SECTION 2

TEN ACTIONS TO PREVENT DROWNING

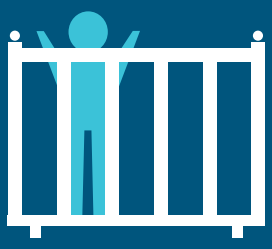
The 10 actions outlined in this section are based on available evidence and are deemed to be effective, feasible and scalable. Complementary measures such as drawing on best-practice models, using social media and communication to raise public awareness, and adapting interventions to suit local contexts (for example, making barriers from locally sourced materials) are important in ensuring these strategies are effectively implemented.

In addition, in resource-poor settings where educational levels are low, it is important to understand how people perceive drowning before introducing interventions, including what local people see as the cause of drowning and appropriate ways to treat and prevent it. Findings should guide how actions are implemented.

Our 10 actions fall into three categories:

COMMUNITY-BASED ACTION

1



Install barriers controlling access to water

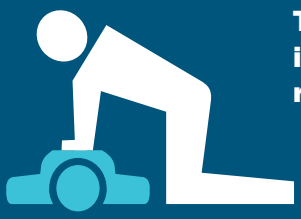
2

Provide safe places (for example, a crèche) away from water for pre-school children, with capable child care

3

Teach school-age children basic swimming, water safety and safe rescue skills

4



Train bystanders in safe rescue and resuscitation

5

Strengthen public awareness and highlight the vulnerability of children

EFFECTIVE POLICIES AND LEGISLATION

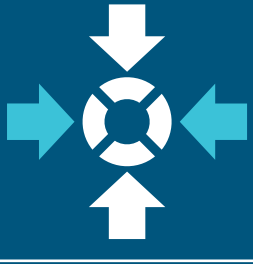
6

Set and enforce safe boating, shipping and ferry regulations

7

Build resilience and manage flood risks and other hazards locally and nationally

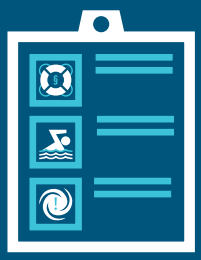
8



Coordinate drowning prevention efforts with those of other sectors and agendas

FURTHER RESEARCH

9



Develop a national water safety plan

10

Address priority research questions with well-designed studies

COMMUNITY-BASED ACTION

1 INSTALL BARRIERS CONTROLLING ACCESS TO WATER

Placing barriers strategically so access to water hazards is limited or more tightly controlled reduces exposure and drowning risk. While seemingly a straightforward task, care must be taken to ensure barriers are practical, sustainable, and create no further risk by their use.

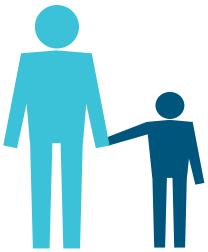
Barrier approaches to prevent drowning include:

- **covering wells and cisterns** (water tanks). The use of a pump (manual, electrical or other) helps keep the water source covered while water is drawn.
- **using doorway barriers and playpens**.[13] The use of barriers should not replace the care or attention of a capable, supervising adult, or run the risk of the child being trapped.
- **fencing swimming pools** with four-sided, child-resistant fences and self-closing gates with safety latches.
- **legislating** for the implementation and enforcement of policies, standards and building codes to support these measures.

13 A playpen is a portable, four-sided enclosure in which a baby or young child can be safely placed without constant supervision.

The percentage of swimming pool drowning deaths among young children that could be prevented by four-sided fencing completely separating the pool from the house and yard.

Source: Pool fencing for preventing drowning in children. Thompson DC, Rivara FP. Cochrane Database Syst Rev. 2000;(2):CD001047.



2 PROVIDE SAFE PLACES FOR PRE-SCHOOL CHILDREN WITH CAPABLE CHILD CARE

Community-based, supervised child care for pre-school children can reduce drowning risk and has other proven health benefits.

Supervised child care programmes have been established at village level in a number of low- and middle-income countries. In southern India, such programmes (known locally as *balwadis*) have been suggested by local populations as effective responses to prevent drowning associated with lapses in supervision.[14] In Cambodia, village-based child care programmes for pre-school children have also been established to prevent drowning.

A village-based child care programme studied extensively in relation to drowning prevention took place across three rural regions in Bangladesh.[15] Here, village-based child-carers were trained in child safety, supervision and early childhood development, and a maximum ratio of 25 children per supervising adult and assistant was set. Child care was made available for pre-school children from 9am–1pm – the period when drowning was most likely to occur – and included early childhood development activities and early learning, supplementary nutrition and health and hygiene awareness (such as hand washing and latrine use).

