

SAFER WATERS

The advantages of swimming pools
for water competency



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FOREWORDS

In these forewords, Adam Katchmarchi and Sabeena Hickman underscore the pivotal role of swimming pools in promoting water safety and competency. Their perspectives illuminate how pools can become inclusive spaces for education, empowerment and stronger, safer communities.

Creating a culture of water safety and competency

As I reflect on the work of the Pool Horizons Water and Safety working group, I am reminded of a simple but powerful truth: water is both a source of joy and a serious responsibility. This report embodies our collective vision to create a world where everyone, regardless of background or ability, is empowered to enjoy water safely. With drowning remaining one of the leading causes of preventable deaths worldwide, this mission is not just important - it is urgent.

Swimming pools are uniquely positioned to address this challenge. Unlike unpredictable natural waters, pools provide a controlled environment where individuals of all ages can learn critical water competency skills, gain confidence and develop a lifelong respect for aquatic safety. Through innovative design, inclusive programming and community engagement, pools can become beacons of safety, education and empowerment.

This report outlines actionable steps for policymakers, industry leaders, educators and communities to join forces in creating safer aquatic environments. From breaking down barriers to access to championing water competency as a universal life skill, the solutions presented here are a roadmap to reducing drowning risks and fostering resilience.

I am very grateful to my fellow contributors, whose expertise and passion have shaped this report into a powerful call to action. Water safety is not just a skill but a responsibility we all share. By prioritizing education, fostering awareness and addressing barriers, we can create a world where everyone has the opportunity to interact with water confidently and safely.

Adam Katchmarchi

Associate Professor
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USA



Swimming pools: Gateways to safer communities

Drowning remains a tragic reality for too many families and communities. But we have the tools and knowledge to change this narrative. Swimming pools, with their controlled environments and accessibility, provide the perfect venues for teaching critical skills that help prevent drowning and promote confidence in and around water, competencies that will serve people throughout their lives.

As President and CEO of the USA Pool & Hot Tub Alliance, I am proud to contribute to this pivotal report. Through the collective efforts of the Pool Horizons Water and Safety working group, this document lays the foundation for reimagining pools as essential hubs for life-saving education and community wellbeing.

This report is a testament to what we can achieve through collaboration. By addressing barriers to access, advocating for inclusivity and fostering a culture of water safety, we can ensure that every community has the opportunity to thrive. Each of us has a role to play in realizing this vision.

I am inspired by the dedication of everyone who contributed to this report. Let it be a rallying cry for our industry and communities to prioritize water safety, create inclusive opportunities and ensure swimming pools are recognized as vital resources.

Sabeena Hickman

President and CEO
Pool and Hot Tub Alliance
USA



EXECUTIVE SUMMARY

Water competency and swimming are life skills that save lives and unlock a lifetime of enjoyment in and around water. Swimming pools are the best spaces to learn these skills. This report envisions a future where swimming pools are seen as essential, accessible community assets.

The Pool Horizons Water and Safety report addresses the **role swimming pools play in fostering water competency and safety, especially in a world where drowning remains a leading cause of preventable deaths.** Recognizing the unique capacity of pools to provide safer, more controlled environments, this report envisions a future where swimming pools are essential public resources for water safety education, community wellbeing and social inclusivity.

This report examines global drowning disparities, highlighting socioeconomic, geographic and cultural barriers that limit access to swimming education and facilities. It advocates for comprehensive, accessible water competency training in pools, which are well-suited to teaching life-saving skills in a structured setting. By breaking down barriers, swimming pools can serve as equitable, inclusive venues that democratize water safety.

Key recommendations call on stakeholders – policymakers, industry leaders, educators and community groups – to prioritize water safety and drowning prevention. Suggested initiatives include subsidized access to pools, community-based swimming programmes, culturally sensitive programming and the use of innovative technologies to enhance safety.

This vision seeks to ensure that swimming pools are seen as essential community assets; places of leisure and enjoyment, of sport and competition, of health and wellbeing, where people of all ages, abilities and backgrounds can acquire essential water competency. **By equipping people with water competency skills, drowning rates can be reduced and communities empowered to engage safely with aquatic environments, fostering a culture of resilience and confidence around water.**

OPENING PERSPECTIVES

The Pool Horizons initiative provides a guiding compass for the swimming pool industry's response to modern social and environmental challenges. By creating safer, more accessible spaces, swimming pools empower individuals with essential water competency skills and contribute to community wellbeing, building a foundation for a safer and more resilient society.

Pool Horizons

The Pool Horizons initiative serves as a guiding star for the swimming pool industry and its entire ecosystem, helping to navigate the complexities of the 21st century's second quarter. It offers a strategic vision to address the social and environmental challenges of our time. This effort is the result of a unique collaboration between global industry experts and key stakeholders, who together have crafted a forward-looking roadmap, one that charts a course across four horizons, showing how the swimming pool industry can shape a future that is both hopeful and sustainable.

Health and Wellbeing

Pool Horizons envisions a world where swimming pools are not only leisure spaces, but powerful tools for enhancing physical and mental health, aquatic sanctuaries that can uplift individuals, weaving them into a broader tapestry of wellbeing.

Community Development

Swimming pools can be hubs of social vitality and engines of community cohesion. Pool Horizons aims to ensure that access to water is not a privilege but a universal right.

Water and Safety

Swimming pools are the best place for individuals of all ages to develop water competency, an essential skill that reduces risks and unlocks a lifetime of enjoyment in and around water.

Sustainability and the Environment

The swimming pool industry has worked to evaluate the sustainability of swimming pools over the years, with significant progress in innovation and the implementation of best practices. Pool Horizons calls for a new relationship between swimming pools and the environment, promoting a vision of harmony between human-made spaces and the natural world.

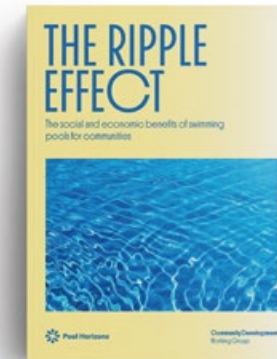
These four horizons weave together into an interconnected network, stretching from individual actions to community impact and further, shaping our global environment.

The Pool Horizons working groups, organized around these themes, have presented their conclusions in four reports, of which this is one.



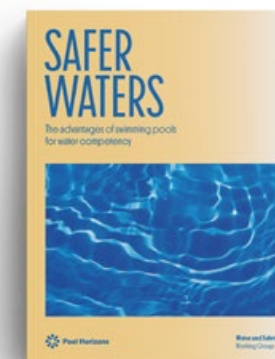
Making a Splash

The positive impact of swimming pools on health and wellbeing



The Ripple Effect

The social and economic benefits of swimming pools as community spaces



Safer Waters

The advantages of swimming pools for water competency



Keep Swimming

The present and future of swimming pools and sustainability

The report highlights the pivotal role of swimming pools in enhancing water competency among individuals and communities, enabling them to safely enjoy aquatic environments while reducing the risk of drowning. Emphasizing the need to address disparities in proficiency, particularly in vulnerable populations, it advocates for a unified approach to promote water safety as a fundamental aspect of community wellbeing. This call to action envisions a future where swimming pools are central to cultivating a global culture of safety, equipping people of all ages with the skills and awareness to interact confidently and responsibly with water.



The swimming pool industry's commitment to water safety

Swimming pools are places of leisure and enjoyment, of sport and competition, of health and wellbeing; they are also environments where people of all ages, abilities and backgrounds can acquire essential water competency skills. Improved water competency in a community reduces the risk of drowning, an often-preventable tragic reality that affects societies worldwide. By championing water competency as a life skill, the swimming pool industry addresses the concerning rates of drowning and plays a transformative role in global public health.

Beyond recreation, swimming pools can cultivate a culture of inclusion, safety and continuous learning. As the swimming pool industry innovates and broadens access, it does more than prevent accidents; it envisions a future where everyone enjoys the water more safely and confidently. This commitment to water safety works towards a world where no one is left behind, closing the gap in water safety and creating communities equipped for safer aquatic experiences.

THE STATE OF WORLD WATER SAFETY

Drowning is a serious global health issue, ranking among the leading causes of accidental injury and death worldwide. However, it has frequently been overlooked, often due to disparities in socioeconomic status, education and cultural factors. Raising public awareness, improving access to water safety education and implementing culturally sensitive interventions are essential steps to reducing the number of preventable drownings.



Water competency: a public health priority

A decade ago, in 2014, the World Health Organization (WHO) identified drowning as a pressing global public health issue, recognizing its extensive impact on communities worldwide. According to WHO Global status report on drowning prevention 2024, **drowning causes approximately 300,000 deaths annually, the third leading cause of unintentional injury-related fatalities globally (WHO, 2024a)**. This figure is staggering, representing nearly two-thirds of deaths caused by malnutrition and over half of those caused by malaria. **Over 90% of drowning incidents occur in low- and middle-income countries, where preventative infrastructure and resources are often limited.**

Particularly vulnerable groups include children under five years old, who face the highest drowning rates. Notably, drowning ranks as one of the top five causes of death for children aged 1 to 14 in 48 of the 85 countries with available data, underscoring the urgent need for targeted interventions. Males also show a higher susceptibility, with drowning incidents affecting them twice as often as females. Notably, drowning ranks as one of the top five causes of death for children aged 1 to 14 in 48 of the 85 countries with available data, underscoring the urgent need for targeted interventions (WHO; 2024a).

Over the past decade, international awareness around drowning has expanded significantly, with various stakeholders - including the United Nations, national governments, researchers and civil society organizations - joining forces to address this preventable tragedy. This unified approach began with the WHO's publication of foundational documents, such as the Global Report on Drowning: Preventing a Leading Killer (2014), which aimed to outline the scale of drowning, its causes, and associated risk factors. Building on this foundation, subsequent publications, such as the Preventing Drowning: An Implementation Guide (2017), provided practical strategies for prevention, laying the groundwork for community-based water safety initiatives worldwide.

In 2021, the United Nations General Assembly acknowledged drowning prevention as a critical component of sustainable development, linking it with broader social equity, urban resilience, climate adaptation and child welfare. This acknowledgment culminated in the establishment of July 25 as World Drowning Prevention Day, a date set aside to encourage action, raise awareness and promote water safety practices around the world.

The focus on drowning prevention gained further momentum in May 2023, when the World Health Assembly adopted a new resolution aimed at accelerating global efforts to prevent drowning. This initiative called upon national health ministries to collaborate with regional representatives, public health organizations and NGOs to bolster research, fund innovative prevention strategies and engage with communities on a regional level to mitigate drowning risks.

The publication of the WHO Global status report on drowning prevention 2024 marks a significant milestone in global drowning prevention efforts. This comprehensive report provides updated insights, highlights effective interventions and charts a clear path forward to reduce drowning rates worldwide. It serves as a valuable resource for policymakers, community leaders and advocates, equipping them with the data and strategies needed to advance water safety and public health on a global scale.

