

Injury Topic: Water Safety

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DEDICATED TO THE HEALTH OF ALL CHILDREN™



Ohio Chapter

Definitions

- Drowning - immersion injury that results in death within 24 hours of the event
- Near-drowning - an immersion event in which there is survival for at least 24 hours, irrespective of outcome

Epidemiology



- Unintentional injury is leading cause of death in 1-24 year olds
- In 1-19 year olds, drowning is 2nd leading cause of unintentional injury death
- In 12-23 month olds, drowning is 2nd leading cause of death overall and leading cause of injury-related death

Epidemiology - Incidence



- 150,000 drowning deaths annually worldwide
- 8000 fatal drownings each year in the US
- 1400 fatal pediatric drownings in US in 2000
- For each drowning death, estimated 1 to 6 near-drownings requiring hospitalization



Epidemiology - Geographic & Temporal Variation



- Increased rates in California, Arizona, & Florida due to increased exposure to residential pools
- 2/3rds of deaths occur in May-August
- Increased drowning rates on weekends
- Increased submersions from noon-8pm

Epidemiology – Bimodal Distribution

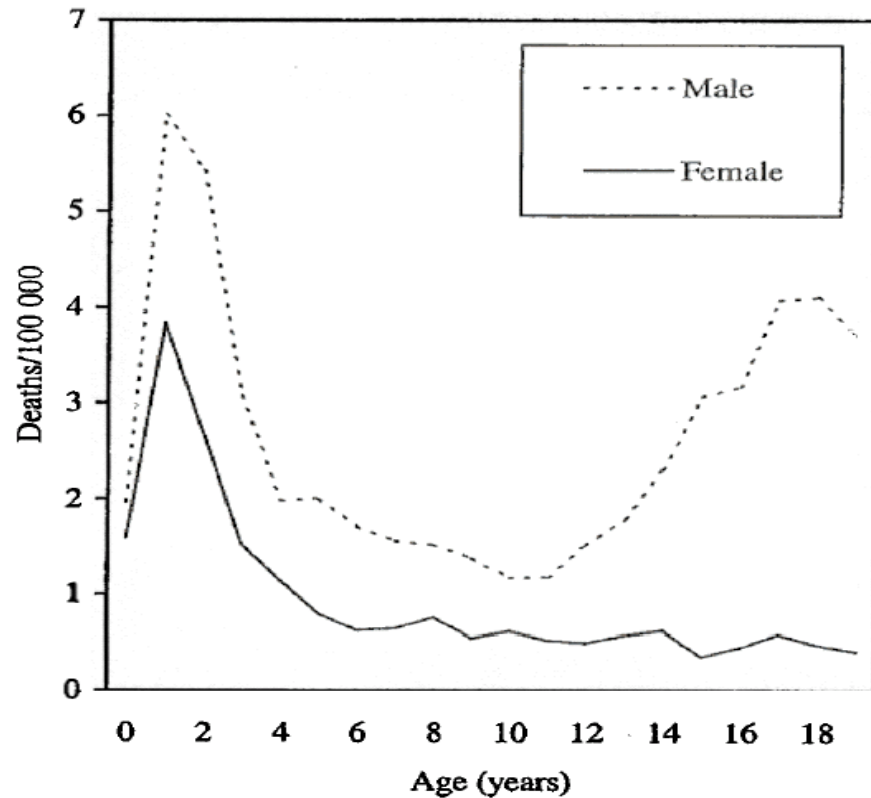


Fig 1. Unintentional drowning rates among children 0 to 19 years of age (United States, 1996–2000). Inclusion criteria for drowning deaths: 1996–1998 ICD-9 codes E830, E832, and E910; 1999–2000 ICD-10 codes W65–W74, V90, and V92.

- Rates in females highest at 1-2 yrs then steadily decrease
- Among males, rates peak in toddler and adolescent age groups

Epidemiology – Under 5 years

- 78% of infant drowning occurred in the home (bathtubs, buckets)



Epidemiology – Under 5 years

- Children 1-4 years were most likely to drown in swimming pools
- Inadequate supervision is common factor – so event usually unwitnessed
- 7% of cases related to child abuse/neglect



Epidemiology - Adolescent



- Racial disparity - non-white > white
- Frequently associated with alcohol use
- More common in natural bodies of water
- Majority of events are witnessed



Epidemiology – Associated Illnesses

- Seizures
 - 4 - 14 times higher risk of drowning
- Cardiac Dysrhythmias (prolonged QT)
- Autism ?