This child care programme (known locally as *anchal*) was associated with a significant reduction in drowning, and in terms of cost-effectiveness compared favourably with other child survival strategies such as oral rehydration therapy. An additional and powerful rationale for expanding village-based child care programmes such as this is that their benefits (potentially lifelong) extend to many health areas, including the well-known advantages of child care for early childhood development, and the prevention of other child injuries and infections.

Such efforts should be systematically implemented and monitored in order to identify best practices, with a particular focus on identifying how these can be brought to scale in low- and middle-income countries.

14 Isaac R et al. Community perception of child drowning in South India: a qualitative study. Annals of Tropical Paediatrics. 2007;27(3):225–229. doi:10.1179/146532807x220343.

15 Rahman F, Bose S, Linnan M et al. Cost-Effectiveness of an injury anddrowning prevention program in Bangladesh. Pediatrics. 2012 Dec;130(6):e1621–8.

Instructor providing swim skills training in a high-income setting.

Instructor providing swim skills training in a low-income setting. A submerged platform limits the depth to 1 metre where these children are learning kicking skills. The area outside is deeper, permitting children to practice in water that may go over their heads. The training area is enclosed by bamboo fencing to limit access to the larger pond.

3 TEACH SCHOOL-AGE CHILDREN BASIC SWIMMING, WATER SAFETY AND SAFE RESCUE SKILLS

Studies of programmes in Australia, Bangladesh, China, Thailand, the United States and Viet Nam show that teaching children basic swimming, water safety and safe rescue skills reduces drowning. Based on this knowledge, systematic and carefully monitored replication of such programmes will help clarify best practice.

Most recently, a study was made of almost 80,000 children aged 4–12 years who completed the SwimSafe programme in Bangladesh. SwimSafe is a structured programme that requires children to learn 21 steps of swimming skills, typically over 14 days.[16] The training dramatically reduced the likelihood of drowning, and was shown to be very cost-effective under the WHO-CHOICE criteria, meaning this intervention compares very favourably with other child survival interventions.

To replicate these results in other resource-poor settings with high drowning risk, such programmes should include the following:

1. **A structured, safety-tested curriculum.** The SwimSafe curriculum[17] developed from local studies (in Bangladesh, Thailand and Viet Nam) of how children acquire swimming skills in each setting. These were then ranked for safety and effectiveness. Following this, best practices were adapted in line with established swim training curricula. These include identifying children with conditions (e.g. seizures or respiratory disorders) that may place them at increased risk of drowning during swim skills training, and ensuring these are dealt with appropriately. The objective is a safe, structured curriculum adapted to the local population and context.

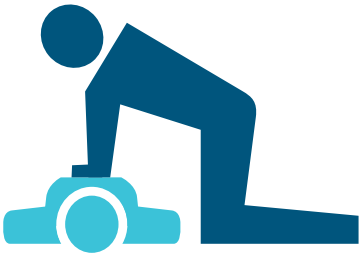
2. **A safe training environment.** Physically demarcated areas in village ponds with submerged platforms or above-ground, transportable pools filled with fresh water to a controllable depth are examples of training environments adapted to local settings. These provide safe areas where children can be actively supervised while they learn.

3. **Trained instructors.** Programmes must be established in safe and controlled environments with trained instructors who are well versed in the curriculum, its training methods and what is expected of them in relation to supervision.

4. **Student-instructor ratios established for safety.** These should be appropriate for the skill level and water conditions, with due consideration for the safety of all taking part.

Underlying these prerequisites for teaching children to swim is a heavy emphasis on safety. Curricula, training environment, screening and student selection, instructors and student-instructor ratios all need to be seen as part of an overall risk management system. Training children to swim is an inherently dangerous process, and swim skills training should be approached as a public health intervention – where safety should be demonstrated and constantly monitored.

16 Rahman F, Bose S, Linnan M et al. Cost-Effectiveness of an injury and drowning prevention program in Bangladesh. Pediatrics. 2012 Dec;130(6):e1621–8.
17 See www.swimsafe.org.



4 TRAIN BYSTANDERS IN SAFE RESCUE AND RESUSCITATION

SAFE RESCUE

Some rescue attempts end with the rescuer fatally drowning, either because they could not swim well or were not aware of simple, safe rescue techniques that avoid entering the water, such as using a rod or pole, throwing a rope, lifebuoy or improvised life-line such as a garden hose.