Through these coordinated actions, drowning prevention has evolved from a neglected issue to a recognized public health priority, with a clear roadmap for reducing preventable deaths and fostering safer water practices worldwide.



Drowning disparities

Drowning is one of the leading causes of unintentional injury and death worldwide, affecting hundreds of thousands of individuals across all age groups and socioeconomic backgrounds (WHO; 2024a). **While drowning occurs in every region of the world, factors such as socioeconomic status, age, ethnicity and cultural practices influence drowning rates, creating stark disparities. Understanding these nuances is essential to addressing drowning as a global public health issue.** Tackling the root causes through education, safety measures and improved access to resources is crucial in reducing these preventable deaths.

Drowning disparities by region

Drowning rates vary significantly across regions, with the highest rates recorded in low- and middle-income countries where access to water safety education, resources and infrastructure is limited. Factors such as proximity to open water, lack of barriers, insufficient supervision and reliance on water sources for daily activities contribute to higher drowning risks in these regions.

In **South Asia**, drowning is a major public health issue, particularly in Bangladesh, India and Nepal. In Bangladesh, drowning is the leading cause of death for children aged 1 to 4, with young children in rural areas especially vulnerable due to the prevalence of unprotected water bodies near homes (Jamal Hossain et al. 2022). Similarly, in India drowning rates are high among rural populations who rely on rivers and ponds for domestic use, agriculture and bathing (Life Saving India, 2022). In Nepal, a country with extensive river systems and frequent flooding, drowning risks are heightened, particularly during the monsoon season when river levels and currents increase (Sedain et al., 2018).

In **Southeast Asia**, countries including Vietnam, Cambodia and Thailand report high drowning rates, often due to limited water safety education, frequent interactions with water bodies and the reliance on water-based livelihoods. In Cambodia, the risk of drowning is amplified by the widespread use of rivers and ponds for agricultural purposes and a lack of formal swimming training for children in rural areas (Swim Cambodia, 2022). Vietnam, a country with an extensive coastline and complex river systems, has made strides in recent years to reduce child drowning rates through community-based water safety programmes; however, drowning remains a critical issue (Global Health Advocacy Incubator, 2022).

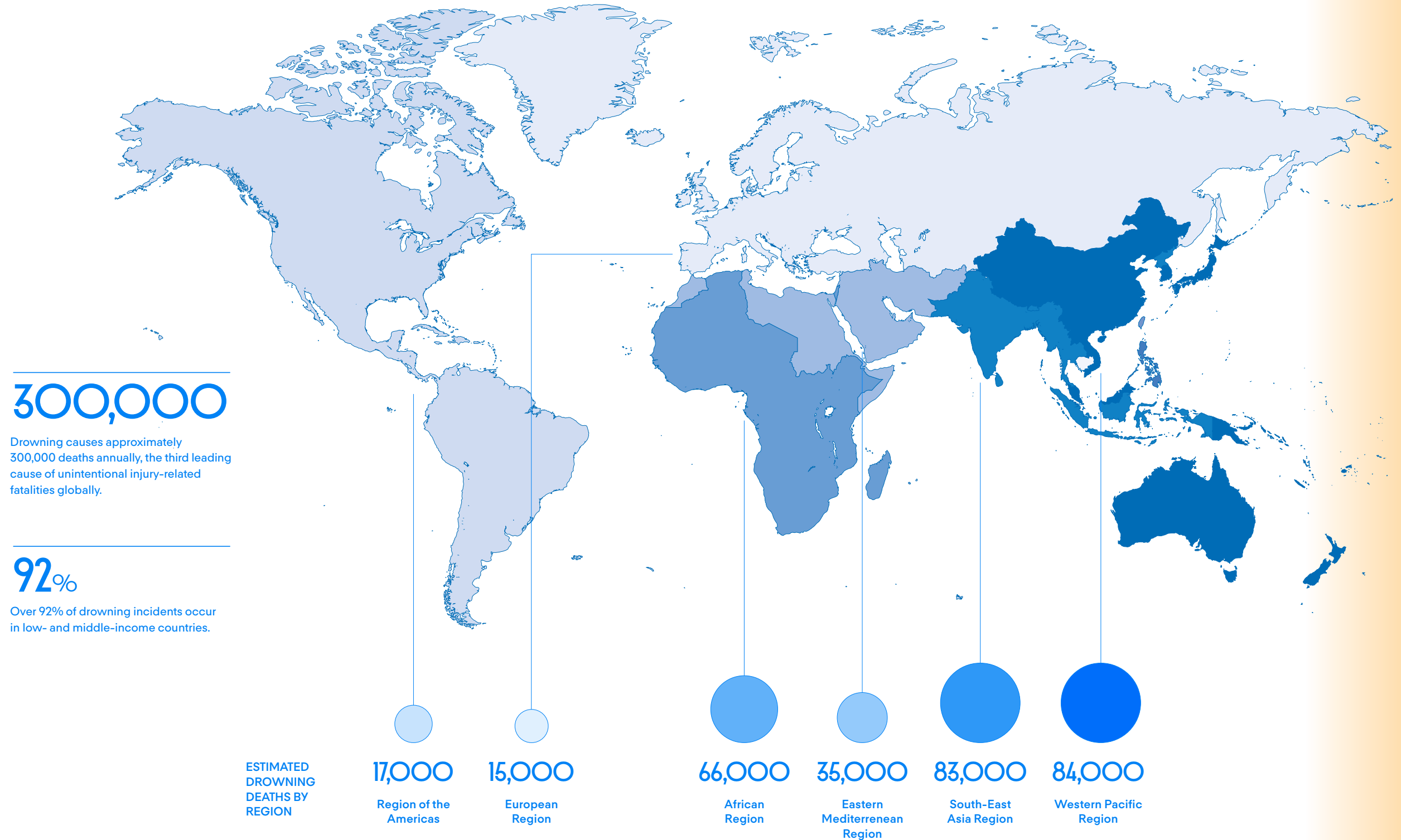
In **Africa**, drowning rates are notably high in countries where water bodies are commonly used for drinking water, fishing and transportation. In Nigeria, Ghana, and Uganda, for example, communities living along rivers and lakes face heightened drowning risks, especially during the rainy season when flooding is common (Makerere University, 2020). The lack of water competency skills, safety protocols and equipment such as lifejackets contributes to high fatality rates in these areas. In Tanzania, Lake Victoria is a site of frequent drownings due to the reliance on the lake for fishing and transportation, combined with inadequate safety equipment and rescue infrastructure (Whitworth, 2019).

Latin America faces similar challenges, particularly in countries such as Brazil, where river communities face high drowning risks due to frequent exposure to water for fishing, transport and recreation. In the Amazon Basin, Indigenous communities are at risk as they often depend on rivers for their livelihoods and travel (Sociedade Brasileira de Salvamento Aquático SOBRASA, 2024). Brazil's large urban population also faces risks in coastal areas, where drowning rates are exacerbated by strong currents and limited lifeguard services on crowded beaches (SOBRASA, 2024). In Mexico, which has long coastlines and large inland water bodies, drowning rates remain a significant concern, particularly in regions where tourism and water-based recreation are prevalent (Pérez-Núñez, 2020).

High-income countries typically report lower overall drowning rates due to the availability of water competency education, safety regulations and robust rescue services. However, drowning remains a serious issue in countries including the United States, Canada and Australia, especially in rural or remote areas where water safety resources are less accessible (Centers for Disease Control and Prevention, CDC, 2024a). In Canada, for instance, Indigenous communities living near lakes and rivers experience disproportionately high drowning rates due to limited access to life-saving resources and safety education (Life Saving Canada, 2024). In Australia, a country known for its beach culture, drowning is a major concern both in rural areas and along the coast, with a notable increase in drownings occurring during holiday seasons (Royal Life Saving Australia, RLSA, 2024).

FIGURE 1

NUMBER AND RATE OF DROWNING DEATHS BY WHO REGION



Source
Global status report on drowning prevention 2024 (WHO, 2024)

Drowning differences by age

Drowning is a leading cause of death among children and adolescents globally. The highest rates are observed in children under five years old, who are particularly vulnerable due to factors such as lack of supervision, proximity to water and limited water competency skills. However, adolescents and young adults also face high drowning risks due to recreational activities, risk-taking behaviours and insufficient safety measures.

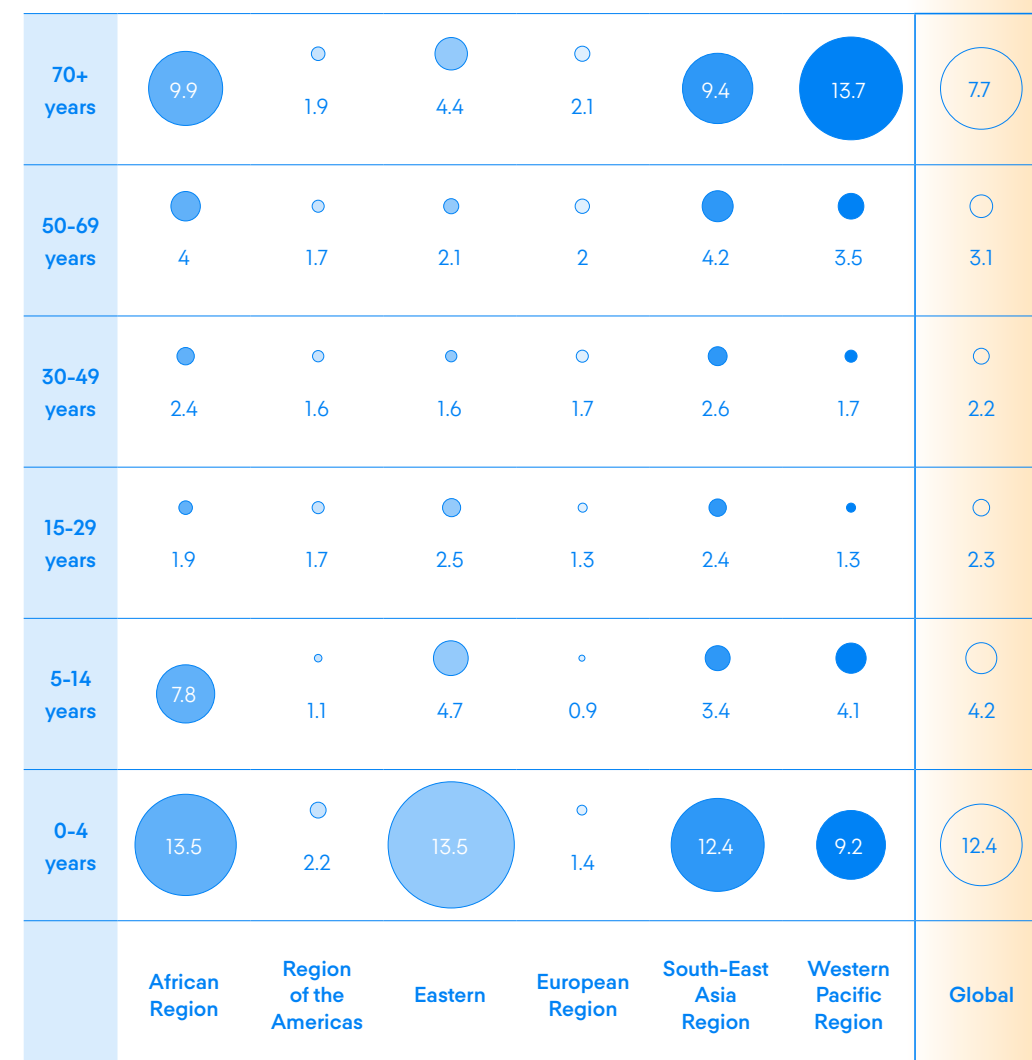
Young children under five years old are at a high risk of drowning in nearly all regions. In South Asia, for instance, children in rural areas are frequently exposed to unprotected water sources near their homes. In Bangladesh, children often drown in small ponds or ditches within metres of their homes, as these water bodies are used for household tasks. In Sub-Saharan Africa, children face similar risks, with many drownings occurring in open water used for bathing or collecting water. In high-income countries, drowning is also a leading cause of death for young children. In the United States, for example, most drownings in children under one year occur in bathtubs, while toddlers aged 1 to 4 face the greatest risks in swimming pools (WHO; 2024a).

