

# Children and drowning



Water touches every aspect of children's lives. They need it to grow, they are comforted by it, they are cleaned and cooled by it – and without it they cannot survive. Water to most children means fun, play and adventure – in a pool, pond, lake or simply in the road following a rain storm. Water, though, can be dangerous. A small child can drown in a few centimetres of water at the bottom of a bucket, in the bath, or in a rice field. Drowning is an injury that displays epidemiological patterns that change according to age group, body of water and activity. In most countries around the world, drowning ranks among the top three causes of death from unintentional injury, with the rates highest among children under five years of age.

## Scale of the problem

### Mortality

- In 2004 drowning resulted in over 175 000 deaths in children and youth aged 0–19 years.
- This is a conservative estimate as it does not include submersions resulting from floods, boating and water transport.
- Worldwide, drowning is the third leading cause of unintentional death in children and youth.
- In some countries in the South-East Asia and Western Pacific regions it is the leading cause of unintentional injury among children.
- The overwhelming majority (98.1%) of child drowning deaths occur in low-income and middle-income countries.
- In high-income countries most drowning events involving children happen in swimming pools.
- In low-income and middle-income countries most drowning events involving children happen in the sea and other open bodies of water particularly in rural areas.

Fatal child drowning rates per 100 000 population<sup>a</sup> by sex, WHO region and country income level, World, 2004

	Africa		Americas		South-East Asia	Europe		Eastern Mediterranean		Western Pacific	
	LMIC	HIC	LMIC	LMIC	HIC	LMIC	HIC	LMIC	HIC	LMIC	
Boys	9.0	1.8	5.0	7.1	0.8	5.5	10.7	9.0	1.7	17.5	
Girls	5.4	0.7	1.8	5.2	0.3	2.4	1.6	4.5	0.7	9.9	

<sup>a</sup> These data refer to those under 20 years of age.

HIC = High-income countries; LMIC = Low-income and middle-income countries.

Source: WHO (2008), *Global Burden of Disease: 2004 update*.

### Morbidity

- Global estimates suggest that 2–3 million children aged 0–14 years survived a drowning incident in 2004.
- At least 5% of child drowning survivors admitted to hospital have serious neurological damage.
- The lifelong economic and health consequences of non-fatal drowning are significant. These injuries are estimated to have the highest average lifetime cost of any injury type and have a great impact on families, including psychosocial consequences for victims, siblings, parents and other caregivers.

### What is a drowning?

Drowning refers to an event in which a child's airway is submerged in liquid, leading to an impairment to breathing. The outcome can be fatal or non-fatal, with some non-fatal drowning events leading to significant neurological damage.

## Risk factors

- Globally children under the age of five are at greatest risk of drowning, although adolescents (15–19 years of age) also have high rates.

Fatal child drowning rates per 100 000 population<sup>a</sup> by age and sex, World, 2004

	Age ranges (in years)					
	Under 1	1–4	5–9	10–14	15–19	Under 20
Boys	6.4	11.8	7.8	8.3	9.3	9.0
Girls	9.8	7.6	4.9	4.0	3.8	5.2

<sup>a</sup> These data refer to those under 20 years of age.

HIC = High-income countries; LMIC = Low-income and middle-income countries.

Source: WHO (2008), *Global Burden of Disease: 2004 update*.

- Boys are almost twice as likely as girls to drown – 9 per 100 000 versus 5.2 per 100 000 population.
- Drowning is strongly associated with poverty, particularly with regard to parents' educational level, number of children in the family and ethnicity (the reasons for the latter are not clear, but explanations could include differences in swimming ability and experience in water, lack of opportunities to learn to swim, and lack of supervision in environments where population groups at high-risk swim).
- Populations most at risk are those living in low-income countries of densely populated communities with high exposure to open water.

### Places where children drown

- Sea, lakes, streams
- Swimming pools
- Wells, cisterns
- Buckets
- Bathtubs, spas
- Garden ponds

- Other risk factors for drowning include: lack of available and accessible safety equipment (e.g. life jacket), travel on unsafe water transport (e.g. overcrowded ferries), alcohol use, living in a region that experiences cataclysmic floods or *tsunamis*, vacationing in an unfamiliar setting and poor access to immediate resuscitation.

## Interventions

Drowning incidents can be reduced through the use of effective prevention strategies.

### Effective approaches to reducing drowning —

- ✓ Drain unnecessary accumulations of water (e.g. baths, ponds, buckets).
- ✓ Build safe bridges and install piped water systems to reduce exposure to open bodies of water.
- ✓ Build and maintain 4-sided fencing around swimming pools.
- ✓ Wear a personal flotation device (e.g. life jacket) when on a boat.
- ✓ Cover wells and rainwater collection sites (e.g. cisterns, barrels) with heavy grills.
- ✓ Teach parents and caregivers basic life-saving and first aid skills and train the general community in cardiopulmonary resuscitation.

### What does not work?

- ✗ Much controversy surrounds the issue of teaching children under the age of 5 to swim as a drowning prevention strategy. While it is clear that learning to swim is an important skill, whether it is protective against drowning requires further rigorous evaluation.
- ✗ Other interventions such as restricting access to unsafe areas, doctors providing counselling to parents or introducing laws on blood alcohol content for swimmers requires further evaluation.
- ✗ Solar pool covers and baby bath seats are not drowning prevention devices and are therefore not a substitute for adult supervision.

“Considering that drowning is the second leading cause of unintentional injury death worldwide and the single leading cause of child death (including disease) in some countries, the focus this critical report brings to the problem and viable preventive measures is immensely valuable. Now comes the time for action.”

Alan Whelpton

World President, International Life Saving Federation