But rescue can be done safely, and bystanders' actions can make a critical difference.[18] Given the importance of removing the drowning person from the water immediately, and the principle that rescuers must not put themselves at risk, awareness of safe rescue techniques should be a focus of community-based awareness raising, and part of learn-to-swim programmes.

The International Life Saving Federation (ILS) provides technical guidance on how these skills should be taught and assessed, recommending that basic aquatic survival skills training includes the ability to "rescue and be rescued by extending or grasping a rescue aid (for example a pole, bottle, rope etc.) and be guided to safety over a distance (i.e. 3 to 5 metres)". Successful programmes promoting skills such as these have been carried out by the ILS and others, including (over many years) the Herald Sun programme in Victoria, Australia, Red Cross Societies in a range of countries and the YMCA programmes in the United States.

RESUSCITATION

There is strong evidence that CPR – meaning both chest compression and mouth-to-mouth resuscitation – is the only way to prevent death when a drowning victim has no pulse and is not breathing (see Box 4). Survival improves when appropriate resuscitation is performed as soon as submersion is over, although survivors may have severe neurological damage if there has been a prolonged stoppage of the heart and breathing.[19,20]

A simplified method of CPR that involves chest compressions only (i.e. no mouth-to-mouth resuscitation) has been promoted for untrained first aiders witnessing cardiac arrests, but it is important to note that this so-called hands-only CPR is not appropriate for drowning victims who have no pulse and are not breathing. An ILS statement on this issue draws attention to the role played by lack of oxygen in relation to heart stoppage caused by drowning, and a recent review has outlined more areas where the approach to CPR for drowning victims is different to that for cases of cardiac arrest.[21]

17

The number of rescuers fatally drowned in 15 incidents in Australia (2002–2007) trying to rescue a drowning child. In 93% of these incidents, the child survived.

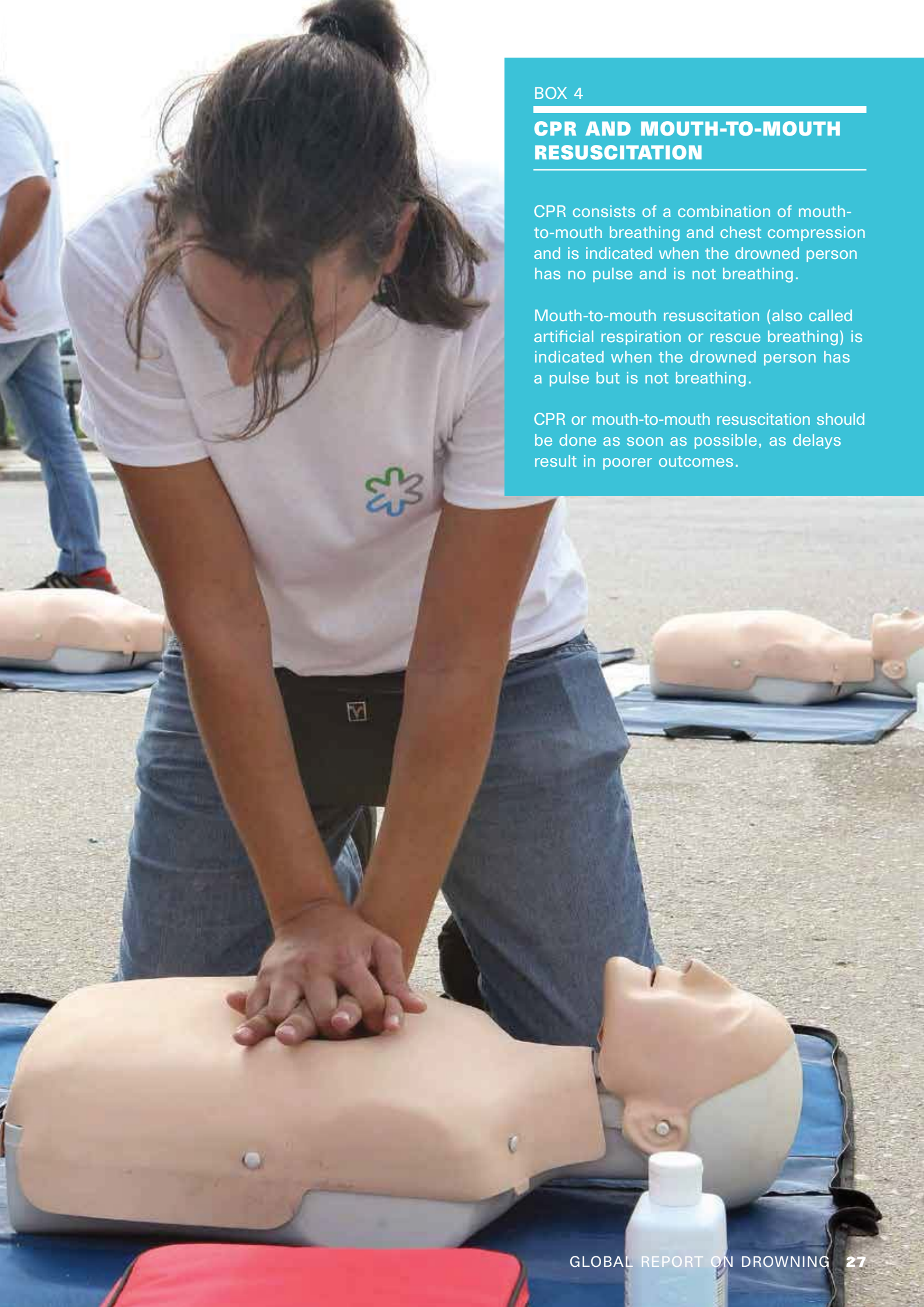
Source: Franklin R, Pearn J. Drowning for love: the aquatic victim-instead-of-rescuer syndrome: drowning fatalities involving those attempting to rescue a child. Journal of Paediatrics and Child Health. 2011;47(1–2)44–7.