Adolescents and young adults, especially those aged 15 to 24, have high drowning rates worldwide. In high-income countries, this age group is often involved in recreational activities, such as swimming, boating and water sports, which increase the likelihood of drowning incidents. In New Zealand, for instance, the country's coastal and river systems attract young adults to high-risk water activities. In countries with extensive coastlines, such as Australia and the United States, alcohol consumption, peer pressure and overconfidence in swimming abilities contribute to higher drowning rates among adolescents and young adults. In contrast, in low- and middle-income countries, young people are more likely to drown while engaged in work-related activities, such as fishing or collecting water (WHO; 2024a).

Older adults, particularly those aged 65 and above, also face unique drowning risks. In Japan, where the ageing population often engages in river-based fishing or agricultural activities, older adults are at a higher risk of drowning due to physical limitations and underlying health conditions. In European countries such as Germany and France, elderly people who live near lakes or rivers face similar risks, particularly during the summer months when drowning rates peak (WHO; 2024a). Limited mobility, weaker water competency skills and pre-existing health conditions make older adults especially vulnerable to drowning, underscoring the need for targeted safety measures for this age group.

FIGURE 2

RATES OF DROWNING DEATHS (PER 100,000 POPULATION) BY AGE, GLOBALLY AND BY WHO REGION, 2021



Source
Global status report on drowning prevention 2024 (WHO, 2024)

Drowning differences by ethnic community

Drowning disparities are shaped by a complex mix of socioeconomic, cultural and historical factors. Many communities have faced barriers to safer recreational water facilities, aquatic activities, swimming education and safety training, which has resulted in higher drowning rates today.

For example, in the USA there are significant drowning disparities across ethnic groups, particularly among children. African American aged 10 to 14 are 7.6 times more likely to drown in swimming pools compared to white children, with these gaps most prominent in public pools Centers for Disease Control and Prevention, CDC, 2024b).

The lack of accessible swimming pools in predominantly Black and Hispanic neighbourhoods and the high costs of swimming lessons further exacerbate the risk (CDC, 2024b). American Indian and Alaska Native people under 30 experience drowning rates that are 2 times higher than white people, with a particularly high risk for those aged 25 to 29. These inequalities reflect broader access and safety challenges in underserved communities.

In Australia, Indigenous communities are disproportionately affected by drowning compared to non-Indigenous Australians. The drowning rate among Indigenous people is approximately 2.2 times higher than that of the non-Indigenous population. Contributing factors include geographical isolation, with many Indigenous communities located in remote and regional areas where access to swimming education, rescue services and safer aquatic facilities is limited. In these areas, drowning risks are elevated due to people taking part in aquatic activities in and around rivers, lakes and other natural bodies of water, which are more hazardous and less supervised than controlled environments such as swimming pools (Royal Life Saving Australia, RLSA, 2024).

In Canada, Indigenous communities face drowning rates nearly three times higher than the national average (Drowning Prevention Research Centre, 2022). The remoteness of many Indigenous communities, which often rely on rivers and lakes for transportation, sustenance and cultural practices, contributes to this increased risk. In regions with limited access to formal water competency lessons and life-saving equipment, such as life jackets, drowning incidents are frequent and deadly.



In Europe, similar disparities are seen among migrant communities, particularly those from non-coastal regions or countries with limited water safety traditions. In Sweden, for example, recent migrants are at higher risk of drowning as they may lack water competency skills or familiarity with Sweden's extensive network of lakes and coastal areas (Tyr et al., 2024). Programmes aimed at integrating water safety education for these communities have become increasingly important as a preventive measure. In the Netherlands, where drowning prevention was part of the school curriculum from the 1960s to the 1980s and is likely to be reintroduced again, as children from migrant backgrounds still face elevated risks due to disparities in swimming proficiency, further highlighting the need for inclusive and accessible water safety programmes (OECD, 2022; Dutch News, February 2024).

The disparities in drowning rates across regions, age groups and ethnic communities underscore the need for targeted and culturally sensitive interventions. Solutions must address both structural inequalities, such as access to water safety education and swimming facilities, and region-specific challenges, including reliance on natural water sources and the prevalence of unprotected water bodies. **By implementing comprehensive and community-oriented drowning prevention strategies, such as universal water competency education, public safety campaigns and improved access to life-saving equipment, a meaningful reduction in global drowning incidents can be achieved.**

Causes of drowning

Lack of water competency

One of the primary causes of drowning is a lack of water competency. Individuals who cannot swim or have limited swimming skills are at a significantly higher risk when exposed to aquatic environments. This inability to swim, or at least stay afloat, prevents them from effectively coping with unexpected situations such as sudden immersion, strong currents or accidental falls into water (WHO, 2024b).

Academic research shows that participation in formal swimming lessons was associated with an 88% reduction in the risk of drowning among children aged 1 to 4 years (Brenner et al., 2009). Despite this, a large percentage of the global population lacks basic swimming skills. The American Red Cross reported that while **80% of Americans claim they can swim, only 56% can perform essential skills such as floating, treading water for one minute or swimming 25 yards without stopping** (American Red Cross, 2014). This gap between perceived and actual swimming ability could increase the risk of drowning.

Socioeconomic factors often limit access to swimming education. In many communities, especially those with lower incomes, the cost of swimming lessons, lack of facilities and cultural barriers can prevent individuals from acquiring necessary water competency skills. For instance, in urban areas with limited access to public pools, children may not have opportunities to learn how to swim. Cultural attitudes towards swimming can also influence participation rates. In some societies, swimming is not considered a priority, and there may be misconceptions about the risks associated with aquatic activities.

Efforts to increase access to swimming education are crucial.

Implementing widespread, affordable swimming lessons can equip individuals with essential skills to prevent drowning. Public awareness campaigns that promote the importance of swimming ability for personal safety could also play a role in reducing drowning incidents.

Absence of safety features

When pools and other water areas are left unsecured, there is a higher chance of accidental entry, especially among younger children, who may unknowingly wander into these hazardous areas.

A lack of proper fencing around bodies of water greatly increases the risk of unintentional drowning. A study in the Cochrane Database of Systematic Reviews concluded that pool fencing can reduce the risk of drowning by 73% (Thompson & Rivara, 2000). Implementing legislation that requires fencing around pools and other bodies of water could be one avenue to help mitigate the risk of unintentional drownings.

Swimming pool covers could potentially help reduce the likelihood of a drowning by creating a secure barrier that restricts access to the water, especially for children. Rigid safety covers can support weight, while some automated covers ensure continuous protection by closing when the pool is not in use. Covers also act as a visual deterrent, making the pool less appealing to explore.

Detection systems in pools can help prevent drowning by providing real-time monitoring and alerting. Using cameras and motion sensors, these systems analyse swimmers' behaviour to identify distress, sending immediate alerts to lifeguards or pool owners for more timely response. Portable options, such as personal alarms, offer added protection in residential settings. However, limitations include high costs for purchase, installation and maintenance, making them less accessible for smaller or residential pools or lower income economies. Factors such as water clarity, lighting and crowding may impact their accuracy and false alarms can reduce response urgency. Over-reliance on these systems could reduce active supervision, which is critical for safety. While detection systems can enhance safety, they should be used alongside other, more traditional measures such as learning water competency skills, fencing, covers, lifeguards, and attentive supervision.

Several factors contribute to the aforementioned lack of protective features. Regulatory gaps and inconsistent enforcement of safety regulations can leave bodies of water unsecured. Economic limitations may prevent property owners from installing necessary safety features, such as fencing or pool covers. There may also be a lack of awareness about the importance of safety precautions in preventing drownings.

Inadequate supervision

Inadequate supervision is a critical factor contributing to drowning, especially among children. Drowning can occur rapidly and silently, often within minutes, making constant and attentive supervision essential when people are in or near water.

Studies have highlighted the speed at which drowning can happen. Drowning can occur in as little as 20 seconds and often does not involve the dramatic splashing or cries for help that people might expect (Quan & Cummings, 2003). Research indicates that a significant proportion of drownings occur during lapses in supervision, even if only momentarily. For instance, a study found that in 88% of drowning deaths among children under five, a parent or caregiver was supervising the child at the time, but the supervision was intermittent or had momentarily lapsed (Petross et al., 2011).

Several factors contribute to inadequate supervision. Distractions such as mobile devices, conversations or household tasks can divert attention from people in the water. Misunderstandings about the risks associated with certain aquatic environments, such as shallow or familiar water bodies, may lead to complacency. Overconfidence in one's own or others' swimming abilities may also result in insufficient supervision.

Promoting active supervision is vital. Education campaigns can raise awareness about the importance of constant, focused supervision when people, particularly children, are in or near water. Establishing supervision policies in aquatic facilities and recreational areas, such as guidelines for appropriate lifeguard-to-swimmer ratios, and in family pools, a designated water watcher, can enhance safety and reduce the risk of drowning.

Alcohol and substance use

The consumption of alcohol and other substances is a significant risk factor for drowning among adolescents and adults.

The WHO identifies alcohol use as a leading contributor to drowning worldwide (WHO, 2014). **Alcohol is estimated to be involved in up to 70% of water recreation deaths among adolescents and adults** (Smith & Brenner, 1995). Alcohol impairs judgment, balance, coordination and reaction time, all of which are critical for safe engagement in aquatic activities. Alcohol consumption can lead to increased risk-taking behaviours, overestimation of swimming abilities and a reduced ability to recognize and avoid hazards. The impairment caused by alcohol not only affects the individual consuming it but can also hinder the ability of companions to provide effective assistance in emergencies. Even small amounts of alcohol can affect the body's ability to stay warm, increasing the risk of hypothermia in cold water (Freund et al., 1994).

