situation known to them.

In “unpatrolled” areas, the most likely rescuer is a relative or close friend placing himself or herself in what may be an unfamiliar

situation, with dubious fitness and a likely lack of preparation and aids to assist.

Before commencing any in-water rescue technique, a rescuer's personal abilities, safety and survival and the availability of aids to the rescue must be seriously considered.

There is a general expectation from clients that Swim Australia Teachers have the ability to effect a rescue in the location in which they are instructing – should it be necessary.

As a Swim Australia Teacher, you should know the information in this section for your own benefit and in order to teach students some basic rescue skills.

You should also consider undertaking a life saving course such as a Bronze rescue award or lifeguard award to further your skills knowledge. A First Aid qualification may also be a requirement of employment as a Swim Australia Teacher in some instances. A current CPR certification is required for accreditation as a Swim Australia Teacher. Refer to local first aid and life saving organisations in your area for more information.

The Four "A's"

The four "A"s of a successful rescue are

Awareness

Assessment

Action

Aftercare

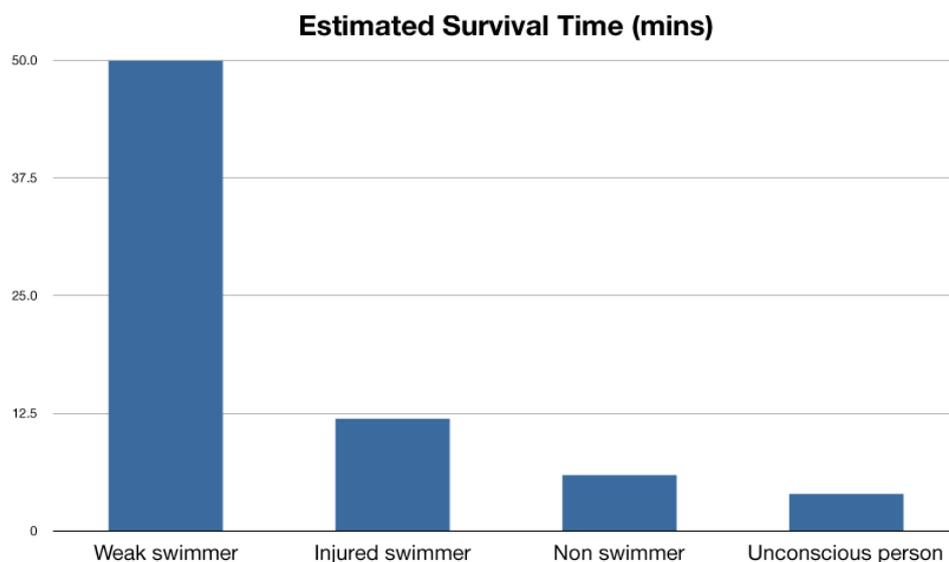
Awareness, Prevention and Early Intervention

The fact that a situation is about to happen or is happening. Prevention or early intervention is always better than responding to a situation after it has happened. E.g., a young child is crawling with their hands ("spider walking" or "monkey walking") along the edge of the pool towards the deep end.

If you intervene now and turn the child back to the shallow end or remove them from the water you have "effected a rescue" by your awareness of the potential. Allow the situation to continue and the child reaches the deep end, arms tire and they "drop off" the side – we now have a non-swimmer rescue.

Allow the situation to continue and we may have an unconscious swimmer rescue with CPR required.

Assessment



Assessment of:

- environment – currents, depth, visibility
- aids – anything that may assist in buoyancy, reaching or getting to the person in difficulty

- your skills and ability – remember that a number of would be rescuers also drown each year.
- the type of patient – the characteristics of the patient will determine how they will respond and thus what method of rescue and what aids will be most appropriate
- the numbers of patients – many rescues have more than one person in difficulty. Whom do you rescue first?