18 Venema A, Groothoff J, Bierens J. The role of bystanders during rescue and resuscitation of drowning victims. Resuscitation. 2010 Apr;81(4):434–9. doi: 10.1016/j.resuscitation.2010.01.005. Epub 2010 Feb 10.

19 Szpilman D, Soares M. In-water resuscitation – is it worthwhile? Resuscitation. 2004 Oct;63(1):25–31.

20 Drowning resuscitation requires another state of mind. Bierens J, Warner, DS. Resuscitation. Volume 84, Issue 11, 1467–1469.

21 Szpilman D, Bierens J, Handley A, Orlowski J. Drowning. New England Journal of Medicine. 2012;366(22):2102–2110.



BOX 4

CPR AND MOUTH-TO-MOUTH RESUSCITATION

CPR consists of a combination of mouth-to-mouth breathing and chest compression and is indicated when the drowned person has no pulse and is not breathing.

Mouth-to-mouth resuscitation (also called artificial respiration or rescue breathing) is indicated when the drowned person has a pulse but is not breathing.

CPR or mouth-to-mouth resuscitation should be done as soon as possible, as delays result in poorer outcomes.

5 STRENGTHEN PUBLIC AWARENESS AND HIGHLIGHT THE VULNERABILITY OF CHILDREN

Governments and communities in many high-income countries and some low- and middle-income countries have made progress on drowning prevention. For those yet to gain the necessary momentum to engage with the issue in a targeted way there are many rapid gains to be had. Creating public awareness is a powerful tool for achieving this.

Public awareness is most effective when it is:

- directed at specific risk factors, such as ensuring adult supervision of young children or reducing exposure to water hazards;
- coordinated with practical interventions such as community child care, basic swimming lessons, and low-cost protective items such as well covers and playpens;
- linked to strengthened enforcement of regulations.

Lifesaving societies, injury prevention committees and other nongovernmental organizations (NGOs) can be very active in strengthening public awareness. The ILS has played a critical role in leading and supporting the work of national and international organizations (including members and non-members of the ILS) engaged in drowning prevention. In many countries Red Cross societies have played an important role. Collectively, these entities have educated communities on the dangers of, and ways to avoid, drowning. Long-term declines in drowning in a number of countries are associated with the establishment and community actions of lifesaving societies.

ENSURE RISKS TO CHILDREN ARE UNDERSTOOD AND ADDRESSED

A national water safety plan (see page 36) can enable NGOs to work with the education system to deliver water safety programmes to school-age children. Such a strategy can also support the work of advocacy organizations to ensure parents and caregivers are aware of drowning risks for children, and take preventative steps.

SIGNPOST DANGEROUS AREAS AND PRE-POSITION RESCUE EQUIPMENT

Ensuring adequate signage to draw attention to hazards such as riptides,[22] waterfalls and fast currents is another important aspect of raising public awareness of drowning risks. In addition, lifebuoys can be placed in locations where there is a known drowning risk, acting both as a visual alert for the nearby risk, and as a potential life saver. Instructions on how to deploy any lifebuoys in hazard areas should be clear and simple.

GET THE MEDIA ON BOARD

Social marketing and media training for journalists on the public health aspects of drowning greatly increase the reach and effectiveness of public awareness efforts (see Box 5). Such efforts should target the main risk factors, risk groups and prevention strategies relevant to each setting.