Preventing alcohol-related drownings requires a multifaceted approach. Public education campaigns can highlight the dangers of alcohol use in aquatic settings, emphasizing the increased risks of drowning. Policy measures, including regulations prohibiting alcohol consumption in certain aquatic environments or during specific activities such as boating can also reduce the incidence of alcohol-related drownings.

Environmental and weather conditions

Unfavourable environmental conditions, including strong currents, sudden weather changes and low water temperatures, can lead to drowning even among experienced swimmers. Natural bodies of water are subject to changing conditions that can quickly become hazardous.

Rip currents are a significant environmental hazard, responsible for approximately 80% of beach rescues (United States Life Saving Association, 2020). These powerful, narrow channels of fast-moving water can quickly pull swimmers away from the shore. Many individuals are unaware of how to recognize or respond to rip currents, increasing the risk of drowning.

Cold water immersion presents another risk. Water temperatures below 21°C can cause cold water shock, leading to rapid incapacitation and an increased risk of drowning (Tipton, 2003). Hypothermia can occur quickly in cold water, reducing muscle function and the ability to swim or stay afloat.

Sudden weather events, such as storms or high winds, can create dangerous conditions in aquatic environments. Changes in the weather can lead to increased wave heights, reduced visibility and disorientation for swimmers and boaters.

Addressing environmental risks involves providing up-to-date information on weather and water conditions to the public. Posting warnings and educational materials at beaches, lakes and other recreational water sites can help individuals make informed decisions. Encouraging the use of safety equipment, such as life jackets and wetsuits, can provide additional protection against environmental hazards.

Hazards in the water

In natural water bodies, submerged hazards including rocks, debris and sudden drop-offs can pose significant risks that lead to drowning incidents.

Aquatic vegetation can entangle swimmers, causing panic and difficulty in returning to the surface. Poor visibility in murky or unclear water can conceal these hazards.

Communicating the presence of potential hazards through clear signage and public education can help prevent drowning incidents related to unsafe water conditions. Encouraging swimmers to avoid unfamiliar or unmonitored areas can also reduce the risk.

Entrapment incidents in pools and spas have been documented, often involving powerful suction from drains that can trap individuals underwater. The Consumer Product Safety Commission reports that between 2013 and 2017, there were 11 reported entrapment incidents, including 2 fatalities (Consumer Product Safety Commission, CPSC, 2018).

Updating equipment and regular inspections and maintenance of pools and spas are essential to identify and mitigate these risks.

Medical emergencies

Medical conditions and emergencies can lead to drowning if they occur while an individual is in or near water. Conditions such as cardiac events, seizures and loss of consciousness pose significant risks in aquatic environments.

Individuals with epilepsy have a drowning risk estimated to be 15 to 19 times higher than that of the general population (Bell et al., 2008). A seizure occurring in water can result in loss of consciousness and the inability to keep the airway clear, leading to drowning. Similarly, sudden cardiac arrest is a significant cause of death in aquatic environments, particularly among middle-aged adults engaged in strenuous water activities (US Coast Guard, 2019).

Unmanaged medical conditions and a lack of awareness about the risks associated with certain health issues contribute to drowning incidents. Individuals may not recognize the dangers of participating in aquatic activities without appropriate precautions.

Preventing drownings related to medical emergencies involves encouraging individuals with known medical conditions to consult healthcare professionals before engaging in aquatic activities.

Implementing a buddy system, where individuals swim with companions aware of their medical conditions, can provide immediate assistance if an emergency occurs.



Inadequate safety measures and emergency preparedness

The absence of proper safety measures and emergency preparedness can exacerbate drowning risks. This includes the lack of life-saving equipment, insufficient training of lifeguards and inadequate emergency response protocols.

The presence of trained lifeguards significantly reduces the risk of drowning. The Centers for Disease Control and Prevention (CDC) notes that lifeguards can prevent drowning by recognizing and responding to swimmers in distress (Branche & Stewart, 2001). However, insufficient training or inadequate staffing levels can limit their effectiveness.

Life jacket usage is a critical safety measure. The USA Coast Guard reports that in 2018, 84% of recreational boating drowning victims were not wearing life jackets (US Coast Guard, 2019). Life jackets provide buoyancy and can keep individuals afloat even if they are unconscious or exhausted.

Enhancing safety measures involves mandating the use of life-saving equipment in recreational and occupational settings. Providing comprehensive training for lifeguards and first responders ensures they are equipped to handle emergencies. Establishing clear emergency response procedures and regularly reviewing them can improve outcomes in drowning incidents.



Overestimation of abilities and risk-taking behaviour

Overestimating their swimming abilities and engaging in risky behaviours can lead people into situations they are unprepared to handle, potentially resulting in drowning. This includes activities such as swimming in hazardous conditions, diving into unfamiliar waters or ignoring safety warnings.

Studies have shown a correlation between sensation-seeking personalities and engagement in dangerous aquatic activities (Leavy et al., 2022). A significant number of drowning incidents involve individuals who voluntarily enter hazardous water conditions or disregard safety advice. For example, swimming in areas with strong currents, diving into shallow water or participating in water sports without proper training or equipment increases the risk of drowning.

Peer pressure and the desire for thrill can influence individuals to take unnecessary risks. Overconfidence in personal abilities may lead to underestimating the dangers present in aquatic environments.

Addressing this issue requires behavioural interventions aimed at modifying risk-taking behaviours. Education programmes that emphasize the importance of recognizing personal limits and respecting aquatic hazards can encourage safer decision-making. Promoting a culture of safety and encouraging individuals to adhere to guidelines and warnings can reduce the incidence of drownings resulting from overestimation of abilities.

Occupational hazards

Certain occupations involve working in or around water, presenting inherent drowning risks. Jobs in fishing, marine transportation, construction near aquatic environments and emergency response services expose workers to potential drowning hazards.

The fishing industry has one of the highest occupational fatality rates, with drowning being a leading cause. In the United States, commercial fishing fatality rates are 29 times higher than the national average, with 50% of fatalities resulting from vessel disasters and 31% from falls overboard (Lucas & Case, 2018). Many of these incidents are preventable through proper safety training and equipment usage.

Factors contributing to occupational drownings include harsh working conditions, such as severe weather and rough waters, long hours leading to fatigue and inadequate safety measures. In some cases, workers may lack access to or fail to use life-saving equipment including life jackets or personal flotation devices.

By combining education, policy implementation, environmental modifications and community engagement, it is possible to mitigate the factors contributing to drowning. Collaborative efforts among governments, organizations, communities and individuals are necessary to implement effective interventions and ultimately decrease the global burden of drowning.

The lifesaving power of swimming and swimming pools

As discussed in previous chapters, the absence of basic water competency skills remains the most significant risk factor for drowning. These skills enable individuals to remain calm, float and orient themselves in water, helping to prevent panic in unexpected situations. Moreover, the skill of swimming allows individuals to move efficiently through water, potentially reaching safety even in challenging conditions.

However, achieving such competencies requires consistent practice in an environment that allows for gradual skill building and confidence. Here, **the structured, safer space of a swimming pool plays a crucial role.**

Unlike natural bodies of water, swimming pools are designed for safety, accessibility and focused learning. They offer clear visibility, consistent temperatures and structured depths, reducing many of the hazards present in open water. This environment is particularly beneficial for beginners, who might otherwise feel intimidated by unpredictable conditions. Community pools have lifeguards and are equipped with safety measures that further ensure a controlled, safer setting for learning to swim.

In pools, instructors can guide learners through progressively challenging activities, building both physical skills and psychological readiness to face diverse aquatic environments. Furthermore, pools enable supervised exposure to scenarios that swimmers may encounter elsewhere, such as deeper water or prolonged immersion, allowing them to practice essential techniques without compromising safety.

The benefits of water competency skills extend beyond physical capabilities. With proficiency in swimming comes increased confidence and awareness in water settings, which can reduce panic, a common reaction during unexpected immersion. Panic often results in poor decision-making, heightening drowning risks. Swimmers who feel comfortable in water are less likely to panic, better able to conserve energy and more adept at managing their position in the water.

As individuals become skilled swimmers, they tend to develop a respectful awareness of their limits in open water. When people understand the complexities of swimming and water safety, they are less inclined to engage in high-risk behaviours, such as swimming alone or underestimating conditions. In this way, swimming education also cultivates a safety mindset, reducing risky behaviours that often lead to drowning incidents.

Swimming pools are not just places for individual learning; they can be hubs for community engagement and education about water safety. Community pools provide opportunities for public education campaigns, safety demonstrations, and lifeguard training, further contributing to overall community awareness of water risks. These facilities can partner with schools, local governments and health organizations to provide subsidized lessons, particularly for children and underserved communities who might otherwise lack access to swimming education. Private family pools also provide a unique opportunity for consistent, personalized practice, especially for families committed to integrating water safety into daily life. A private pool gives family members the freedom to practise in their own time, which can deepen their comfort in water and enhance familiarity with water safety practices.

The journey to drowning prevention is multi-layered, requiring a blend of skills, awareness and community support. Water competency skills serve as the foundation, giving individuals the tools and confidence needed to avoid drowning incidents and to respond effectively in emergencies. By championing swimming pools as primary venues for skill building, safer spaces are created where people of all ages can develop the competence needed to enjoy aquatic environments safely.

Ultimately, swimming education, especially when centred on accessible and well-managed pools, transforms the risk of drowning into an opportunity for community growth and individual empowerment.

SURVIVAL SWIMMING CENTRES

SOUTH AFRICA



Overview

In South Africa, drowning prevention is a critical concern, particularly in underserved communities where access to swimming facilities and water safety education is limited. To address this, the National Sea Rescue Institute (NSRI) developed an innovative solution: the Survival Swimming Centre containers. These mobile pools, created out of standard 12-metre shipping containers, provide access to water competency and swimming education in areas lacking traditional facilities. By bringing survival swimming programmes directly to communities, the NSRI aims to reduce drowning incidents and promote water safety awareness.

“One problem that we have is that our children, after school, they just wander around and they go swim in the dams on the farms with no supervision.”

Brenton Cupido, Riebeeck-Kasteel School Principal

Points of interest

- Approximately 1500 fatal drownings occur in South Africa annually.
- Only 15% of the population know how to swim.
- Skilled instructors teach children four essential water survival skills:
 - Mastering breathing control
 - Understanding body orientation in water
 - Learning to float
 - Navigating a minimum distance of 5 meters through the water

“Through introducing a culture of swimming, and a sense of worth and pride, we can build incredible communities.”

