



SPANISH ASSOCIATION OF PAEDIATRICS

Recommendations for the prevention of drowning[☆]



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Abstract Drowning is the second leading cause of non-intentional death in children under the age of 19 in Europe. Weather conditions in Spain allow an extended period of contact with water, therefore increasing the risk of drowning (due to the increased exposure), and constitutes the second leading cause of accidental death in children less than 14 years of age. In children younger than 5 years, drowning occurs mostly in pools belonging to private homes or communities, while in older children, drowning is often linked to aquatic recreational activities in lakes, sea, rivers and canals, and at times associated with alcohol consumption.

In this article, the Committee on Safety and Non-Intentional Injury Prevention in Childhood of the Spanish Association of Paediatrics provides a series of architectonic, educational and legislative recommendations to prevent such incidents.

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PALABRAS CLAVE

Ahogamiento;
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Recomendaciones sobre la prevención de ahogamientos

Resumen El ahogamiento supone la segunda causa de muerte accidental en menores de 19 años en Europa. Las condiciones climáticas en España permiten un amplio periodo de contacto con el agua, aumentando el riesgo por mayor exposición y constituyendo la segunda causa

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de mortalidad accidental en menores de 14 años. Los ahogamientos en menores de 5 años se producen sobre todo en piscinas particulares o de comunidades privadas y, en el caso de niños mayores, suelen estar ligados a actividades acuáticas de tipo lúdico en lagos, mar, ríos y canales, y, en ocasiones, asociadas al consumo de alcohol.

En el presente artículo, el Comité de Seguridad y Prevención de Lesiones No Intencionadas en la Infancia de la Asociación Española de Pediatría proporciona una serie de recomendaciones para prevenir este tipo de lesiones, tanto arquitectónicas como educativas y legislativas.

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Introduction

Water is an essential element in our lives and for most children it is also a place to practise sports and an important source of pleasure and fun. Whether on a recreational basis or for competitive purposes, contact with water begins at an increasingly early age and in more and more varied settings (in public or private swimming pool facilities, waterparks, spas, in the sea, rivers or lakes).

The WHO defines drowning as the process of experiencing respiratory impairment from submersion/immersion in liquid, with outcomes classified as death, morbidity and no morbidity.¹⁻⁴

Epidemiology

Over 5000 children die from drowning every year in the group of countries that make up the WHO's European region. Drowning is the second leading cause of accidental death in people aged between 0 and 19 in Europe as a whole.⁵

In Spain, weather conditions allow an extended period of contact with water, thereby increasing the risk due to greater exposure. Drowning accounts for 13% of the main causes of injury death in children (aged 0-14) and occupies the thirteenth place in Europe. It is also the second leading cause of accidental death, after traffic accidents, and claims around 450 lives a year among people of all ages (461 mortalities in 2011, of which 23 were under 15, and 438 in 2012, 28 of them under 15).

The statistics only reflect the number of deaths, which are the tip of the iceberg, since for every person killed there will be many other injuries that will require visits to accident and emergency departments or hospital admissions and will cause suffering and sequelae that may result in severe permanent disabilities.⁶ Diving head-first causes over 70% of all spinal cord injuries related to sports and recreational activities.

Death rates from drowning vary according to age and sex, the groups most at risk being small children and adolescent males.^{5,7-9}

Socioeconomic status and poverty are also linked to a higher risk of drowning in children.⁵

In the case of small children, it can happen in as little as 2 cm of water in the bottom of a bucket, a bath, a paddling pool or a well.

Drowning incidents in children under 5 occur mostly in swimming pools belonging to private homes or communities, where it has been shown that deaths by drowning can be reduced by up to 95% with simple regulated fencing like the one currently used for community pools.¹⁰

In the case of older children, drownings usually take place in lakes, the sea, rivers and canals, where recreational aquatic activities are practised. At these ages, the consumption of alcohol and drugs are added risks to adolescent impulsiveness. As many as 25% of deaths by drowning were associated with alcohol consumption.^{5,11}

Another type of injury is related to drain entrapment that occurs when a child is held by the forces created by water passing through the underwater drain at the bottom of a swimming pool.¹ These forces produce injuries to various parts of the body: hair entanglement (the most common), suction of the chest, abdomen (most often perianal and gluteal) or a limb (usually due to the absence of drain covers), evisceration of bowel loops of varying degrees of severity and death by drowning due to suction and immobilisation at the bottom of the pool.¹²

Strategies that have proved to be effective for the prevention of drownings

- *Supervision and surveillance* of any child in proximity to any aquatic environment, including swimming pools, baths, beaches, buckets containing water, etc., is an essential strategy for the prevention of drownings.^{1,11} Proper supervision implies that the distance to the child is less than the length of the caregiver's arm; in other words, literally keeping children within arm's reach.
- *The presence of a lifeguard* is the best way to avoid water accidents that end in drowning. However, a lifeguard cannot supervise all bathers at the same time, and it is therefore essential to *keep children under constant surveillance*. Although deaths are infrequent when there is a lifeguard present, they can happen.^{1,5}

With respect to swimming pools:

- *Complete fencing* of pools around their entire perimeter, so that the pool is totally isolated from the garden and the house, is effective in preventing many drownings of children in pools.^{1,8,10,13}

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