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# Swimming Pool & Spa Safety Lessons Learned

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# What the heck is a Pediatric Intensivist? (and why is he talking to us now?)

- Pediatricians
  - Intensive Care Fellowship
  - ~250 Pediatric ICUs in US
    - Exclusively hospital-based, ICU practice
  - ~1000 Intensivists in US
    - Patients range from birth to young adulthood
    - Any illness / injury warranting ICU care
      - Major trauma, Seizures, Pneumonia, Asthma, Diabetes, Heart failure, Heart Surgery, Poisoning, **Drowning and Near Drowning**
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# Fun stuff done by Intensivists (relative to drowning and near drowning)

- See every child after a significant submersion
  - Talk to parents / witnesses (What happened?)
  - Predict Life, Death and Brain Damage
  - Care for the Child
  - Comfort the Parents
  - Draw conclusions
    - Facts, Trends, Opinions
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# Facts, Trends, Opinions

## Childhood (0-18) Deaths in Florida, 2000

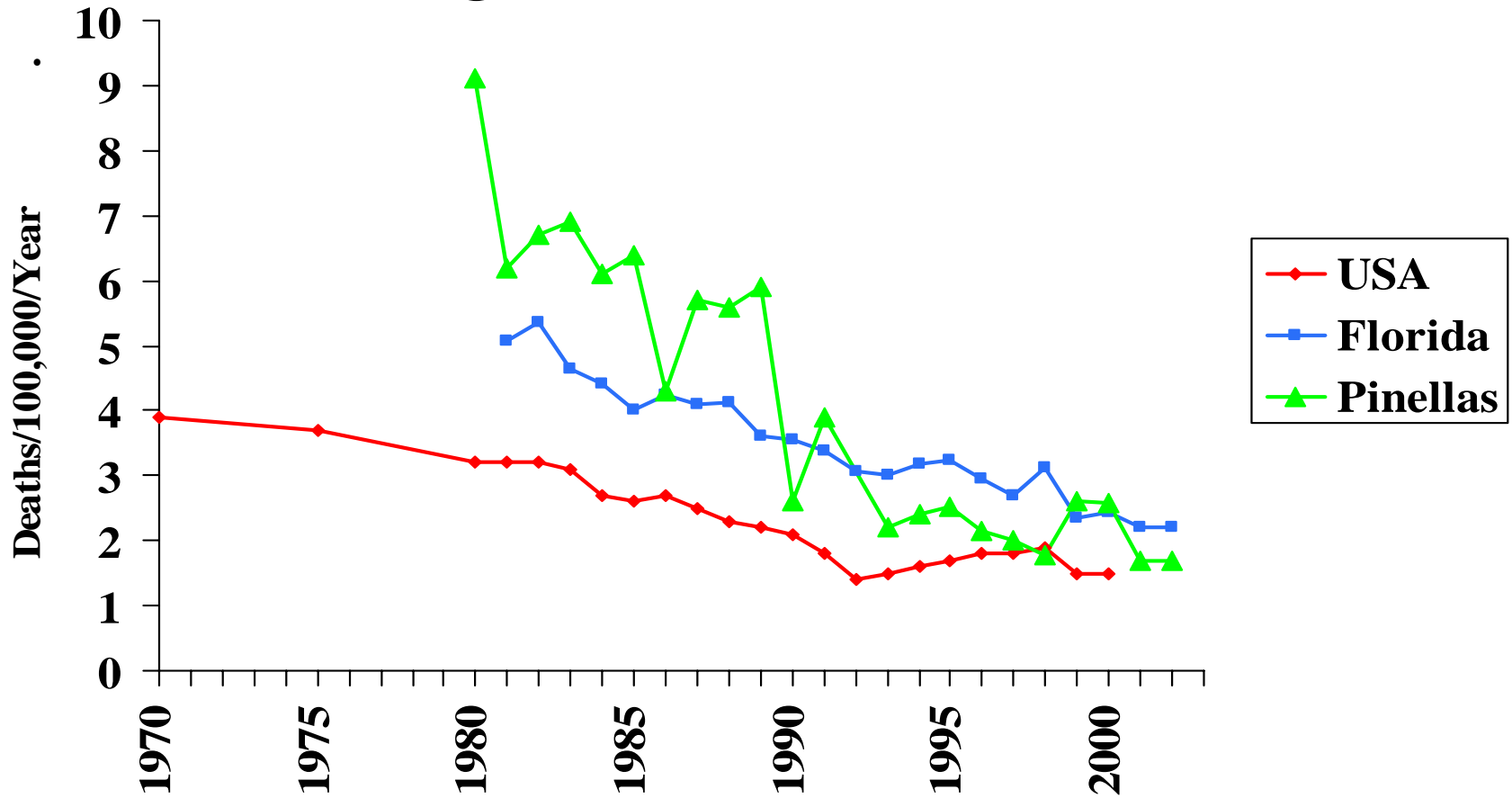
\*CDC

Vehicle Occupants	234
Malignancies	118
<i>Accidental Drownings</i>	<i>113</i>
Homicide	103
SIDS	94
Pedestrian v. Motor Vehicle	59
Poisoning	25
Fire Related	18
Bicyclists	15
HIV	9
Accidental Firearm	5
Adverse Effects of Medical Care	1

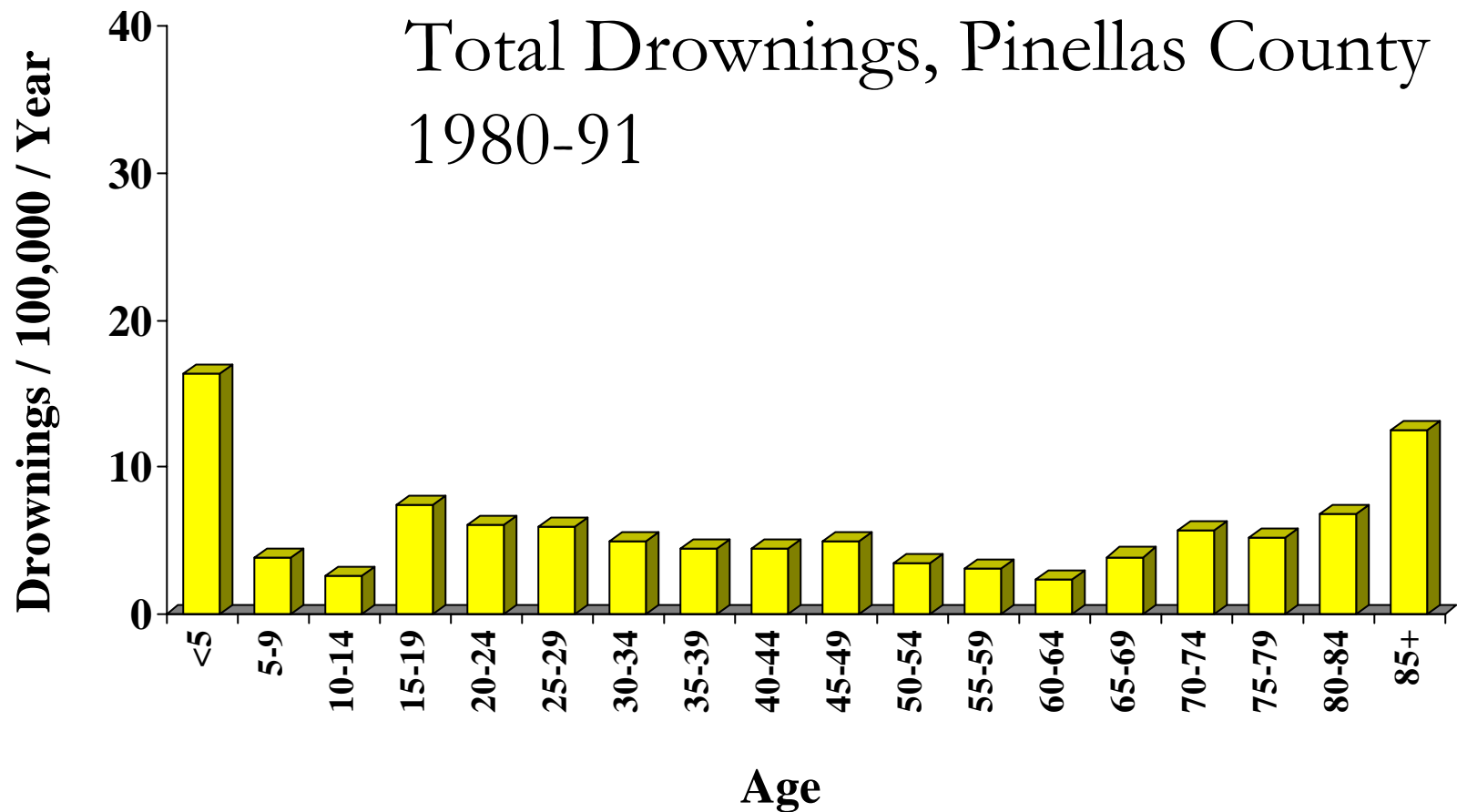
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# Facts, Trends, Opinions