Andrew Ingram, Communications Manager, NSRI



Conclusions

The Survival Swimming Centres have been created by an ecosystem of companies from the swimming pool industry. They are an example of how organisations can join forces to tackle the challenges of a project efficiently, effectively and sustainably. By leveraging each other's strengths, resources and expertise, they have created a powerful platform that makes the most of the knowledge and experience within the swimming pool industry. The Survival Swimming Centre project is an initiative that not only teaches children the basics of water safety, but also helps create spaces that foster communication and collaboration within local communities.

BARRIERS TO ACCESSING SWIMMING POOLS

A closer look at the obstacles that hinder access to swimming pools and the solutions that can break down these barriers, paving the way for a more inclusive and equitable aquatic experience for all.



Economic barriers: Cost of access and equipment

Swimming pools are valuable community assets that offer numerous physical, mental and social benefits. However, economic barriers, including the cost of access and the necessary equipment, can limit the ability of many individuals and families to enjoy these benefits. **Understanding these barriers is crucial for developing effective strategies to make swimming more accessible to all.**

The cost of access: Entry fees and memberships

One of the economic barriers to accessing swimming pools is the cost of entry. Public community pools often charge admission fees, which, while generally lower than private facilities, can still be prohibitive for low-income families. According to a 2019 report by the US National Recreation and Park Association (NRPA), the average daily admission fee for a community pool in the United States was around US\$5 to US\$10 per person, while monthly memberships ranged from US\$20 to US\$60 per person (Burbach Aquatics). These costs can add up quickly, especially for larger families, making regular visits to the pool unaffordable.

In countries such as the United Kingdom, the cost of swimming at public pools has also risen. The BBC reported that, in some areas, the cost of an adult swim has increased by over 50% in the past decade, making it difficult for those on a tight budget to afford regular swims (Palmer, 2023). These rising costs are partly due to increasing operational expenses, such as staffing, maintenance and energy costs (Swim England, 2023).

Equipment costs: Swimsuits, goggles and swimming caps

The cost of swimming equipment can also present an economic barrier. While swimming is generally less expensive than some other sports, essential items including swimsuits, goggles and caps can still strain household budgets, especially for families with multiple children who require replacements as they grow. For low-income families, these recurring expenses can be particularly challenging. Competitive swimming adds another layer of financial strain, with specialized suits, training gear and competition fees further increasing the cost.

Socioeconomic disparities in access to pools

Socioeconomic disparities play a significant role in access to swimming pools. Communities in low-income areas often have fewer public pools, and those that do exist may be in poor condition due to underfunding. A 2017 study by the USA Swimming Foundation found that 64% of African American children and 45% of Hispanic/Latino children in the USA have low or no swimming ability, compared to 40% of Caucasian children. This disparity is largely attributed to a lack of access to pools and swimming lessons in minority communities.

In some cases, transportation costs can also be a barrier. Low-income families may not have access to a vehicle or may live far from public pools, making it difficult and expensive to reach a facility. Public transportation may not always be a viable option, especially in suburban or rural areas where public transit is limited.

Proposed solutions to mitigate economic barriers

Addressing these economic barriers requires a multifaceted approach involving policy changes, community initiatives and partnerships with the private sector.

- **Investment in community pools.** Governments and local authorities should prioritize the construction and maintenance of public swimming pools, especially in low-income and minority communities. Ensuring that pools are well-maintained can encourage more frequent use and enhance community engagement.
- **Subsidised access programmes.** Local governments and community organisations could offer subsidized or free access to public pools for low-income families. Programmes like the USA YMCA's 'Open Doors' initiative provide discounted memberships based on income, making it more affordable for families to use swimming facilities.
- **Sliding scale admission fees.** Implementing sliding scale fees based on household income can help ensure that everyone has access to public swimming pools, regardless of their financial situation.
- **Free or low-cost swimming lessons.** Providing free or low-cost swimming lessons, especially in underserved communities, can help address disparities in swimming ability and reduce the risk of drowning. Partnerships with non-profits and government grants can help fund these programmes.
- **Equipment donation programmes.** Establishing equipment donation programmes where little used swimsuits, goggles and swimming caps are collected and redistributed to families in need can reduce the financial burden of purchasing swimming gear.
- **Transportation assistance.** Offering transportation vouchers or organizing shuttle services to and from public pools can help mitigate the barrier of access for those who live far from facilities or do not have reliable transportation.
- **Public awareness campaigns.** Educating communities about the importance of swimming for health and safety, and informing them of available resources and assistance programmes, can increase participation and support for public pools.
- **Corporate and philanthropic sponsorships.** Encouraging local businesses and philanthropists to sponsor community pools or swimming programmes can help offset costs and keep fees low for users. Corporate sponsorships can also fund special events, swimming lessons and facility upgrades.

Economic barriers can restrict access to swimming pools for many individuals and families. However, by tackling these obstacles through targeted programmes, policy reforms and community support, access to swimming can be enhanced for everyone, ensuring that all community members can enjoy the numerous benefits that swimming pools offer.

Social barriers: Cultural perceptions and inclusivity

Social barriers, including cultural perceptions and inclusivity challenges, can also limit access for specific groups. **These obstacles are often deeply entrenched in historical contexts, cultural norms and social inequalities.** Understanding and addressing these issues is crucial to ensure that all individuals can enjoy the benefits of swimming.

Cultural perceptions and historical context

Cultural perceptions surrounding swimming can act as significant barriers to access. In some cultures, swimming is not traditionally valued or practised, leading to a lack of familiarity and comfort with the activity. For example, in many African American communities in the United States, historical segregation and exclusion from public swimming pools have contributed to a generational fear or mistrust of water-based activities. Jeff Wiltse, in his book *Contested Waters: A Social History of Swimming Pools in America*, explains how racial segregation in public pools during the 20th century led to a deep-rooted disconnect between African Americans and swimming, a legacy that persists today.

In some Middle Eastern and South Asian cultures, gender norms and modesty concerns can also pose barriers. Women, in particular, may feel uncomfortable swimming in public pools due to cultural expectations around modest dress or the potential for mixed-gender environments. This can lead to reluctance to participate in swimming, even when facilities are available.

Inclusivity challenges

Inclusivity remains a significant issue in many swimming facilities. Public pools are often not designed with the needs of all community members in mind, particularly those with disabilities, different body types or those from diverse cultural backgrounds. For example, people with disabilities may find that pools lack appropriate access features such as ramps, lifts or specialized changing rooms. Additionally, individuals from the LGBTQ+ community may feel unwelcome or uncomfortable in environments that are not explicitly inclusive or where they fear discrimination.

Moreover, there are often few culturally sensitive accommodations, such as women-only swimming times or swimwear that aligns with religious practices, which can discourage participation from various groups. This lack of inclusivity can make swimming pools unwelcoming spaces for many, further reinforcing social barriers.

Solutions for mitigating social barriers

To address these social barriers, a comprehensive approach that includes policy changes, community outreach and facility design is necessary.

- **Cultural sensitivity training.** Community pool staff should undergo cultural sensitivity training to better understand and respect the diverse backgrounds of the communities they serve. This includes being aware of cultural norms related to modesty, gender and body image, and ensuring that all patrons feel welcome.
- **Inclusive programming.** Offering programmes such as women-only swimming times, family swimming sessions and designated hours for LGBTQ+ individuals can create a more inclusive environment. Additionally, providing options for modest swimwear can encourage participation from those with religious or cultural dress codes.
- **Accessibility improvements.** Pools should be equipped with ramps, lifts and accessible changing facilities to accommodate people with disabilities. Additionally, offering adaptive swimming programmes and ensuring that pool environments are safe and welcoming for individuals with varying needs can enhance inclusivity.
- **Community outreach and education.** Partnering with local organisations to promote swimming in underserved communities can help break down cultural barriers. Outreach programmes that offer free or low-cost swimming lessons, particularly in minority communities, can help build confidence and skills among groups that have historically been excluded.

- **Policy and advocacy.** Advocating for policies that require public swimming facilities to meet inclusivity and accessibility standards can ensure that these spaces are designed with all community members in mind. This might include, accessible pool designs and anti-discrimination policies.
- **Inclusive marketing and communication.** Marketing materials for swimming facilities should reflect the diversity of the community, showcasing people of different ages, races, genders and abilities. This helps to create a welcoming atmosphere and signals that everyone is encouraged to participate.
- **Partnerships with cultural and religious groups.** Collaborating with cultural and religious organisations is essential for pools aiming to better serve diverse communities. By engaging with local worship centres, community centres and cultural associations, community pools can create tailored programmes that resonate with specific populations. Such initiatives can foster a sense of belonging, encouraging greater participation and engagement from diverse groups within the community.

Addressing social barriers to accessing swimming pools requires a thoughtful and inclusive approach that recognizes the diverse needs of the community.

By implementing cultural sensitivity training, inclusive programming and accessibility improvements, public swimming facilities can become welcoming spaces for all. Everyone should have the opportunity to enjoy the physical, mental and social benefits that swimming pools provide.



Geographical barriers:

Availability of facilities in urban and rural areas

Swimming pools are essential facilities that provide a space for recreation, exercise and socializing. However, geographical barriers, such as the availability of swimming facilities, can significantly limit access to these benefits. The disparity in the distribution of swimming pools between urban and rural areas creates challenges that need to be addressed to ensure equitable access for all communities.

In the USA, rural areas are often underserved when it comes to public swimming facilities. A report by the CDC highlights that rural residents are less likely to have access to community pools, which contributes to lower rates of swimming ability and higher rates of drowning in these communities (Burbach Aquatics).

In Australia, the situation is similar. While coastal cities like Sydney and Melbourne have abundant swimming pools, rural and remote communities, particularly in the vast interior regions, often lack such facilities. The Royal Life Saving Society of Australia reports that people in rural areas are at a higher risk of drowning due to limited access to swimming education and facilities.

In the UK, rural communities face challenges similar to those in the USA and Australia. A 2020 report by Swim England noted that many rural areas have seen their public pools close due to funding cuts, leaving residents with few options for swimming.

Proposed solutions to mitigate geographical barriers

Addressing the geographical barriers to accessing swimming pools requires targeted interventions, including taking into account the unique challenges of rural areas.

- **Government and community investment.** Increased government funding and community investment are important for building and maintaining swimming pools. Public-private partnerships can also be explored to share the costs and responsibilities of developing these facilities.

- **Grant programmes for rural communities.** Establishing grant programmes specifically aimed at rural communities can help fund the construction and maintenance of swimming pools. These grants could also support initiatives that promote swimming education and water safety.

- **Promotion of community-led initiatives.** Encouraging and supporting community-led initiatives to build and maintain swimming pools can foster local ownership and sustainability. Crowdfunding campaigns, volunteer efforts and local fundraising can be effective ways to bring these projects to fruition.

- **School and community collaboration.** Schools in rural areas can collaborate with local governments and organisations to build swimming pools that serve both educational purposes and the broader community. This approach not only provides a venue for physical education but also creates a community resource.