By being able to categorise the type of person who is in difficulty a rescuer can ascertain the best method of rescue. A rescuer can generally categorise people in difficulty into one of four categories:

Weak

Characteristics

- probably facing the nearest point of safety
- occasionally calling out for help
- low body position in the water

Rescue Implications

- capable of holding a flotation aid if within their reach
- non contact or assisted rescue such as reach or throw if possible

Likely Response from patient

- should respond to clear, precise instructions
- may assist in the rescue

Injured

Characteristics

- depending on injury - awkward position in the water
- More preoccupied with injury than surroundings

Rescue Implications

- identify injury and treat with due regard, especially if severe bleeding, spinal injury or impact injury

Likely Response from patient

- Difficult to tow due to awkward position in the water

Non-Swimmer

Characteristics

- low vertical position trying to “climb up” out of the water
- may not be facing nearest point of safety
- quiet – usually concerned for next breath

Rescue Implications

- unaware of surroundings
- contact rescue with a buoyant aid preferred
- use buoyancy aids where possible

Likely Response from patient

- will attempt to grab, climb onto rescuer
- very clingy
- needs plenty of reassurance

Unconscious Person

Characteristics

- generally floating face down on the surface for a time before submerging and inverting to face up

Rescue Implications

- obtaining an open airway and recommencing breathing are first priority with consideration for the need to land - the person to perform CPR
- potential of spinal injury is a secondary consideration to this

Likely Response from patient

- no response
- limp in the water

If all outside factors are equal, the question then arises – Whom to rescue first?

In land-based triage, it is usually recommended that the rescuer goes to the unconscious first and maintains airway, breathing and circulation but in an aquatic situation to do this would be at the detriment of some such as non-swimmers who will survive if rescued quickly or may drown if a response is delayed. Once a rescuer begins CPR they are acting as a manual life support system and should not stop.

In an aquatic situation, rescuers should firstly save those in the most danger with the best chance of survival.

What is the best type of rescue? The order of preference taking into account the speed of the rescue, the safety of the rescuer and the effectiveness is:

Reach – as a reach rescue is usually only performed over a relatively short distance, the rescuer may “verbally reach” out to the person in difficulty using verbal communication and encourage them to certain actions e.g. “Put your head down and kick hard to me.” The alternative is to physically reach out with a semi-rigid or rigid object such as a stick, leaf scoop pole, or arm. In order not to be pulled in by the person in difficulty, rescuers should stay down low or lie down. Performing a “dry” rescue ensures the risk to the rescuer is low

Throw – throwing a buoyant object, rope or similar. The rescuer stays on land or a reliable surface such as a large boat. Slightly less accurate than a reach but still a safe dry rescue

Wade – maintaining contact with the ground – remember a strong current is dangerous when in shallow water. Now the rescuer is in the water the risk starts to increase. The rescuer should take the most effective aid available with them

Row – using a small craft e.g. surf board, rescue board or air mattress. The ability of the rescuer to control the craft and the environmental conditions in which the craft is being used will impact upon the effectiveness. Getting into and out of craft and how to get the patient on board are skills that require some practise.

Swim with an aid – in the water utilising some form of small buoyant object to assist. Ideally the tow should be non-contact. This means using any items available – a stick, an item of clothing etc. to maintain a distance between the rescuer and the person in difficulty. The rescuer has to be able to ‘survive” water conditions which have placed another person in need of rescuing. The rescuer needs to seriously consider their own capabilities, possible entry and exit points and the need to enter the water before doing so

Tow – totally unaided, relying on your own swimming ability to keep yourself safe and rescue a person in difficulty – quite often in adverse environmental conditions. The option of last resort should be a contact tow where the rescuer physically makes contact with the person in difficulty. This increases the risk of the patient endangering the rescuer by grabbing them and forcing them under water. Tow is usually with the unconscious person only

Entry and exit points. The entry point may not be where to exit. Rescuers need to consider this in developing a plan of action e.g. You may use a rip to get to a person requiring assistance in the surf, but will need to swim parallel to the shoreline before returning to the beach away from the rip.

