

## Unintentional Drowning: Key Facts and Preventive Actions

### Key Messages

- ※ The World Health Organization (WHO) has identified drowning as a public health priority. Excluding drowning deaths caused by flood-related disasters and water transport incidents, globally an estimated 236 000 people die from unintentional drowning each year.
- ※ Anyone can drown but some groups of people have a higher risk of drowning. While drowning can occur anywhere there is water, certain behaviours make drowning more likely. However, unintentional drownings are preventable.
- ※ Unintentional drowning is not uncommon in Hong Kong. To better understand the mechanisms and circumstances leading to unintentional drowning deaths so as to formulate appropriate health advices, the Department of Health (DH) reviewed 193 records of unintentional drowning deaths registered to the Coroner's Court during the 2012 to 2016 period. Based on the findings of unintentional drowning deaths review, the Hong Kong Drowning Report provides health advices on drowning prevention. The general public are urged to enhance knowledge and skills on water safety, know the hazards, be alert and pay attention to family. For persons engaging in water activities, they should be prepared, know the environment and take care of companions.
- ※ The DH will continue to work in close partnership with other government departments and community partners with a view to enhancing public awareness of drowning.

# Unintentional Drowning: Key Facts and Preventive Actions

In hot summer days, going to the beach or splashing around in a pool is a good way to beat the heat and stay physically active. However, knowing how to play safe around the waters is crucial to prevent drowning and other water-related injuries. Excluding drowning deaths caused by flood-related disasters and water transport incidents, globally an estimated 236 000 people die from unintentional drowning (or accidental drowning and submersion) each year<sup>1</sup>. They can be toddlers slipping unnoticed into swimming pools, ponds or bathtubs when they are left unsupervised; children swimming at unpatrolled beaches and playing in rivers; adolescents engaging in water-based activities under the influence of alcohol or psychotropic drugs; adults diving alone or swimming during adverse weather conditions; as well as elders with pre-existing medical conditions (such as dementia) accidentally falling into water or being drowned in bathtubs at home<sup>2</sup>. Other than causing death, however, there could have non-fatal drowning injuries ranging from respiratory impairment due to inhalation of water to hypoxic brain damage from drowning<sup>3</sup>. This article presents some key facts about unintentional drowning, reports the local epidemiology of unintentional drowning with health advices on drowning prevention for the general public and persons engaging in water activities.

## Key Facts about Unintentional Drowning

- *Anyone can drown but some groups of people have a higher risk of drowning*

Globally, the highest drowning rates are among children 1–4 years, followed by children 5–9 years. Inadequate or a lapse in supervision from parents and carers is the key contributing factor of childhood drownings<sup>1</sup>. Research also suggests that school-aged children experience a significant increase in the risk of fatal drowning during the school holidays, with days of holiday posing a relative risk of 2.4 compared with school days<sup>4</sup>. Males are twice as likely to drown as females.

Higher drowning rates among males are associated with greater participation in outdoor swimming, boating and fishing as well as risk-taking behaviours around water (such as consuming alcohol before swimming, boating and fishing)<sup>1, 2</sup>. People with certain pre-existing medical conditions (such as seizure disorders, autism spectrum disorder and ischaemic heart disease) are also significantly at higher risk of drowning<sup>5-7</sup>. While strong swimmers can be drowned, people who are weak swimmers or who cannot swim at all face a much higher risk of drowning<sup>8</sup>.

- *Certain behaviours make drowning more likely*

Alcohol consumption is widely recognised as a major risk factor for unintentional drowning. Alcohol not only impairs judgment, coordination and other psychomotor functions, but also affects survival once submersion occurs through physiological effects (such as hypothermia)<sup>9</sup>. Like alcohol, psychotropic drugs negatively affect cognition, hamper the ability to swim, and thus increase drowning risk<sup>10</sup>. Significant risk-taking behaviours associated with unintentional drowning also include swimming or diving alone (in particular at night or at locations without lifeguards) and ignoring water safety rules (such as failure to wear life jackets when boating or rock fishing)<sup>8, 11</sup>.

- *Drowning can occur anywhere there is water*

Unintentional drowning can occur quickly and quietly in as little as a few centimetres of water. Whether in buckets, bathtubs, swimming/wading pools, lakes, ponds, rivers/streams and oceans, there is a risk of drowning<sup>2, 12</sup>.

- *Unintentional drownings are preventable*

Studies show that 85% of drowning cases can be prevented through public education and drowning prevention campaigns, swimming instruction, sufficient supervision (such as of young children from parents or other adults), controlling access to water hazards (such as pool fencing to prevent young children from gaining access to the pool area without caregivers awareness), rules and regulations to enforce water safety (such as use of life jackets or other personal flotation devices while boating)<sup>3, 13</sup>.

## Local Epidemiology of Unintentional Drowning

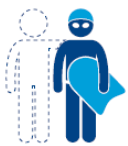




Between 2008 and 2022, there were 587 registered deaths due to unintentional drowning. That equated to an average of about 39 unintentional drowning deaths per year over the past 15 years. Males outnumber females with an overall male to female ratio of about 2.7 to 1. Analysed by age group, 38.3% of unintentional drownings deaths were among people aged 65 and above<sup>14</sup>.