22 A riptide is a strong current caused by tidal flow in confined areas such as inlets that may present a hazard to swimmers and boaters.

BOX 5

‘TURN AROUND, DON’T DROWN’: PUBLIC AWARENESS IN TEXAS, USA

The United States’ National Weather Service (NWS) reports that 80% of flood-related deaths in southern Texas result from driving through low-water crossings, walking along banks of flooded areas or playing in floodwater. More than half of flood fatalities result from automobiles being swept downstream.

To deter drivers and walkers from using flooded crossings and paths, staff at NWS launched the ‘Turn around, don’t drown’ campaign in 2003, in partnership with the Federal Alliance for Safe Homes and the Texas Division of Emergency Management. Leaflets, posters and bumper stickers were provided and a website was developed. In May 2005 the campaign expanded across Texas. Billboards carried the flood safety message, and in the city of San Antonio, bumper stickers on police, fire and city vehicles displayed the slogan. The message was also spread through local media via public service announcements, distribution of bumper stickers by the Texas Floodplain Management Association, animated presentations and informative FLASH flood safety flash cards.

EFFECTIVE POLICIES AND LEGISLATION

6 SET AND ENFORCE SAFE BOATING, SHIPPING AND FERRY REGULATIONS

People travel on water every day using a wide range of watercraft – passenger ferries, commercial freighters and smaller recreational boats.

All water travel poses a drowning risk, but while ferry incidents often make the headlines, drowning deaths related to small boats rarely do.

Data from countries such as Australia, Canada, Germany, Finland and the United States suggest the number of deaths related to small boat[23] incidents forms a significant proportion of all drowning fatalities.

Enforcement of safety regulations for ferries and boats is therefore essential for all countries to reduce drowning deaths. Many countries have signed up to International Maritime Organization (IMO) rules (see Box 6), and base their own domestic regulations and standards on them, but their success depends on how well rules are enforced.

REGULATING PASSENGER FERRIES

Any transport incident involving a passenger ferry can result in many deaths. Ferry safety is improved by establishing systems that reliably ensure:

- the vessel is seaworthy and in good condition;
- there are enough accessible PFDs on board to meet the vessel's passenger capacity;
- the captain has the necessary skills and competence to command the vessel;
- evacuation plans are established and rehearsed by the crew;
- appropriate travel routes and rules are adhered to, avoiding the chance of collision;
- maximum capacity is well documented, and overcrowding and overloading are avoided;
- travel is restricted in poor weather and small boats are not used on the high seas.

23 There is no consistent definition of a small boat – most jurisdictions consider this to be boats up to 5–8 metres in length.

BOX 6

ACTION PLAN ADOPTED FOR EAST ASIA DOMESTIC FERRY SAFETY, 2011

Some low- and middle-income countries have adequate regulations but lack effective enforcement. The international ferry industry (Interferry) and the International Maritime Organization have partnered since 2006 to assist low- and middle-income countries to improve ferry safety with a 10-year action plan.

A detailed action plan addressing ferry safety in East Asia was agreed upon by participants in a forum organized by the International Maritime Organization in 2011. Attended by delegates from several governments as well as Interferry, the Regional Forum on Domestic Ferry Safety adopted an eight-point plan which, among other things, calls on governments to assist ship owners and operators to provide fit-for-purpose vessels that comply with national rules and regulations, and to support and monitor ships' masters and operators to ensure that safety obligations are properly met.

It also called for governments to designate relevant focal points to participate in regular dialogue with, and to share relevant data among, all those with an interest in domestic ferry safety. This will help identify critical issues that lead to incidents and casualties with a focus on formulating effective solutions.

REGULATING SMALL BOATS

The majority of deaths in incidents involving some form of watercraft occur not in transport incidents involving large vessels, but rather in fishing, recreational and small transport vessels.

Regulation of safety measures for small boats includes:

- carrying out regular maintenance of boats;
- avoiding overloading with passengers or goods;
- setting an estimated departure, return and travel route;
- setting and enforcing blood alcohol concentration limits for operators;
- ensuring boats carry:
  - approved PFDs for all on board, to be worn at all times;
  - a communication device, for example, a mobile phone, VHF radio or an emergency position indicating radio beacon;
  - a bucket with a line attached to remove water;
  - an anchor with a cable;
  - a waterproof torch or lantern;
  - a set of paddles or oars.

MULTILATERAL AND REGIONAL COOPERATION FOR SO-CALLED IRREGULAR MOVEMENTS ON WATERCRAFT

Migrants, refugees and asylum seekers looking for opportunities and sometimes safety elsewhere often take to the world's oceans and seas in what are called irregular movements – this means unauthorised travel and it frequently ends in tragedy.

