Injury Topic:
Water Safety

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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 2\textsuperscript{nd} leading cause of unintentional injury death
• In 12-23 month olds, drowning is 2\textsuperscript{nd} 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 submersion from noon-8pm
Epidemiology – Bimodal Distribution

• 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

  - free downloadable drowning prevention safety handout. Pretty in-depth with data, proven interventions, legislation.

  - nice safety sheet for prevention of in home drowning (the most common site for drowning in kids < 1 year)

  - entire toolkits available, different kits for parents, pool owners, etc.

  - 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](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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