Medical Costs of Drowning



- 3rd most costly cause of childhood injuries
- 1982 data
 - Drowning accounted for \$4.4 million/year
 - Near-drowning cost \$350-650 million/year
 - Range from \$2000 for patients with full recovery to \$150,000 for severely neurologically injured patients



Prevention



- Most cases of drowning and near-drowning are preventable
- Decrease young children's access to water
- Increase supervision by adults
- Increase awareness of hazards by adolescents



Prevention - Fencing



- Installation of 4-sided fencing is the only environmental prevention proven to be effective in toddler drowning
- Most toddlers entered pool from their home through unprotected side of the pool
- 4-sided fencing associated with >50% decrease in pool immersion injuries



Prevention – Fencing Recommendations



- Install 4-sided fence around the pool
- Fence at least 4 ft high with no foot or handholds
- No more than 4 inches between vertical fence slats or under bottom of fence
- Self-closing and latching gates which open away from the pool
- Release mechanism at least 3 inches below the top



Prevention - Fencing



Prevention - Other Barrier Methods



- Door Alarms
 - Produces audible sound when door is opened
 - Can be turned off by an adult
- Rigid Pool Covers
 - Must hold the weight of 2 adults and a child
 - Quick removal of water from the cover
 - Differentiate from solar or plastic covers



Prevention - Other Barrier Methods



Rigid pool cover

Solar pool cover



AAP Recommendations - Newborn to 5 years of age

- Never leave a child alone near a bathtub, pool, water bucket, even open toilets
- Residential pools should be surrounded by a 4-sided fence
- Pool covers are not a substitute for 4-sided fencing
- “Touch supervision” for infants or children while around water

AAP Recommendations - Newborn to 5 years of age (cont' d)

- Parents should inquire about exposure to water and water-related activities for out-of-home child care
- Do not use flotation devices as a substitute for supervision or in place of life preservers
- Keep rescue equipment and telephone by the pool
- All parents, caregivers, & pool owners should learn CPR
- Swimming lessons are not developmentally appropriate until age 4



AAP Recommendations – 5 to 12 years of age



- Teach children to swim but realize limitations
- Teach children to never swim alone or without adult supervision
- Be aware of underwater hazards - feet first, first time
- Use approved flotation devices when riding in a boat or with risk of falling into water
- Recognize drowning risks during the cold seasons
- Constant supervision for children with seizure d/o



AAP Recommendations - Adolescents

- Reiterate the talks given to the younger age groups
- Counsel about the dangers of alcohol during aquatic activities
- Teens should learn CPR



Community Interventions by the Pediatrician

- Identify families with swimming pools
- Pass legislation to mandate pool fencing
- Establish regulations for natural swimming areas and recreational swimming pools (ie. lifeguards)
- Develop EMS for children
- Teach CPR to all their residents
- Research data in their area to design specific regional preventative strategies



Summary



- Screen all families for drowning risk
 - Recognize potential risks (age, family pool, etc)
- Know resources in area for family
- Educate families when indicated at risk
- Work with communities to make safer environments



Helpful Resources



- <http://www.safekids.org/our-work/research/fact-sheets/drowning-prevention-fact-sheet.html>
 - free downloadable drowning prevention safety handout. Pretty in-depth with data, proven interventions, legislation.
- <http://www.safekids.org/safety-basics/safety-resources-by-risk-area/drowning/home-drowning-prevention-tips.html>
 - nice safety sheet for prevention of in home drowning (the most common site for drowning in kids < 1 year)
- <http://www.poolsafely.gov/parents-families/simple-steps-save-lives/>
 - entire toolkits available, different kits for parents, pool owners, etc.
- <http://www.cdc.gov/safecild/Drowning/index.html>
 - this is very basic and includes the key drowning prevention points. Buttons and posters also available for free on this webpage.
- <http://www.odh.ohio.gov/~media/HealthyOhio/ASSETS/Files/injury%20prevention/drowningfactsheet.ashx>
 - this is a nice one because it includes Ohio data. It is a little more in-depth, so may be a bit much depending on the audience. It is 3 pages long, but the last page is a resource page, so could print just the first 2 pages front and back on a single page.



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