- **Transportation solutions.** Providing transportation options, such as shuttle services to nearby towns with swimming facilities, can help rural residents access pools. Partnerships with local bus services or community organisations could facilitate this.

- **Mobile swimming pools.** Introducing mobile swimming pools that can be set up temporarily in rural areas could provide a practical solution. These pools can be transported and assembled in different locations, allowing communities to access swimming facilities on a rotating basis.

- **Utilising natural water bodies.** In rural areas with lakes, rivers or ponds, creating safer swimming zones with lifeguards and swimming lessons can offer an alternative to traditional swimming pools. These natural sites can be enhanced with proper safety measures, such as floating barriers and regular water quality monitoring.

Geographical barriers significantly impact access to swimming pools, particularly in rural areas where facilities are scarce. **Addressing these barriers requires a combination of innovative solutions, increased funding and community involvement.** All communities, regardless of location, should have access to the vital benefits that swimming pools provide.

Swimming pools as barriers: Features that discourage swimming

Swimming pools themselves can inadvertently create barriers to access due to a variety of factors related to design, maintenance and management. These barriers can prevent individuals from fully enjoying the benefits that swimming pools offer, particularly those from marginalised communities, people with disabilities or individuals facing financial challenges. Addressing these barriers requires a comprehensive approach that considers the needs of all potential users.

Physical barriers: Design and accessibility

Swimming pools are sometimes designed without considering the diverse needs of all community members. For individuals with physical disabilities, some pool designs can be particularly challenging. A number of pools lack the necessary features to accommodate those with mobility impairments, such as ramps, pool lifts or zero-entry points (sloped entries that allow gradual access). The absence of these features makes it difficult or impossible for individuals who use wheelchairs, walkers or other mobility aids to access the water.

Maintenance and operational barriers

Poorly maintained swimming pools can become barriers themselves, deterring use due to safety concerns or general unappealing conditions. Issues such as broken tiles, slippery surfaces, inadequate water quality and malfunctioning equipment can pose risks to all users but particularly to those who are already vulnerable, such as children and the elderly.

Operational practices, such as limited hours of operation, overcrowding or inconsistent enforcement of pool rules can also create barriers. For example, if a pool is only open during hours when working adults or school-aged children cannot attend, it effectively excludes a significant portion of the population. Similarly, overcrowded pools may discourage attendance due to safety concerns or a lack of space for individual activities like lap swimming.

Proposed solutions to mitigate barriers created by swimming pools

- **Implement universal design principles.** Swimming pools should be designed or retrofitted according to universal design principles, which ensure accessibility for everyone, regardless of age, ability or mobility. This includes installing ramps, pool lifts and zero-entry points, as well as providing handrails, non-slip surfaces and accessible changing rooms.
- **Regular maintenance and upkeep.** Ensuring regular and thorough maintenance of swimming pools is crucial. This includes routine inspections for safety hazards, maintaining water quality and promptly addressing any physical damage to the facility. Local governments and pool management should allocate sufficient budgets for maintenance to keep facilities safe and welcoming.
- **Extend and diversify operating hours.** Pools should offer extended and varied operating hours to accommodate different schedules. For example, offering early morning, late evening and weekend hours can make it easier for working adults and schoolchildren to use the facility. Additionally, special times should be set aside for specific groups, such as seniors, people with disabilities or women-only sessions, to ensure that everyone feels welcome.
- **Enhance training for staff.** Pool staff should be trained not only in safety and maintenance but also in cultural competency, conflict resolution and inclusivity practices. This can help prevent and address behavioural issues such as bullying or harassment and create a more welcoming environment for all users.
- **Community engagement and feedback.** Regularly engaging with the community to gather feedback on community swimming pools' operations, accessibility and inclusivity can help identify barriers and areas for improvement. This can be done through surveys, community meetings or suggestion boxes. Actively responding to this feedback can help build trust and ensure that the facility meets the needs of all users.

While swimming pools are valuable community resources, they can also create barriers to access due to design, maintenance, operational practices and social dynamics. **Implementing inclusive design principles, ensuring regular maintenance, extending operating hours, enhancing staff training, promoting cultural inclusion and engaging with the community can mitigate these barriers.** These actions will help ensure that swimming pools are accessible, welcoming and beneficial to all members of the community.

BUILDING SAFER COMMUNITIES MALAYSIA



Overview

In Malaysia, community pools and water safety programmes are becoming critical tools for reducing drowning rates and promoting health and safety. However, a prevalent focus on pools designed for competitive swimming – often with depths ranging from 1.4m to 2.0m – presents accessibility and safety challenges, particularly for non-swimmers. Recognizing these challenges, the Ministry of Youth and Sports (KBS) has launched targeted water safety programmes, focusing on rural and lower-income communities, where drowning risks are highest. By promoting water safety awareness, teaching survival skills and increasing accessibility to swimming education, these initiatives aim to build a culture of safety and inclusivity.

“I never thought I would learn to swim. Now, I feel confident in the water and can teach my younger siblings about safety.”

Programme participant, B40 Community

Points of interest

- Community-designed pools with variable depths cater to diverse users, from children and beginners to advanced swimmers.
- The KBS water safety initiative focuses on communities in rural areas near rivers, lakes and beaches, where drowning incidents are more frequent.
- The programmes emphasize swimming lessons, water survival skills and safe behaviour around water, empowering participants to protect themselves and others.
- These efforts align with national health and safety goals, demonstrating a commitment to equitable resource distribution and public wellbeing.

“With 50% of Malaysians unable to swim, facilities often exclude beginners and families. It is important we continue to provide opportunities for everyone to learn how to swim as we continue to work towards International Swim Schools Association’s (ISSA) mission to Teach The World to Swim.”

Cyrena Yong, ISSA Ambassador

“In our village, we lost many young lives to the river. After attending the water safety programme, my son not only learned to swim but also understands how to stay safe. It’s a relief for families like ours.”

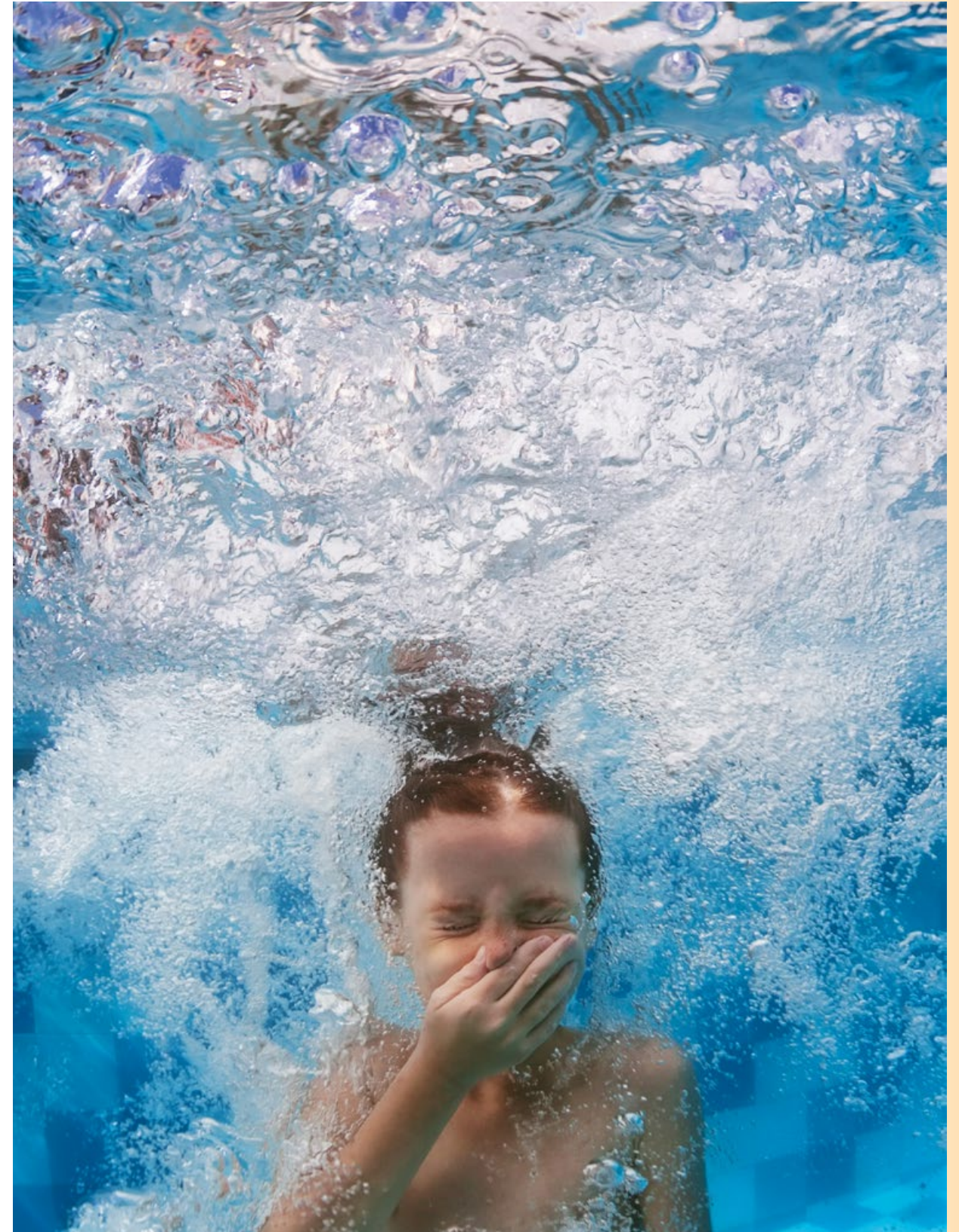
Local community member (anonymous)

Conclusions

The dual approach of building community-oriented swimming facilities and implementing water safety programmes in Malaysia is proving to be a game-changer. While competitive swimming pools meet specific needs, inclusive pool designs and local water safety education address broader societal challenges. The Ministry of Youth and Sports’ targeted initiatives in rural and low-income areas exemplify how community engagement and government action can significantly reduce drowning rates and build a safer, more informed society. Moving forward, integrating these approaches nationwide could amplify their impact, fostering a culture of water safety and inclusivity across Malaysia.

A VISION FOR THE FUTURE OF SWIMMING POOLS AND WATER SAFETY

This vision reimagines swimming pools as inclusive, accessible spaces where collaboration across sectors ensures everyone, regardless of background or ability, can learn life-saving skills and confidently experience the benefits, joys and life-enhancing power of water.



Swimming pools as safer venues for aquatic recreation

Swimming pools represent a vital contribution to the health and safety of communities, offering controlled spaces where people of all ages and abilities can experience the joys of water without the inherent risks found in natural bodies of water such as oceans, rivers or lakes. Unlike these natural environments, pools should be designed with safety at their core, integrating rigorous standards that cater to the wellbeing of every user. Community pools can transform the aquatic experience, making it as safe and enjoyable as possible. This careful balance between freedom and structure allows pools to offer a unique experience; one where the excitement of water remains but the dangers are managed and minimized.

