

Recognition and Treatment of Drowning Incidents

Definitions

Drowning is: “The process of experiencing respiratory impairment from submersion/immersion in liquid.”

It is further defined into three categories:

- Fatal
- Non-fatal with injury or illness
- Non-fatal without injury or illness.¹



These terms are commonly misused by the media and general public: there is no medically accepted definition for drowning other than the one above.¹

Drowning does not imply death by itself; there can be multiple outcomes after a drowning incident.

Water does not have to enter the lungs for drowning to occur.

Death after drowning may not be immediate, but there are no documented cases of asymptomatic fatalities.¹

What Happens To Your Body

- The struggle to breath causes hyperventilation.
- Hyperventilation leads to increased carbon dioxide levels.
- The high CO2 level compared to low O2 causes involuntary breath taking.
- Water inhalation causes coughing/choking.
- The larynx closes and hypoxia occurs.
- Laryngospasms allow water to enter the lungs.
- Hypoxia/the disruption by water in the lungs causes the heart to stop.

Statistics

- Over 3,500 fatal unintentional drownings (non-boating related) are reported annually in the US. An additional 332 people die each year from drowning in boating-related incidents.²
- About one in five people who die from drowning are children 14 and younger. For every child who dies from drowning, another five receive emergency department care for nonfatal submersion injuries²
- Drowning is the 3rd leading cause of unintentional injury death worldwide, accounting for 7% of all injury-related deaths.³
- Males, children ages 1-4, minority populations, and those impaired by alcohol are at the highest risk of drowning.
- Drowning can occur wherever there is water present. The most common areas for children are swimming pools, and natural bodies of water for teens and adults.¹⁰

Most children who fatally drown are missing for less than 5 minutes and are in the presence of one or both parents.¹³

It can take as little as 20 seconds for a child and 60 seconds for an adult to submerge beneath the water.¹²

Recognition

The average person can hold their breath for about 30 seconds.¹⁴

The Guinness Book of World Records for longest breath holding voluntarily is 24 minutes 3 seconds.⁵

The record for static apnea, which unlike Guinness does not allow for pre-breathing of any pure oxygen, is 11 minutes and 35 seconds.⁶

Shallow water blackout is caused when a swimmer faints from lack of oxygen, usually caused by prolonged underwater breath holding.⁸

The Mammalian Reflex, which causes bodily functions to slow but not stop when the face is exposed to cold water, has been attributed in cases of survival after prolonged submersion. Recent research contradicts these anecdotal stories.¹⁰

There is no difference to the lungs between aspirating fresh or salt water.⁴

SIGNS THAT A PERSON IS DROWNING

- 1** The head is usually underwater, with the mouth close to the surface, appearing above it and going under again.
- 2** The head is tilted backwards, the mouth is open.
- 3** The drowning person keeps him or herself upright while not making any supporting leg motions.
- 4** The person's arms are stretched to the sides.
- 5** The eyes are closed or looking at one point unfocused.
- 6** The person's hair is in their eyes, but they aren't trying to flick it away.

IMPORTANT!
If you've noticed at least one of these signs, don't waste time. Ask the person, 'Are you all right?' If there's no answer, help them.

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“Drowning doesn’t look like drowning”

-Mario Vittone, Rescue Swimmer

Who Are We?

ActionQuest runs three 17-21 day programs per summer in the British Virgin Islands, with approx. 450 participants in total plus 50 staff. Teens ages 12-18 grouped by age and grade live on 50ft boats and learn to sail, scuba dive, windsurf, waterski/wakeboard, and cook, clean, and participate fully in the running of the vessels (up to sixteen operating at a time). ActionQuest places a strong emphasis on experiential education, leadership development, and personal integrity/responsibility during each program.

Previous/current medical staff include WFR, EMT, Paramedic, and MPIC certification levels. GXG utilizes Remote Medical International's telemedicine service.

Treatment

Aquatic Distress vs. Instinctive Drowning Response

Ask “are you ok?”

- Call for help
- Reach, Throw, Go
- Assess ABCs
- If CPR is necessary, begin with breaths
- Avoid hands-only CPR

If AED use is indicated, make sure to 1) remove the victim from standing water, 2) remove wet clothing, 3) wipe and dry the area where the pads go, and 4) make sure anyone nearby is clear of standing water.⁹

If the person is able to answer you, they may be in distress but are also likely able to assist in their own rescue. They will be able to hold onto something that is reaching out to them or has been thrown.

If they are unable to answer you, the instinctive drowning response has taken over and you have limited time, often less than 30 seconds, to help them above or out of the water.

The “go” part of an in-water rescue should be used as a last resort, and whenever possible only by those trained formally in lifeguarding skills.

Prevention

Education/Awareness/Training
Physical barriers to water sources
Access to swimming lessons
Appropriate supervision
Proper lifejacket use

A CDC study in 2001 found that lifeguards can “significantly reduce the incidence of water-related injury or death.” The biggest barriers to lifeguard placement were liability concerns and cost. The biggest barrier to lifeguard efficacy was distraction by other job duties.¹¹

Water Safety In Our Program

- Pre-trip staff training modules on drowning recognition and CPR certification.
- Swim test on first day for all students- failure to complete adequately results in limited watersports activities/extra precautions during recreational swim time.
- Buddy system during all scuba/snorkeling activities.
- Supervised swimming- staff are present or within 50 feet of all swimming activities.
- No swimming at night outside of night training dives.
- PFDs- worn any time the vessels are underway, during watersports, and during small dinghy rides.
- Emphasis on sun safety and hydration.

Barriers to success- staff have no formal training in measuring swimming ability, constant water-based environment breeds complacency, other program duties take away from swimming supervision, swimming supervisors are often participating themselves, teenagers often exhibit overconfidence in their abilities, inexperienced staff can be lenient on safety if it appears not as fun.

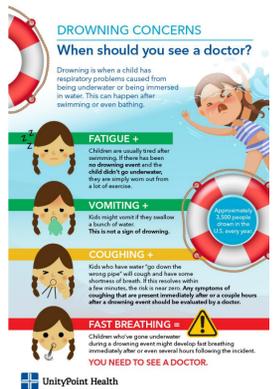
Areas for improvement- more staff with formal Lifeguard experience in program, develop clearer freediving policy, increase supervision abilities during swim time.

Our drowning incident history includes several minor, temporary immersion complications and one non-fatal/no impairment drowning post seizure.

Key Points	Let’s Debate!
<ul style="list-style-type: none"> • Drowning is a global health issue • Drowning is highly preventable • Most drowning incidents don’t result in death • Recognizing a drowning incident can save a life 	<p style="text-align: center;">Lifeguards... essential or a liability? Swim lessons for infants... prudent or false sense of security? Lifejackets... always or uncool? Home pools... fun or fearful?</p>

This information has not been reviewed by a doctor, and should not be used in place of a professional medical opinion.

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Scan to find a Red Cross Lifeguard class near you!