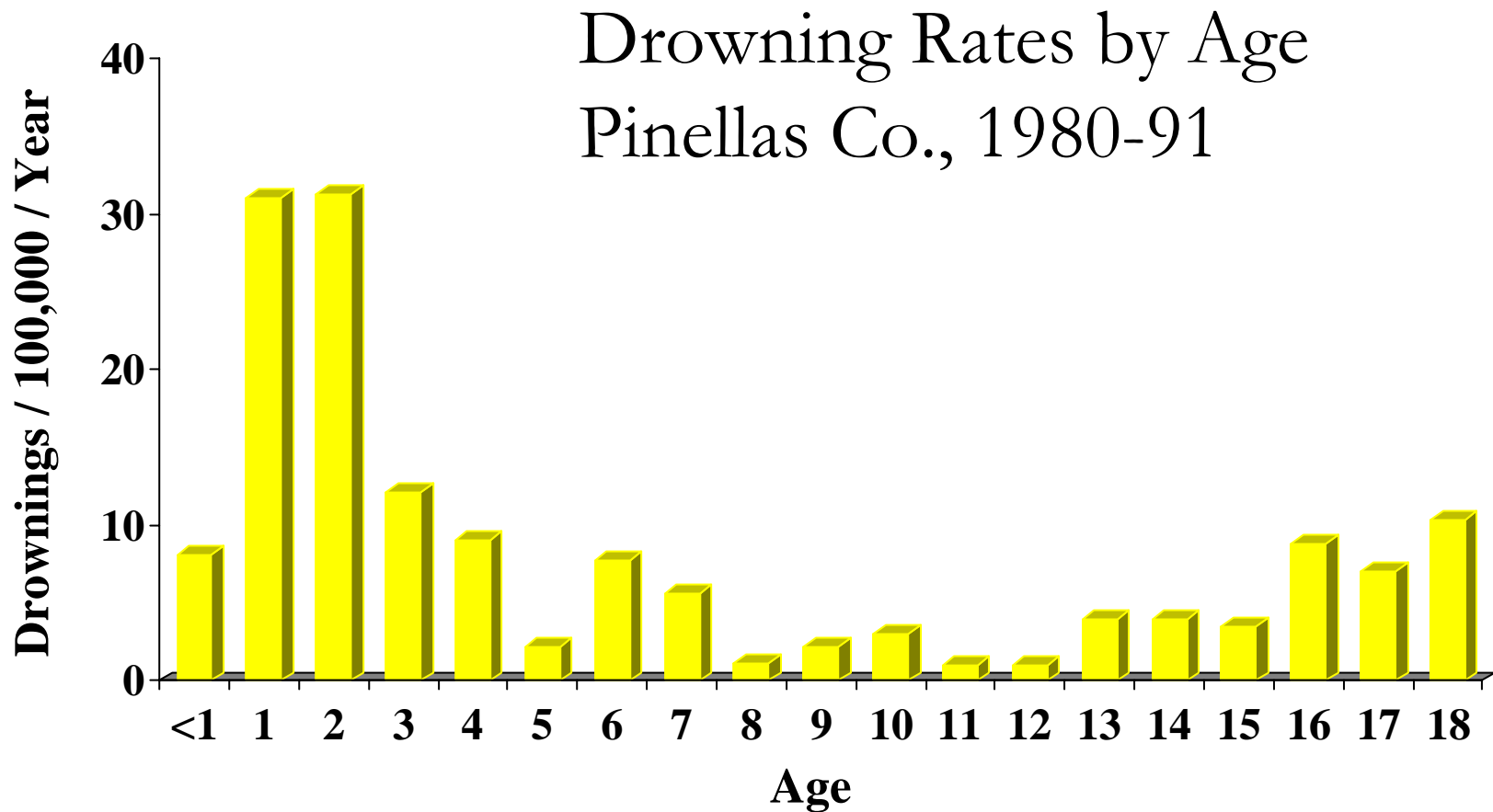
## Drowning Rates, USA, Florida & Pinellas Co.