However, swimming pool safety goes beyond physical infrastructure and equipment. It encompasses a shared sense of responsibility, where every individual becomes a participant in a culture of mutual care and awareness. From parents watching over their children to lifeguards ensuring vigilance, each person contributes to a collective environment of security. This communal approach to safety fosters an atmosphere where people are encouraged to embrace the water confidently but also mindfully, aware of both their surroundings and the basic protocols designed to keep everyone safe.

Moreover, pools should embody a philosophy of inclusivity. They can provide spaces with designated areas for different needs, ensuring that every individual can engage with water in a way that feels safe and supported. In this way, pools are a reflection of how society could operate: inclusive, considerate and mindful of each person's unique needs and capacities. As society grows increasingly diverse, pools model how we can build communities that welcome everyone, offering enjoyment, fitness and security. This inclusive approach ensures that swimming pools are not only spaces of recreation but also microcosms of an inclusive society where everyone is empowered to experience the joy of water in a secure and supportive setting.

Swimming pools as hubs for promoting water competency

Swimming pools are, at their heart, places of learning. They are places where children, adults and seniors alike can acquire a skill that has the power to protect and empower them in countless ways. Swimming is more than just an activity; it is a transformative experience that builds resilience, confidence and physical fitness. Through structured, progressive programmes, pools become essential centres where swimming is taught not just as a technique but as a means of self-reliance and strength.

Teaching someone to swim involves more than instructing them on strokes; it involves guiding them through a process of building trust in themselves and in the water. Swimming instructors are not only teachers but also mentors, individuals who hold the key to unlocking a person's potential in the water. They work patiently with students of all ages, adapting techniques to meet each learner's needs and empowering them to overcome fear and embrace the water. For young children, swimming pools offer a safe introduction to water, nurturing familiarity through games and gradually leading them to more structured lessons. Adults, too, find pools to be spaces where they can reclaim confidence and develop a comfort with water they may have missed in childhood.

Swimming pools can break down barriers, creating a space where people from all backgrounds feel welcome. Accessible learning not only strengthens individuals but also enriches communities, as more people feel confident and capable around water. Swimming pools, by embracing this inclusive approach, do not merely provide lessons, they build bridges, fostering equity and access in a way that strengthens the fabric of the community itself. As more people acquire the life-saving skill of swimming, pools become beacons of community empowerment and collective safety.



Swimming pools as hubs for promoting aquatic competency

Developing water competency means learning skills that prepare swimmers for a range of situations, enabling them to feel more confident and safer in the water, no matter the environment. Swimming pools, as structured and secure spaces, are ideally suited for this kind of training. They provide controlled environments where people can develop their skills gradually, under guidance, before venturing into more challenging waters.

Programmes focused on water competency move beyond simple swimming techniques to include specialized skills in survival, emergency response and water rescue. For beginners, the focus may be on building a foundation: correct breathing techniques, body positioning and developing a sense of comfort in the water. As students progress, they can explore more advanced programmes, such as synchronized swimming, water polo or even lifeguard training. These specialized skills not only elevate their competency but also introduce them to the world of aquatic sports, opening new avenues for fitness and recreation.

Promoting aquatic competency is also about preparing individuals to handle the unexpected. Pools can offer survival training that teaches essential skills such as recognizing undercurrents, responding to adverse weather changes and using flotation devices in emergencies. This training is invaluable for individuals who may eventually swim in natural bodies of water, where conditions are less predictable. By equipping swimmers with survival knowledge and techniques, swimming pools play a crucial role in fostering a sense of preparedness and responsibility. This readiness not only protects individuals but also contributes to a safer society, as more people are capable of assisting in emergencies, both in pools and in natural water settings.

Inclusivity in these programmes is essential, as people of all abilities should have access to this training. Adaptive programmes can ensure that individuals with disabilities are not left out, offering tailored approaches that allow them to enjoy and engage with water safely. This comprehensive vision of swimming pools as hubs for water competency highlights their potential to empower people across the spectrum of physical and cognitive abilities, creating a community that is skilled, confident and prepared. Swimming pools become more than places to learn; they are platforms that equip each swimmer with the skills to navigate and respect water, ensuring that everyone can enjoy aquatic activities with a sense of readiness, resilience and respect.

A call to action to all stakeholders

To fully harness the potential of swimming pools as centres for water safety and competency, the collective efforts of policymakers, authorities, pool owners and managers, pool builders, the swimming pool industry, researchers, local community associations and NGOs, schools and individuals are needed.

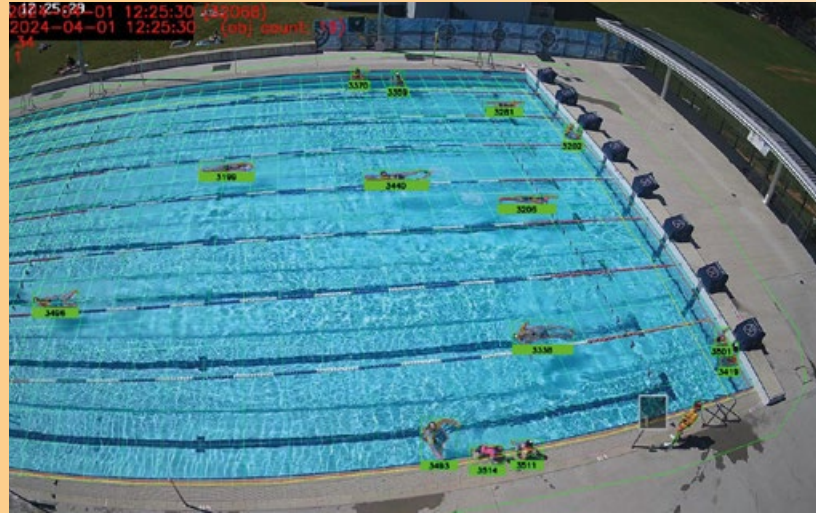
- **Policymakers and authorities** must focus on policies that promote accessible, safe community pools and ensure all facilities uphold the highest standards in water safety. By directing resources toward training programmes, lifeguard staffing and compliance with safety regulations, they can help make pools safer and more inclusive. Establishing and enforcing clear water safety regulations sets a model for other sectors to follow, elevating public awareness and commitment to water safety.
- **Pool builders** can make a significant impact by designing pools with safety as a primary consideration. This includes incorporating shallow entry points, non-slip surfaces and child-safe fencing. Collaborating with water safety experts allows builders to develop pools that meet or exceed safety standards, offering communities facilities that support both leisure and essential swimming skill programmes, ultimately enhancing community wellbeing and reducing risks.
- **Public pool owners and managers** have a critical role in implementing water safety best practices daily. They can optimize pool management through staff training, conduct regular safety drills and maintain equipment to prevent accidents. Partnering with local health and safety organizations allows them to host educational events that foster water safety awareness, transforming pools into centres for life-saving skills and knowledge.
- **Private pool owners** can enhance pool safety by combining proper equipment, supervision and education. Installing fences with self-locking gates reduces unauthorized access, especially for young children. Pool covers and alarms add extra layers of protection. Supervision is crucial, ensuring an adult is always present when the pool is in use. Teaching children to swim and educating all users on water safety strengthens safety practices and further prepares families for emergencies. By integrating these safety measures, pool owners can create a safer, more enjoyable environment for everyone.

- **The swimming pool industry** has a vital responsibility in advancing water safety. Manufacturers and suppliers can innovate by developing safety equipment such as child-safe fencing, emergency response systems and low-slip surfaces. By prioritizing research and development in safety technologies, the industry can lead the way in making pools safer and helping reduce water-related accidents.
- **Local community associations and NGOs** can champion water safety by advocating for safety-focused certifications and promoting the benefits of pools that emphasize water competency. Working closely with local governments, they can push for safer pool infrastructure and organize activities to teach water safety skills, turning pools into focal points for community-led safety initiatives.
- **Schools** have a unique opportunity to integrate water safety into their swimming programmes. By embedding water competency lessons and safety drills in physical education, schools can use pools as practical tools for teaching lifelong, life-saving skills. Hosting workshops and activities focused on water safety helps build a generation that understands and values aquatic competency.
- **Researchers** are key to advancing safety practices within the swimming pool sector. Through studies on effective safety protocols, new technologies for incident prevention and comprehensive safety training programmes, they provide insights that drive better practices. Sharing these findings promotes the adoption of proven safety measures, ensuring pools become safer over time.
- **Individuals** can contribute by supporting water safety initiatives and participating in events that promote aquatic competency. They can advocate for safety upgrades at local pools, volunteer in community awareness programmes or participate in safety workshops. Active participation is essential to creating a community culture that prioritizes water safety and the life-saving role of swimming pools.

By aligning efforts towards water safety and aquatic competency, society can ensure that swimming pools serve as more than leisure spaces; they become essential hubs for safety, benefiting individuals, families and communities.

AI REVOLUTIONIZES POOL SAFETY

ABBEYCROFT, UK



Overview

Abbeycroft, a UK-based not-for-profit social enterprise, is pioneering pool safety and efficiency with the adoption of advanced AI-driven lifeguard technology. By installing the Lynxight system at the Mildenhall Hub leisure centre, Abbeycroft has taken a significant step toward integrating innovative solutions into pool operations. This initiative reflects their commitment to enhancing swimmer safety while streamlining operations. The technology has been warmly embraced by lifeguards, who value its support in their critical safety role, and has received positive feedback from swimmers, who feel reassured by the added protection.

Points of interest

- The Lynxight system uses overhead cameras and AI to monitor swimmer behaviour.
- Lifeguards wear a waterproof smartwatch that provides real-time, colourcoded
 - Orange alert: overcrowding– Understanding body orientation in water
 - Yellow alert: potential swimmer distress
 - Red alert: serious incident requiring immediate attention
- The system also tracks pool usage, providing data to help optimise schedules and enhance the swimmer experience.

“It gives an additional layer of safety for our swimmers. It’s like having a secondary lifeguard on hand. Our lifeguards are our primary response team, but this system backs them up.”

Julie Hughes, Lynxight Champion, Abbeycroft

“The system ensures not only a safer, more enjoyable experience but also demonstrates a shared commitment to supporting facilities that enrich health, wellbeing and thriving communities.”

Cllr Victor Lukaniuk, Deputy Leader, West Suffolk Council

Conclusions

The successful implementation of Lynxight technology at Abbeycroft's Mildenhall Hub demonstrates how AI can revolutionize pool safety and management. By integrating advanced technology with lifeguard practices, Abbeycroft improved swimmer safety, engaged staff and gained valuable operational insights. These principles can transform the swimming pool sector, enabling facilities of all sizes to enhance safety, optimize resources and improve user experiences. Abbeycroft's success highlights how even small organizations can set new safety standards, fostering innovation and trust within communities and the swimming pool industry.