Bystanders and outside assistance. Are you better to run 100 metres to get a surfboard to assist you in the rescue, or to notify a lifesaver of the person in difficulty? Getting outside help as soon as possible is advisable in all situations. If someone else is available, it may be better to send him or her instead!

The number to call in Australia is triple “0” (phone 000). GSM mobile phone users may make an emergency call using the

international emergency call number of 112 This number is an international mobile phone standard and dialling 112 from anywhere in the world with GSM coverage will automatically transfer you to local emergency services. In Australia, 112 will connect with emergency services even if you are outside the coverage of your regular mobile phone network but within the coverage of another GSM operator. The phone will work even if the keyboard pad is locked.

Action

Once you have assessed all the available information and formulated a plan you must decisively put that plan into action. As you act, continue to reassess.

You may become aware of information that will alter your plan as you perform the rescue. Remember your own personal safety and survival is paramount.

Aftercare

As there is a potential for secondary drowning, all near drowning patients should seek medical attention.

Aftercare also includes:

Notifying:

- employers of the situation
- parents or relatives
- medical authorities

Completing accident report forms where necessary for:

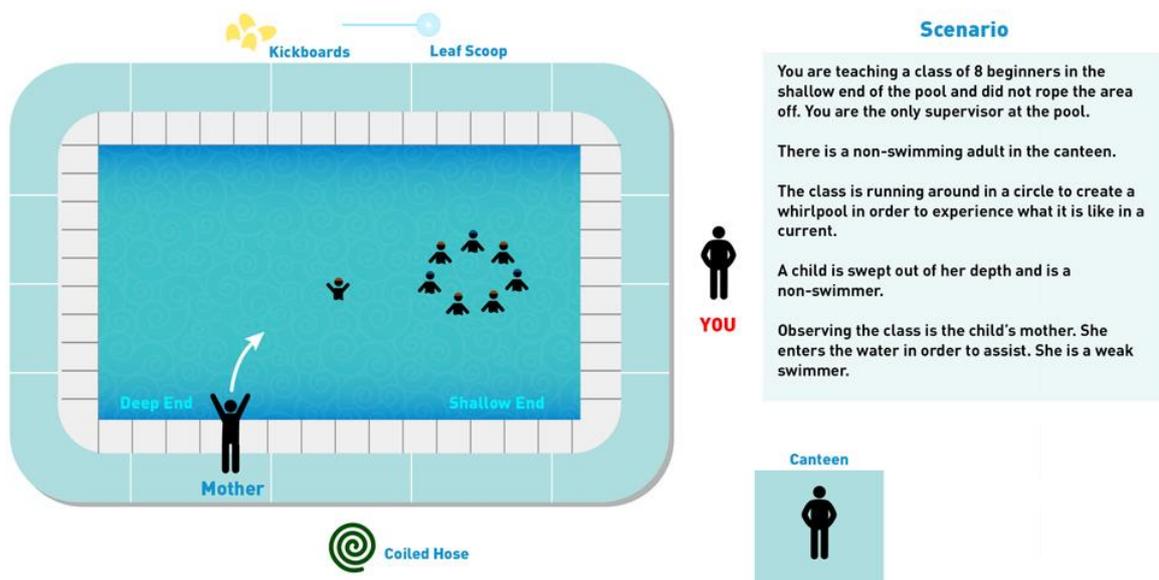
- police
- coroner
- employers

- hospital
- insurers
- venue owners

Seeking post trauma counselling where necessary

Reviewing the process to improve your actions in future situations

A Teaching Scenario



The diagram shows a potential rescue situation. Look at the scenario and decide what you would do.

Considerations

There is usually more than one correct way for an effective rescue.

Awareness – If a "What are the potential risks if I undertake this activity?" question had been asked prior to the activity, a Teacher may have placed a rope across the pool or been in the water themselves and thus prevented the situation even occurring.