# Facts, Trends, Opinions

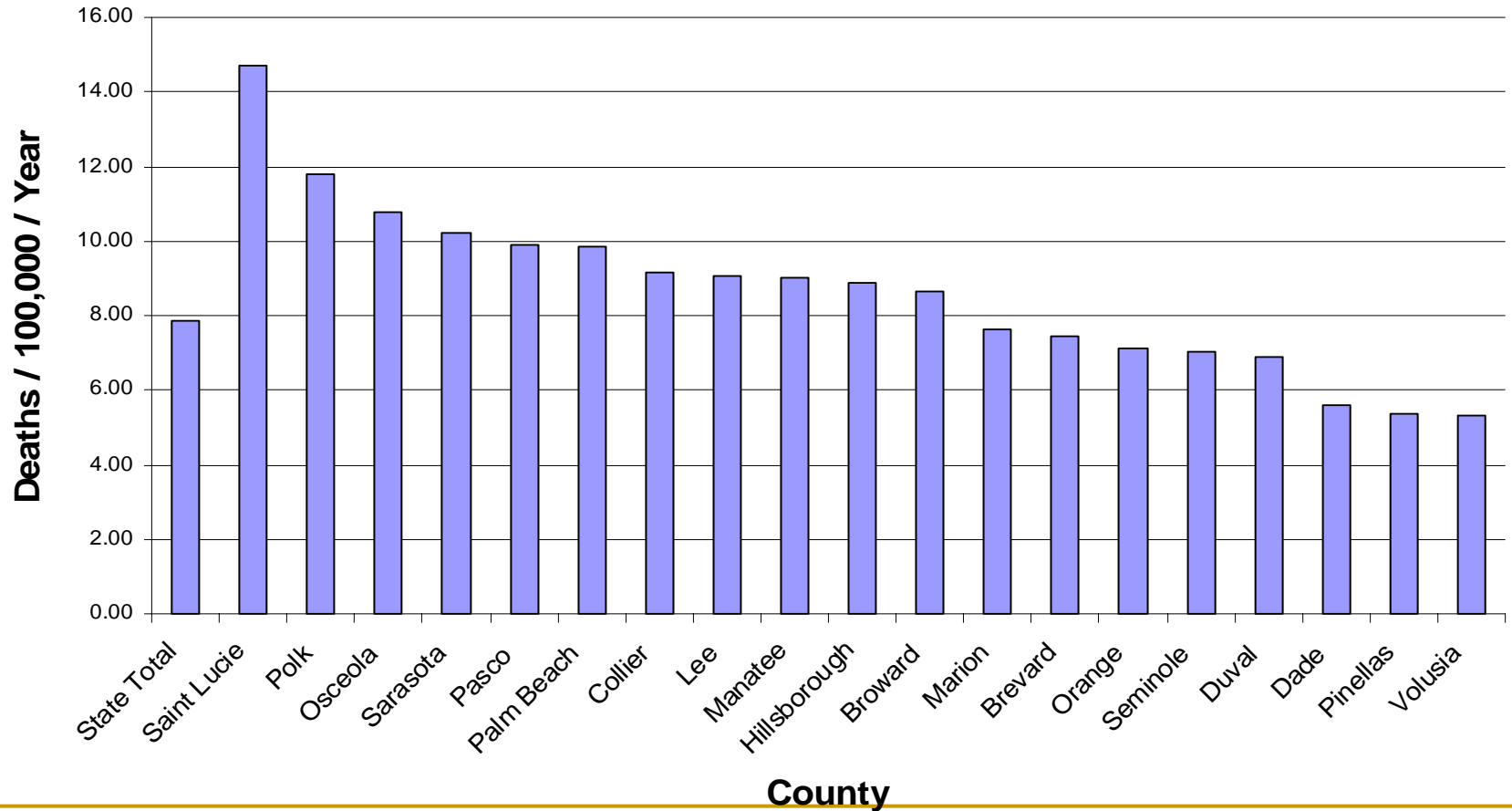


# Facts, Trends, Opinions



# Facts, Trends, Opinions

## Drowning Death Rates 0 - 4 Years 1993-2002



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# Facts, Trends, Opinions

## ACH Experience

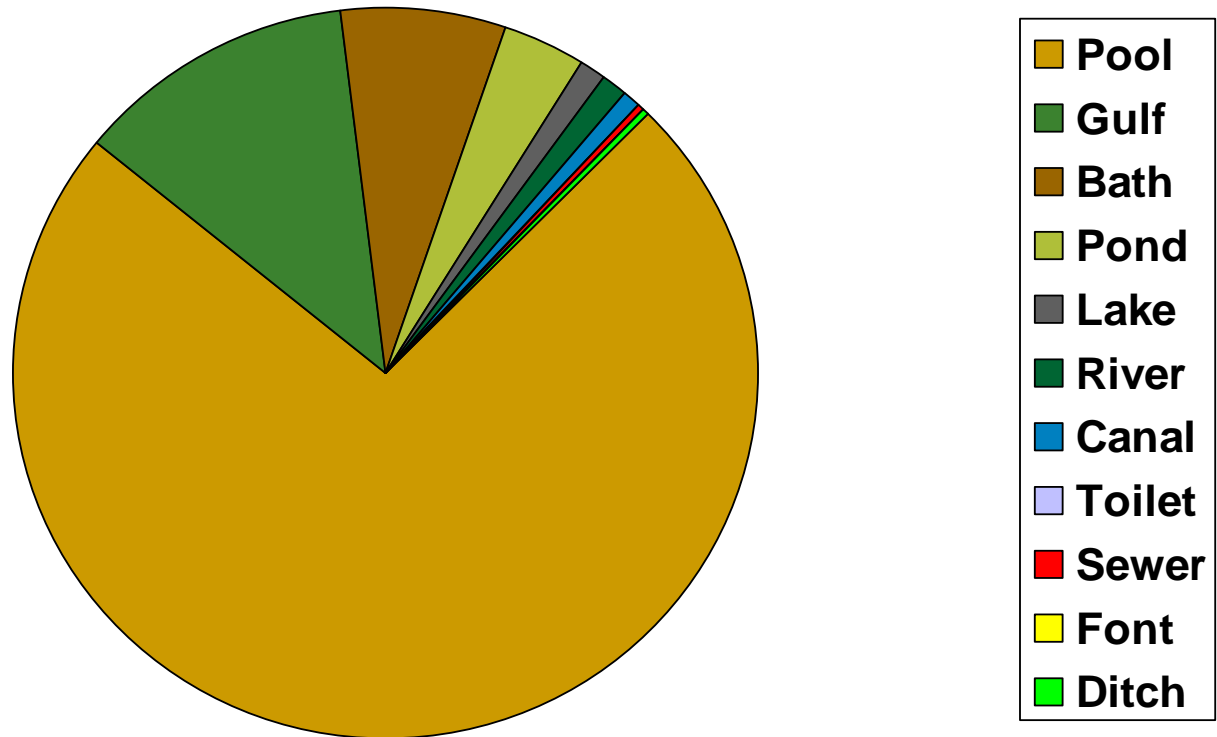
1983-2002

- 576 Children

- Age Range 4 mos – 18 yrs, 10 mos
  - Mean Age 41.98 months
  - Median Age 27 months
  - Mode Age 14 months (n=24)
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# Facts, Trends, Opinions

ACH Experience  
1983-2002



# Facts, Trends, Opinions

## Drowning Scenarios

<b>Age</b>	<b>Scenario</b>
< 1y	Infants left unattended or with sibs in bathtubs, sinks & sometimes pools.
1-4y	Undersupervised, predominantly white children in backyard pools, lakes & ponds. Boys at higher risk.
5-15y	Undersupervised males frequently overestimating or disregarding their swimming skills in open bodies of water. Drugs / alcohol are rare. AA at increased risk.
16-65y	Mostly men in open bodies of water. Drugs / Alcohol implicated in 40+% of all episodes and ~ 75% of boating episodes. AA at increased risk.
66+y	Falls in pools, canals or bathtubs. Drugs / Alcohol in 20%. Suicide an important cofactor.