CONCLUSIONS AND BEYOND

Pool Horizons envisions a future where swimming pools are accessible and inclusive and where every individual and community has the water competency skills to safely enjoy all the many benefits of being in and around water.

Throughout human history, water has been essential for life and a powerful natural force. This vital element brings both energy and the need for thoughtful interaction. As civilizations developed near rivers, lakes and oceans, humanity learned to value and respect water. Today, with our growing urban landscapes and recreational needs, we are called to engage with water responsibly. Swimming pools now stand as more than recreational spaces: they are important places for safety, skill-building and resilience in a world where water plays a central role.

Throughout this report, one key insight becomes clear: swimming pools are more than places for fun or fitness. They offer a safer environment where people can learn the life-saving skills needed to navigate our world of water. In these structured spaces, the timeless task of teaching water safety takes on fresh potential; pools become spaces where people of all ages learn not only to swim but to survive, adapt and grow. Water safety should be a universal right, accessible to everyone, crossing economic, cultural and geographical boundaries.

The need for a strong commitment to water safety has never been greater. Around the world, drowning continues to claim hundreds of thousands of lives each year, especially among vulnerable populations. These tragedies don't only happen in remote areas; they also impact urban communities whose water competency skills are limited. By offering accessible spaces, swimming pools can provide a proactive solution to this universal risk. They serve as classrooms for building water skills, turning individuals into confident swimmers and promoting a culture of safety and respect around water.

This report is more than a summary of statistics and policies; it is a call to collective action. It urges policymakers, communities and individuals alike to recognize that swimming pools are spaces for transformation, where people of all ages and backgrounds can gain the skills and confidence to interact safely with water. The swimming pool industry, working alongside educators, local governments and advocates, must meet this critical challenge by making water safety and water competency accessible to all. Pool Horizon's commitment to this cause is unwavering. **The mission is clear: to ensure that every community, regardless of location or socioeconomic status, has access to safer, more inclusive swimming spaces.** By fostering water competency, society not only creates stronger swimmers but builds safer, more resilient communities. Let us remember that the journey towards safety, confidence and joy in and around water begins at the poolside.

The water awaits, and so does the promise of a safer, more empowered world.

CONTRIBUTORS

The expertise and commitment of a diverse group of contributors have been pivotal in shaping this report, demonstrating the power of collaboration in advancing water safety, competency and the role of swimming pools as essential community assets. Their collective efforts highlight a shared vision of reducing drowning risks, fostering inclusivity and creating a safer, more resilient future around aquatic environments.



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Dr Adam Katchmarchi is Associate Professor at Indiana University of Pennsylvania. Until recently, he was the Chief Executive Officer of the USA National Drowning Prevention Alliance (NDPA). With expertise in aquatic management, water safety instruction, and drowning prevention, Adam serves on the steering committee for the USA National Water Safety Action Plan, is a voting member of Water Safety USA and is a member of the executive committee for the Aquatic Council. He holds a PhD in Coaching and Teaching Studies from West Virginia University and additional degrees in Sport Sciences and Physical and Health Education. He is a certified aquatic professional with extensive experience in both research and industry standards.



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Sabeena Hickman is President and CEO of the US Pool & Hot Tub Alliance (PHTA), advancing the swimming pool and hot tub industry through education, certification, promoting water safety standards and fostering collaboration among industry stakeholders. Previously, she led the National Association of Landscape Professionals (NALP) for over a decade. Sabeena serves on the boards of the National Drowning Prevention Alliance (NDPA) and the World Alliance of Pool and Spa Associations (WAPSA) and is active in Water Safety USA and the Aquatics Council. She holds a Business Management degree from Virginia Tech.



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Ferruccio Alessandria is the President of Assopiscine, the Italian Swimming Pool and Wellness Association, and owner of Alessandria Consulting. With decades of experience in managing multinational companies within the swimming pool and wellness sectors, he is also a professor of Business Organisation in Milan. Ferruccio holds a degree in sociology, specialising in communications and mass media, as well as an MBA from SDA Bocconi School of Management. His expertise spans leadership, consultancy and the development of wellness and swimming projects across Italy.



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Kyle Chaikin is Vice-President of Ultimate in Pool Care and a nationally recognised pool industry expert. Beginning his career in 1985, Kyle has become a leading educator in swimming pool construction and management. He is a subject matter expert for the Pool & Hot Tub Alliance (PHTA) and has served as an active member of numerous industry organisations. With over 30 years of experience, Kyle has received multiple awards, including the 2022 PHTA National Builder of the Year. He continues to influence industry standards and safety protocols in both residential and commercial pools.



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Tom Dissinger is the Vice-President of Channel Management at Hayward Holdings, overseeing strategic business plans, channel policies, and customer growth initiatives. He joined Hayward in 1998 as a Sales Manager and has since risen through the ranks to manage the wholesale distribution, builder, e-commerce and retail segments. Tom holds a Bachelor of Science degree in Business Studies from Buffalo State University.



Rowdy Gaines

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Rowdy Gaines spent many years on top of the swimming world as a world and American record holder and two-time Olympian. He won three gold medals at the 1984 Olympic Games in Los Angeles in the 100m freestyle, 4 x 100m freestyle and 4 x 100m medley. After his Olympic career, Rowdy has competed in Masters swimming and continues to break records, win medals and compete on an international stage. The voice of American swimming, Rowdy commentated at his ninth Olympic Games in 2024 in Paris. He is one of the top ambassadors for the sport of swimming through his work with the YMCA and serving as a spokesperson for the USA Swimming Foundation. Rowdy was inducted into the US Olympic Hall of Fame in 2005 and the International Swimming Hall of Fame in 1995.



Connie Harvey

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Connie Harvey is the director of Aquatics Centennial Campaign and Survival Programs at the national headquarters of the American Red Cross. She works daily to advance the Red Cross mission to prevent drowning with a focus on at-risk communities throughout the nation. Since joining the national headquarters team in 1996, she has played key leadership roles in the development of many Red Cross Aquatics programmes, including lifeguarding, swimming, water safety and Longfellow's WHALE Tales. Connie has served as a steering committee member for the development of the United States National Water Safety Action Plan.



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RJ Houston is a General Manager at the Royal Life Saving Society, Australia, responsible for overseeing key business units delivering aquatic industry programmes and community safety initiatives. With over 10 years of experience in both the public and private sectors, RJ specialises in strategic planning, organisational culture change and stakeholder engagement. He holds an MBA (Social Impact) from the Australian Graduate School of Management at the University of New South Wales Business School and has a strong background in aquatic risk management, compliance and safety standards. RJ is passionate about creating positive social change through evidence-based approaches to public safety.



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Greg Howard is the Chief Executive Officer of Carecraft, a member-owned collective that helps pool and spa professionals access competitive pricing, educational resources and networking opportunities. Under Greg's leadership, Carecraft has grown into a professional organisation promoting high standards in the pool industry. The company provides its members with tools to enhance their businesses while fostering lasting relationships within the industry.



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Andrew Ingram is Communications Manager at the National Sea Rescue Institute (NSRI) in South Africa, where he focuses on promoting water safety and reducing fatal drownings. With a background in photojournalism, Andrew transitioned into water safety and created innovative programmes such as the Pink Rescue Buoys, which have saved over 180 lives. He also developed the Survival Swimming Centres and Beach Safety Camera initiatives, which have won international awards for innovation. Andrew's storytelling skills help raise awareness of NSRI's mission to make South Africa a water-safe nation.



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Moyo LaBode is Chief Merchandising and Supply Chain Officer at Leslie's Pool Supplies, having joined the company in 2021. Prior to this role, Moyo served as Vice President General Merchandise Manager at Barnes & Noble and held senior roles at The Home Depot and Target Corporation. Moyo holds a degree in Economics from the University of Minnesota.



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Flavia Malet is Director of Corporate Communications and Public Affairs at Fluidra, where she leads the company's global communications strategy. With over 20 years of experience, Flavia has worked in various communication and government relations roles, including at Royal Dutch Shell. Since joining Fluidra in 2022, she has been responsible for managing corporate communications across multiple international markets, enhancing the company's visibility and engagement in the pool and wellness industry.



Chris McCuiston

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Chris McCuiston is Co-founder and CEO of Goldfish Swim School, which has expanded to over 160 locations across the US and Canada since its inception in 2006. A former athlete and Michigan State University graduate, Chris applies his team-building skills and business acumen to growing the swimming school franchise company. Under his leadership, Goldfish Swim School has become a leader in swim lessons for children. Chris has received numerous accolades, including EY Entrepreneur of the Year in 2017 and Crain's Detroit Business 40 Under 40 in 2018.



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Matt McDermott is President of Heritage Pool Supply Group and has previously served as President of the Heritage Family of Companies. Before joining the Heritage team, Matt was an investment banker at Harris Williams & Co., where he advised on acquisitions and financings across multiple industries. His experience in corporate strategy and mergers has been instrumental in shaping the growth of Heritage Pool Supply Group, positioning it as a key player in the pool industry.



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John Tanner is Chief Technology Officer at Pentair Pool, responsible for overseeing engineering and product development. With a background in mechanical engineering and physics, John has led various teams in product design and innovation. He has worked at Pentair since 2019 and previously held leadership roles at Target and Procter & Gamble, where he focused on water filtration solutions. John has a Mechanical Engineering degree from the University of Minnesota and a degree in Physics from Augsburg University. He is committed to teaching life skills from an early age and serves as president of the board of trustees of a Montessori school board.



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David Walker is Managing Partner of Fluid Risk Consulting Services, specializing in safety risk management, policy development and compliance. Formerly Head of Road and Leisure Safety at RoSPA, he led policy initiatives and served on the UK National Water Safety Forum. David co-authored the UK drowning prevention strategy, oversaw the UK Water Incident Database (WAID) and co-developed the #RespectTheWater campaign. He has also contributed to WHO and Australian safety programmes, led fatal accident investigations and has experience in major events such as the Olympic Games. He is University of Salford alumnus and is a boyhood member of Salford Lads and Girls Club.



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Teri Wiltshire is Executive Director of Master Pools Guild (MPG) and has worked in the pool and spa industry for over 16 years. She has collaborated with the USA Pool & Hot Tub Alliance's (PHTA) Step into Swim, Pool Professionals Pipeline and WAVE Young Professionals programmes. She is a strong supporter of The Water Project, an NGO that brings clean water to underserved areas in Africa. She is mom to a son with sensory issues (he's 31 now) – learning to swim for him was a huge challenge but the rewards are great!

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Safer Waters explores the transformative role of swimming pools in advancing water safety and competency. Developed by the Pool Horizons Water and Safety working group, the report highlights pools as vital spaces for teaching life-saving skills, addressing global drowning disparities and fostering inclusivity. By advocating for accessible swimming education and innovative policies, it envisions pools as essential community hubs for health, safety and resilience. This initiative seeks to contribute to reducing drowning risks and empower communities worldwide to safely enjoy aquatic environments.