General rules for a rescue:

- let others know what you are doing and get outside help if at all possible
- measure your own capabilities and skills against the environmental conditions. (else there may be a need to rescue two people – you and the patient)
- if your patient is conscious, calm and reassure them frequently
- where possible, use a non contact tow
- if using a contact tow, utilise buoyancy/floatation/rescue aids if at all possible
- try to keep the patient in your slipstream

Assessment – the accident has happened.

a. The Teacher accepts they are the one that has to respond. The Teacher must act "in loco parentis" I.e. as though they were the parent of each one of their Students.

- "What would a prudent parent do in this situation?"
- "What are my own capabilities?"

b. There is a weak swimmer and a non-swimmer requiring assistance.

- "Whom do I rescue first?"
- "What sort of rescue is most effective?"

c. What aids are available?

- Remember – use your voice and "reach, throw, wade, row, swim, tow!".
- "What is the best aid to use based upon the type of people in difficulty and the distance from safety?"
- "Where are they situated?"

d. Remember to get outside help ASAP. Contact the canteen worker who should know from the instructions placed beside the phone what to do.

Action - Action is based upon the developed plan which should be continually reviewed.

Use a prearranged and pre-practiced emergency signal to notify the other swimmers and the canteen of the situation.

Three whistle blasts are given. The class responds by exiting the water and proceeding to a designated meeting point. The canteen adult closes the canteen, assists the class in leaving the water, and continues to supervise the class in the meeting point area.

The Teacher having handed on their class supervision responsibility to the canteen adult can then respond to the emergency.

The Teacher identifies that the non-swimmer can be rescued by a reach rescue undertaken using the leaf scoop. The weak swimmer can be "made safer" by throwing a floatation aid (kick board)

The Teacher picks up the leaf scoop pole and a kick board. Whilst the rescue of the non-swimmer would usually be the highest priority, the weak swimmer can be rescued first in this example, as the rescue of the non-swimmer is not delayed by the following action.

First, the Teacher makes their way to the side of the pool and throws a kickboard to the weak swimmer (the weak swimmer now has buoyancy and is safer).

Then, lying down the Teacher reaches with the leaf scoop to the non-swimmer to affect a reach rescue. By gently prodding the non-swimmer with the leaf scoop, the non-swimmer grabs the scoop and is slowly pulled back to the edge and assisted out of the water.

To retrieve the weak swimmer without the rescuing Teacher ever entering the water, the leaf scoop or alternately the coiled hose is used to bring about a throw rescue (a dry, non-contact rescue).

Aftercare

As the response was quick, the main follow up is to log the incident in the pool incident log, review the situation to modify future lesson plans of a similar type and to assess the trauma to the Student, parent and the class.

A discussion of what happened and the responses should take place with all concerned. Also notified are Venue managers, program supervisors and employers.

The Students in the class should undertake some discussion about what happened and why and the situation used as a learning experience for all concerned.

The Teacher should consider modified strategies within that activity which may alleviate the potential risk next time. E.g. the Teacher in the water, a second Teacher present, the deeper area roped off or the activity delayed until Students can swim better.

Note: Prudent employers will require employees to have qualifications in First Aid and require them to be able to perform a rescue in the environment they are teaching in.

There is currently some speculation over the use of the Heimlich manoeuvre as part of the process of CPR to assist in clearing the lungs of water prior to attempting resuscitation.

Disclaimer - To the fullest extent permissible under Australian law, ASCTA and Swim Australia accept no liability for any loss or injury that may occur as a result of the information disclosed herein.

Rescue Breathing (EAR) and CPR Information

It is recommended to check with the World Resuscitation Council or other such organisations in your country for the current and most up to date information on CPR. The information below is a general overview only and does not constitute formal CPR training. In Australia the Australian Resuscitation Council (ARC) would provide this information.

Furthermore as Swim Australia teachers, ASTCA strongly recommend teachers regularly update knowledge in CPR and First Aid.

In any situation where a patient has stopped breathing, you should call 000 (or 112 on a mobile from a remote location), activate your EPIRB or send someone to get help as soon as possible.