To better understand the mechanisms and circumstances leading to unintentional drowning deaths so as to formulate appropriate health advices, the Department of Health (DH) reviewed 193 records of unintentional drowning deaths registered to the Coroner's Court during the period 2012 to 2016. The review revealed that the cases involved 142 males and 51 females, aged 5 to 90, with persons aged 65 and above (34.7%) accounting for the largest proportion of the drowning cases. Besides, 55.4% of drowning cases had records of suffering a pre-existing medical condition (including cardiovascular diseases, hypertension, diabetes mellitus, epilepsy, mental/behavioural disorder, etc.)<sup>15</sup>.

By month of the year and days of the week, July and Sunday had the highest numbers of unintentional drowning deaths respectively. While the drowning cases happened in different locations and settings, close to three-quarters (74.6%) of the fatalities occurred in open water (including offshore, beaches, river, stream and inland still water); 12.4% occurred in pools (public and private); and 7.3% occurred in a domestic environment (such as drowning in a bathtub). For activities undertaken immediately prior to drowning, swimming (46.1%) and underwater activities including snorkeling and diving (5.2%) accounted for over half of the drowning fatalities, while 9.3% of the drowning deaths were resulted from fishing (land-based and water-based) and water-based food gathering (such as digging for clams and collecting seaweed)<sup>15</sup>.

In addition, the review identified a number of risky behaviours in drowning victims (Table 1), including performing water activities alone or under adverse weather conditions, swimming in the absence of a lifeguard, having consumed alcohol or illicit drugs (such as ketamine, methamphetamine and cocaine) before water activities <sup>15</sup>.

**Table 1: Number (Proportion) of unintentional drowning fatalities by risk behaviours registered in 2012–2016**

Risky behaviour	Number (Proportion)
 Performed water activities alone*	104 (54%)
 Performed water activities under adverse weather conditions#	84 (47%)
 With drugs detected in the body+	57 (37%)
 Swam in the absence of a lifeguard@	39 (66%)
 With alcohol detected in the body^	38 (28%)

Bases: \*All 193 drowning fatalities; #177 drowning fatalities occurred outdoor; +154 drowning fatalities with autopsy and drug analysis performed; @59 drowning fatalities who swam at a beach; ^136 drowning fatalities with autopsy and alcohol level analysis performed.

Source: Hong Kong Drowning Report, Department of Health.

## Prevention of Unintentional Drowning

With regard to the findings of unintentional drowning deaths review, the Hong Kong Drowning Report provides health advices on drowning prevention for the general public and also for persons engaging in water activities (Box 1)<sup>15</sup>.

### Box 1: Health advices on drowning prevention for the general public and persons engaging in water activities

#### For the general public

##### Enhance your knowledge and skills

Learn how to swim



Learn cardiopulmonary resuscitation (CPR) for drowning victims, which is different to that for cases of cardiac arrest



##### Prevent domestic drowning

Domestic drowning hazards can be subtle, even a bucket of water can cause drowning. Be aware of potential risks



Be alert, if any member of the family is prone to falling or fainting, it can result in drowning



Supervise children & take extra care for elderly persons and family members who need special care



#### For persons engaging in water activities

##### Be prepared

Understand your own ability, acquire the skills required for specific water activities and equip yourself with suitable protective gear



Consult a doctor regarding your own fitness for engaging in the water activities if you have a medical condition



Avoid consuming alcohol



Do not take illicit drugs



Be accompanied



##### Know the environment

Avoid water activities during adverse weather conditions



Know the facilities, surroundings and risks involved



##### Take care of companions

Supervise children and accompany elderly persons



Perform water activities in the presence of a lifeguard



Check weather information while planning water activities or hiking passes by a river or stream



World Drowning Prevention Day is held annually on 25 July. Such global advocacy event aims to raise awareness on drowning as a public health issue. To know more about the World Drowning Prevention Day, please visit [www.who.int/campaigns/world-drowning-prevention-day](http://www.who.int/campaigns/world-drowning-prevention-day). The DH will continue to work in close partnership with other government departments and community partners with a view to enhancing public awareness of drowning. Meantime, members of the public are urged to remain vigilant about water safety in a bid to reduce the risk of drowning.

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The Leisure and Cultural Services Department (LCSD) will hold the Sport For All Day 2024 on 4 August 2024 (Sunday). This year, the slogan will remain “Stay Active, Healthy and Happy!” to encourage people of all ages and abilities to engage in regular sports and physical activities, and promote the benefits of exercise for the body and mind. The parent-child exercise for fun and fitness will be the focal sport this year, the Sport For All Day will offer various related sports participation sessions for the public. On the event day, a series of free sports and recreation programmes will be offered at designated LCSD venues across the 18 districts, while most of the LCSD leisure facilities will be open for free use by the public. Sports demonstrations will also be webcasted through the dedicated webpage and online platforms on that day. These fitness exercises are suitable for members of the public wherever they are. Their viewing and participation are welcome. For details of the Sport For All Day 2024, please visit the website at [www.lcsd.gov.hk/en/sfad](http://www.lcsd.gov.hk/en/sfad).

*Non-Communicable Diseases (NCD) WATCH is dedicated to promote public's awareness of and disseminate health information about non-communicable diseases and related issues, and the importance of their prevention and control. It is also an indication of our commitments in responsive risk communication and to address the growing non-communicable disease threats to the health of our community. The Editorial Board welcomes your views and comments. Please send all comments and/or questions to [so\\_dp3@dh.gov.hk](mailto:so_dp3@dh.gov.hk).*

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