The Office of the United Nations High Commissioner for Refugees (UNHCR) is due to hold a Commissioner's Dialogue on a UNHCR initiative for protection at sea in December 2014. A central objective of the dialogue and of the initiative itself is to limit loss of life in these situations. This in turn calls for greater harmonization and regulation of procedures such as maritime search and rescue (see Box 7).

BOX 7

DROWNING AND REFUGEES, ASYLUM SEEKERS AND STATELESS PEOPLE

Refugees, asylum seekers and stateless people in search of protection often use overcrowded and unsafe vessels to reach safety.

According to UNHCR, limiting the loss of life of migrants, refugees and asylum seekers who take to the sea in unseaworthy vessels calls for:

- effective national and regional search and rescue capacities;
- strengthened cooperation systems (particularly for international situations);
- policies to remove disincentives for commercial vessels to rescue those in peril;
- shared understanding of safe places where those rescued can disembark;
- possible application of approaches as laid out in the IMO's International Convention on Maritime Search and Rescue, and the International Convention on Safety of Life at Sea.

7 BUILD RESILIENCE AND MANAGE FLOOD RISKS AND OTHER HAZARDS LOCALLY AND NATIONALLY

Drowning is the leading cause of death in flood disasters and such events (see Box 8) are becoming more frequent – a trend that is projected to continue.[24]

But despite the increasing frequency of flood disasters, in some regions deaths due to sudden floods and cyclones have declined. This is thought to be the result of improvements in development conditions in low- and middle-income countries, and in early warning, disaster preparedness and response.

PREVENTING DROWNING THROUGH DISASTER RISK MANAGEMENT

Flood risk management has evolved considerably over recent years. A major policy shift has been towards integrated approaches to flood risks and the notion of living with floods, where floodplains and watersheds are restored and maintained and – for example in urban areas – flooding is managed through infrastructure such as levees, dams and canals. Rapid flooding poses the biggest drowning risk and local populations can be prepared and better protected from this risk through:

- **disaster preparedness plans with strong community awareness and education.** It is critical that local communities are involved in disaster preparedness planning, and that the plan enhances their awareness and understanding of the local flood risk reduction strategy, including what it means for them in terms of early warning, improved drainage, ecosystem management, investments in local infrastructure, insurance schemes and agricultural and land use planning.[25]
- **effective early warning systems.** These depend on a clear understanding of the at-risk population, and can prevent drowning by monitoring hazards and speedily disseminating flood warnings to vulnerable people, making sure they know what to do if a warning is issued (for example, evacuate to high ground or a designated centre).
- **land use planning.** This must ensure that shelter, housing, hospitals and other critical infrastructure are not located in flood-prone or coastal areas at risk of storm surge or tsunami, and that buildings are designed to reduce the risk of damage caused by floods. Levees separating water channels from flood plains protect against drowning in populated areas (though if damaged, they may contribute to flooding). In coastal cities such as Ho Chi Minh and Amsterdam, extensive levee systems protect against flooding but require regular maintenance.
- **preserving forests, wetlands and washlands** (land sometimes flooded by a river or stream). This helps retain natural water storage capacity, which may help prevent floods and drowning fatalities.
- **water safety awareness and basic swimming skills.** These may reduce drowning risks during floods in high-risk communities. Disaster preparedness should include raising community awareness about these skills.

Additional actions are needed to prevent drowning in floods, and further research is needed to identify the best measures to address different vulnerable populations.

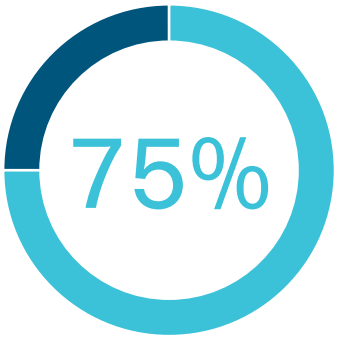
24 IPCC. Managing the risks of extreme events and disasters to advance climate change adaptation. A special report of working groups I and II of the Intergovernmental Panel on Climate Change. Field CB et al, editors. Cambridge: Cambridge University Press; 2012.

25 WWAP (World Water Assessment Programme). Managing Water under Uncertainty and Risk (chapter 4): The United Nations World Water Development Report 4. Paris: UNESCO; 2012.