However, having knowledge of and performing first aid could well prevent a fatality. Effective rescue breathing (also known as Expired Air Resuscitation, or EAR) and cardiopulmonary resuscitation (CPR) saves lives, they're easy to learn and will give you a skill for life.

Never place yourself in danger. If someone is struggling to stay afloat, throw them something buoyant or a rope and pull them in; if they're unconscious, enter the water and tow them to the side. Once on land, ensure their airway is open (by tilting their head back as far as possible), and facilitate adequate drainage. If they vomit, turn them onto their side – you may need to scoop vomit from their airway before rolling them onto their back and continuing resuscitation. If there is one available, use a face mask. The risk of disease transmission is small, but a mask can be reassuring.

Once their airway is clear they may resume breathing, but their respirations may be shallow and very slow. Listen and look closely for signs of normal breathing (spend at least 10 seconds doing this).

CPR If the patient is not breathing normally and shows no signs of life then initiate CPR at a rate of 30 chest compressions to two breaths. The compressions should be quite fast about two per second – and the same rates apply for infants, children and adults, and regardless as to whether there are one or two rescuers.

The place to administer compressions is the lower half of the sternum (the centre of the chest). It should be depressed quite hard. The aim is to depress the chest by one third of its depth; this requires less force for children (maybe use one hand) and less again for infants (two fingers). Continue CPR until medical help arrives, or the patient begins breathing and the heart resumes beating.

PREVENTION You're less likely to get into trouble in the first place if you're careful around water. Always, wear a personal floatation device (PFD) when paddling or boating, learn to identify the signs of dangerous currents – such as rip and undercurrents – and don't underestimate the effect of cold water and /or a strong current on your swimming ability. Avoid swimming alone, and never swim after drinking alcohol. Lastly, teach your kids to swim and to respect the power of water.

FACTS

If the patient is breathing they must have a pulse.

Any patient that has been involved in a submersion incident – or who has been resuscitated for any reason – must be rapidly evacuated. In any case of near-drowning it's important to monitor the patient for the next 72 hours for any breathing difficulty, such as wet-lung sounds, a productive cough, rapid shallow breathing, or an inability to take a deep breath. It is most likely that any complication after an event will be within the first six hours, so monitor the patient's vital signs closely, including their level of consciousness

Risks and Hazards

Key Terminology:

A **hazard** is a situation that poses a level of threat to life, health, property or environment.

Risk is the chance or probability that a hazard will cause harm.

Risk perception is the subjective judgement people make about the severity of a risk and this may vary from person to person based on their unique perspective.

In the swimming context there are various sub-categories of hazards with several examples:

- **People Hazards**
 - o Inexperienced swimmers
 - o Inexperienced or unqualified teachers and coaches
 - o Swimmers under the influence of alcohol or illegal substances

- o Elderly swimmers
- o Swimmers with known or unknown medical conditions
- o LWD Swimmers
- o CALD Swimmers
- **Activity Hazards**
 - o Inappropriate programming for age/ability
 - o Inappropriate intensity leading to overuse injuries
 - o Diving or tumble turning in shallow water
 - o Failure to communicate strategies for safe entries and exits
- **Facility Hazards**
 - o Plant room and chemical storage
 - o Significant changes in depth
 - o Diving blocks and platforms
 - o Insufficient signage
- **Environmental Hazards**
 - o Sun exposure
 - o Lightening and storm activity
 - o Wind chill
 - o Water quality
 - o Air quality

5 Steps of Risk Assessment

Risk management is an ongoing formal and informal process which helps to keep your patrons safe and well while they use your facility. Effective Risk Management involves all staff members, not just Management. It is an excellent habit to encourage all members of your team to “walk a lap” of their teaching area before they begin teaching each day.

There are five steps in the Risk Management process:

Step 1. Identify the Hazard

Notice and identify the potential hazard and the risk it presents.