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# Facts, Trends, **Opinions**

## Childhood Submersion

### Sequence of Events

- Submersion
  - Breathholding
  - Automatic Paddling Movements
  - Increased CO<sub>2</sub>, Decreased O<sub>2</sub>
  - Gaspings, Swallowing
  - Vomiting, Aspiration
  - Loss of Consciousness
  - Continued Gaspings leading to Apnea
  - Arrhythmias
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# Facts, Trends, Opinions

ACH Experience

1983-2002

## ■ Outcomes

- 487 (84.5%) Alive at Hospital Discharge
- 453 (78.6%) Normal at Discharge
- 7 (1.2%) Impaired with Rehab Potential
- 27 (4.7%) Brain Damage no rehab potential
- 89 (15.5%) Died in Hospital

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# Facts, Trends, Opinions

- Perspective:

- While we have cared for 418 children who have drowned or nearly drowned in pools and spas
    - Not one has successfully defeated a 4 foot high, properly installed and maintained, isolation fence
    - 20 (est) have drowned on top of or under pool covers
    - No pool alarms alerted parents
    - 3 (est) have become entrapped in drains / vacuums
    - None has suffered significant head or neck injury
    - Many have opened or walked through open sliding doors
    - Many were described as “knowing how to swim”
    - Nearly all have occurred in the home of residence / play
    - Nearly all have merely toddled into the pool
    - Florida’s Swimming Pool safety legislation has not noticeably affected drowning rates
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# Facts, Trends, Opinions

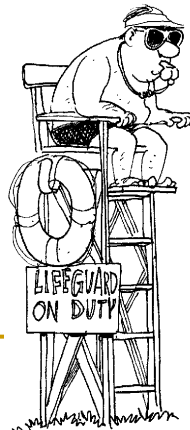
## Drowning Prevention Strategies

### ■ Parental Vigilance

- ❑ The large majority of parents are vigilant
- ❑ Nobody can keep their eyes on a toddler constantly
- ❑ Simply reminding parents to “watch their children” isn’t enough

### ■ Pool Fencing

- ❑ 4-sided pool fences
- ❑ 4 feet high
- ❑ Self closing, self latching gate
- ❑ 4-sided pool fencing legislation has decreased preschool drownings by 50%



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# Facts, Trends, Opinions

## Drowning Prevention Strategies

### ■ Pool alarms

- ❑ Cheap
- ❑ Too effective or not effective enough
- ❑ Rarely used continuously
- ❑ Not an effective drowning prevention tool

### ■ Pool covers

- ❑ Frequently not used during the drowning “season”
  - ❑ Children can drown on top of or underneath pool covers
  - ❑ Not currently recommended by the AAP
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# Facts, Trends, Opinions

## Swimming Instruction

- Less than 1 year old
    - Numerous reports of
      - Water intoxication
      - Seizure
      - Salmonella
    - Probably not effective
    - Probably not needed
    - Infants don't like it
    - Water play is OK
  - More than 3 years old
    - Organized swimming instruction advocated by the AAP for children > 4 years old
    - Children are highly “teachable”
    - Low risk of infection
    - Limit sessions to 15-30 minutes
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# Facts, Trends, Opinions

## Swimming Instruction

- Children 1-3 years old
  - ❑ Are variably “teachable”
  - ❑ Are at risk for infectious diseases in group classes
  - ❑ Don't need to swim as a drowning prevention method if pools are properly fenced
  - ❑ Personally, I would wait till the child (and everyone else) is out of diapers



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# Facts, Trends, Opinions

## Drowning Prevention Strategy

### ■ What works

- Raising awareness
- Media
  - TV > Print > Radio
- Isolation pool fencing
  - 4-sided
  - 4 feet
  - Self-closing gate
  - Locked
- Legislation + media attention

### ■ What doesn't

- Preaching
  - Programs done in isolation
  - Anything else
    - Alarms
    - Covers
    - Locks
    - Swimming
  - Legislation alone
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# Our Challenge

- Recognize the inherent danger of the backyard pool or spa to preschoolers (and the elderly)

Loaded Gun  
Bengal Tiger  
Grand Canyon

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# Our Challenge

- Target safety measures to what we know about the frequency and lethality of submersion injuries

Deny Access

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# Our Challenge

Make the necessary changes to the current design, construction and maintenance standards of pools and spas to allow for their continued SAFE enjoyment

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