BOX 8

FLOOD HAZARDS ARE OF FOUR MAIN TYPES

- **Coastal floods** – including high tides and storm surge floods where water is pushed onto dry land by onshore winds, storms and cyclones.
- **Tsunamis** – where large volumes of water are displaced onto land, usually following underwater seismic activity.
- **River floods** – in a watercourse due to intense or persistent rain over large areas.
- **Flash floods** – rapid flooding of low-lying areas, at the base of hills or in dry river beds, following heavy rain or collapse of a structure withholding water, for example a dam.



The percentage of flood deaths caused by drowning – though these are not categorized as drowning deaths in official statistics.

Source: Doocy S, Daniels A, Murray S, Kirsch TD. The human impact of floods: a historical review of events 1980–2009 and systematic literature review. PLOS Currents Disasters. 2013; Apr 16. Edition 1.

8 COORDINATE DROWNING PREVENTION EFFORTS WITH THOSE OF OTHER SECTORS AND AGENDAS

Drowning is a multisectoral issue. There is much to be gained from increased coordination and collaboration across the sectors that shape drowning risk, from fisheries to maritime transport, and from disaster risk management to health, education and rural development.

For example, a major water, sanitation and health agenda is to increase the number of people worldwide who access drinking-water from sources protected from outside contamination. An additional benefit of protected water sources – though one rarely cited in support of such programmes – is that people using them are less likely to drown in them than they are if using surface water or open wells. Similarly, controlling water-borne diseases by draining or filling in unwanted ditches, waterholes or ponds also reduces exposure to drowning risks.

Also, there are instances where the objectives of drowning prevention may benefit those of other agendas – for example, the construction of safe bridges and fords (shallow parts of rivers or streams where people can wade or drive across) reduces drowning risk, but it also improves access for transport and trade.

Development agencies support much of this work, and though they may rarely consider drowning prevention as a specific goal in its own right, they are potentially important champions for it. For example, irrigation canals designed to boost local food production by making barren land fertile can be made safe as they pass near villages by ensuring local people can cross them safely without the risk of falling in.

Drowning risks can be managed and ultimately reduced if approaches to development are more integrated (see Box 9), and take into consideration potential impacts on drowning risk.

BOX 9

WORKING TOGETHER TO PREVENT DROWNING AND DISEASE, CAMBODIA

A WHO drowning prevention programme in Kampong Chhnang Province, Cambodia, targeted the population living on and around the Tonle Sap and Mekong Rivers, and who were at high risk of drowning. As this same population is also at risk of many water-borne diseases, water, sanitation and health measures were carried out alongside the drowning prevention activities to address both sets of issues.

Elements of the programme included the piloting of a day care centre run by care givers specially trained in child care, hygiene and child health; materials to build safety barriers in the homes of over 1200 families; covering water hazards; and using PFDs for small children when in boats.

In addition, the village health support group and commune council members promoted awareness of drowning in the community, and data collection on drowning in their respective communes.

9 DEVELOP A NATIONAL WATER SAFETY PLAN

All countries can benefit from a national water safety plan. Whether it is a single, unified plan or one comprising several separate plans implemented by concerned parties such as the maritime, health or fisheries sectors, or the lifesaving community itself, collaboration across sectors is essential.

There are currently a range of countries with water safety plans, including Australia (see Box 10), the Philippines and Viet Nam. There is no one-size-fits-all plan, and resources and commitment for creating such a plan will vary from country to country (not least on the basis of each country's drowning problem), but certain elements are universal: success of the plan will depend on winning stakeholders' support, clearly defining objectives and actions, and monitoring progress (see Figure 6).

Any national water safety plan should aim to:

- raise awareness of safety around water and the importance of drowning prevention;
- build consensus around solutions and develop a coherent, effective response involving all relevant partners;
- provide strategic direction and a framework to guide multisectoral efforts to prevent drowning;
- monitor action, including obtaining better data and reporting on drowning and prevention.

FIGURE 6

ESSENTIAL STEPS FOR DEVELOPING A NATIONAL WATER SAFETY PLAN

STRATEGIC PRINCIPLES

- Appropriate targets
- Coordinated and integrated
- Evidence-based
- Data driven
- Continually monitored

STEP 1 Assess the drowning situation and raise awareness. If needed, establish data collection systems ensuring data on drowning is accurate, timely and inclusive.

STEP 2 Engage stakeholders and identify leadership.

STEP 3 Agree upon a vision and principles of the stategy, and define its goals.

STEP 4 Set objectives and select evidence-based drowning prevention strategies to be implemented.

STEP 5 Establish priorities, responsibilities and coordination mechanisms and define resource needs.

STEP 6 Obtain stakeholder and government approval.