Our Example: A broken pool tile is seen just near the edge of the pool, which has the potential to cut someone if they make contact.

Step 2. Identify Who May be Harmed

Evaluate who is in danger of being harmed by the identified hazard. Common parties affected include: Swimmers, Pool Staff, Teachers and Coaches, Non-Swimming Spectators.

Our Example: The broken tile could potentially injure swimmers and all Teaching staff who enter the water in that area.

Step 3. Minimise the Risk

This step involves taking action. This might include: Marking the hazard with a safety cone, arranging maintenance or cleaning or in more serious situations even closing the pool temporarily while larger building works or re-designs to the area can be made.

Our Example: Mark the broken tile with a safety cone to warn swimmers to steer clear and contact pool maintenance to come and remove, replace and re-grout to ensure all sharp edges and removed.

Step 4. Record

It is very important to make a record of any and all risk assessments you undertake. This protects you and your facility in the event of an accident or incident. It is pertinent to have a Risk Assessment file available for all staff to access and a simple form for them to log any hazards they identify and actions they take to minimise risk.

Here is a sample form:

Staff Member Name	Date	Describe the Hazard	Who Could be Harmed?	Level of Risk High? Medium? Low?	A

Johnny Careful	27/10/15	Wobbly starting block (#6). Slip and fall risk leading to possible cuts, abrasions, fractures and even spinal injury.	Swimmers Swimming Teachers and Coaches	Medium	E n c
Lisa Safe	28/10/15	Lane ropes left on pool deck in the early evening. Tripping hazard leading to possible cuts, abrasions and even fractures.	Swimmers Non-Swimming Spectators Teachers and Coaches	Low	I
Mark Non-toxic	28/10/15	Faecal incident at 2:00pm in Learner Pool. Contamination which could lead to possible illness of patrons on a wide scale if ingested.	Swimmers Teachers and Coaches	High	F S C S I I C S

Step 5. Review

Finally, it is important to have a supervising staff member review your Risk Assessment logbook on a regular basis to look for trends. This is especially important for large organisations with many staff. Identifying a trend can lead to more major building works or re-design as well as targeted staff training and development or public awareness campaigns for patrons.

Proactive Risk Prevention

Effective Risk Prevention requires an ongoing commitment and a proactive, (not reactive) approach.

There are many simple steps a Pool or Swim School management team can take to prevent hazards before they become an issue:

- Commit to a formal annual facility audit. You can develop your own checklist or access a self-assessment tool via Swim Australia™ swim school membership and accreditation.
- Commit to a program of ongoing maintenance of the facility and all fixed assets, this includes having sufficient budget in place.
- Commit to a program of ongoing cleaning, repair and replacement of all consumables including teaching equipment.
- Undertake a formal risk assessment for all major activities offered at your Swim School, especially special events, which include out-of-the-ordinary staffing, equipment or access.
- Ensure all staff have up-to-date teaching and first aid qualifications and have access to a program of ongoing professional development, which includes Health and Safety awareness. Ideally you should maintain a register of qualifications which includes expiry dates.
- Ensure all staff have up-to-date Working with Children checks and have access to a program of professional development in the area of Child Protection.
- Ensure that all programmed aquatics are staffed at the correct ratios to ensure safety and ease of supervision. Ensure that maximum bather loads of your facility are never exceeded and that they are adapted as required (for example when using large inflatable pool toys).
- Ensure that all staff are aware of the locations of the following:
 - Nearest phone
 - Nearest first aid kit
 - Nearest exit (and alternative if the nearest is blocked)
 - Nearest alarm (Fire/Lightning/Lock-down)
 - Nearest rescue equipment
 - Nearest AED

- Develop and fine tune clear Emergency Action Plans for the following situations:
- Near-Drowning Emergency
- Fire Emergency
- Pool Contamination
- Chemical Storage Emergency
- Lightening
- Natural Disaster Emergency (Flood, Storm, Bushfire, etc)
- Security Situation (Intruder, Civil Disturbance, Violence)