STEP 7 Implement, monitor and revise strategy and targets as necessary.

BOX 10

NATIONAL WATER SAFETY STRATEGY, AUSTRALIA

The Australian Water Safety Strategy 2012–2015 aims to halve the country's drowning deaths by 2020 by targeting three priority areas and 10 associated goals.

Supported by the Australian government, the Australian Water Safety Council* leads, facilitates and promotes the strategy (drawn up in collaboration with water safety agencies, government and other groups with an interest in preventing drowning) through its extensive community network. The strategy's priorities and goals are:

PRIORITY AREA 1
TAKING A LIFE STAGES APPROACH

1. Reduce drowning deaths in children aged 0–14 years
2. Reduce drowning deaths in young people aged 15–24 years
3. Reduce drowning deaths in people aged over 55 years

PRIORITY AREA 2
TARGETING HIGH-RISK LOCATIONS

4. Reduce drowning deaths in inland waterways
5. Reduce surf beach drowning deaths
6. Reduce drowning deaths by strengthening the aquatic industry

PRIORITY AREA 3
FOCUSING ON KEY DROWNING CHALLENGES

7. Reduce alcohol and drug-related drowning deaths
8. Reduce drowning deaths attributed to watercraft and recreational aquatic activities
9. Reduce drowning deaths in high-risk populations
10. Reduce the impact of disaster and extreme weather on drowning deaths

*Convened by Royal Life Saving Society – Australia (RLSSA); Surf Life Saving Australia (SLSA); Australian Council for Teachers of Swimming and Water Safety (AUSTSWIM); members also include the Australian Leisure Facilities Association (ALFA); Australian National Sportfishing Association; Australian Swim Coaches and Teachers Association; Divers Alert Network (DAN); Farmsafe; KidSafe; Surfing Australia; Swimming Australia.

1.2 million

The number of people set to benefit from implementation research* assessing the largescale effectiveness of two childhood drowning prevention interventions (playpens and crèches) in rural Bangladesh.

*This is a study by the Johns Hopkins Bloomberg School of Public Health's International Injury Research Unit in collaboration with International Centre for Diarrhoeal Disease Research and Center for Injury Prevention and Research Bangladesh, funded by Bloomberg Philanthropies.

Source: Hyder AA, Alonge O, He S, Wadhwaniya S et al. Saving of Children's lives from Drowning in Bangladesh. American Journal of Preventive Medicine. 2014 (in press).

FURTHER RESEARCH

10 ADDRESS PRIORITY RESEARCH QUESTIONS WITH WELL-DESIGNED STUDIES

Further research can do much to clarify key issues and should be actively supported.

Drowning is a leading and preventable killer that has been largely overlooked, and there are a number of areas where further research is urgently needed. Key areas and potentially innovative interventions that should be on the global drowning research and development agenda include:

1. **Improving drowning data** in countries to understand the full extent and circumstances of drowning, to target interventions and evaluate their effectiveness;

2. **Improving understanding of swim skills training as a public health approach.** This includes:

   - characterizing determinants of swim skills protection across different drowning risk environments;
   - determining what types of risk management protocols – including identifying children with conditions that put them at increased risk of drowning during swim skills training – are best suited to low- and middle-income countries in order to ensure that children are safely trained;
   - determining best practices for training of trainers and identifying suitability of teachers and other community members to serve as swim skills instructors;
   - characterizing the most effective models to provide swim skills training, including through integration within primary school curricula.

3. **Improving understanding of the contextual features that impact drowning programme effectiveness,** including cultural barriers to CPR and acquisition of swimming skills, supervision of children, risk taking, enforcement of legislation and alcohol;

4. **Improved understanding of effectiveness for a number of potential interventions,** including:

   - providing PFDs to children to enhance safe access to school in high-risk locations and to people engaged in fishing or water transport;
   - establishing systems for sending text messages to mobile phones to provide early warnings of approaching cyclones, storm surges or tsunamis;
   - determining best practices in teaching safe rescue and resuscitation to potential bystander rescuers in low- and middle-income countries.

5. **Demonstrating scalability and sustainability for effective drowning prevention measures.**

Well-designed studies in these areas would do much to increase and refine our knowledge of practical solutions in locations where the burden is highest. More frequent use of cost data in the context of research involving interventions will allow for better understanding of cost-effectiveness. In turn this can help build the case for prioritizing drowning prevention, and prioritizing different drowning prevention strategies themselves. Finally, a mechanism that facilitates sharing of key findings and ideas among researchers, and prioritization of research studies will do much to ensure that resources are used effectively.