

California Child Drowning: A New Perspective

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Background

Drowning has been the leading cause of unintentional injury-related death among children 1-4 years of age in the U.S. and in California for at least three decades.

The 2017 California Pool Safety Law requires residential pools be equipped with 2 of 7 safety features. A pool isolation fence is optional.

Purpose

Determine rates of fatal drownings (1999-2020) for California 0-17-year-olds and 1-4-year-olds, and rates of fatal pool drownings among 1-4 year-olds.

Characterize 1-4-year-old drowning incidents (2017-2021).

(UC Irvine IRB # 1735)

Methods

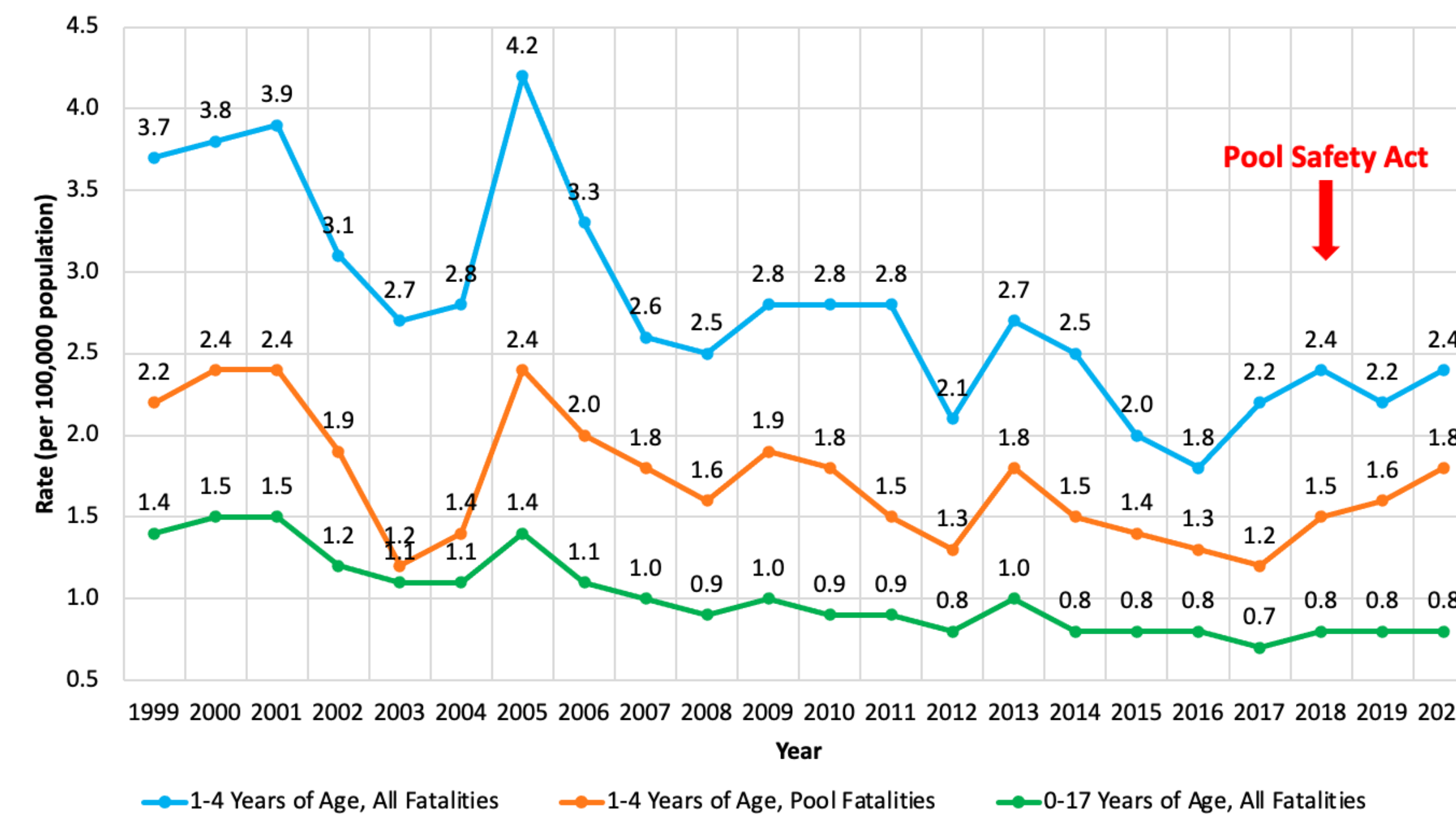
Abstracted data from the California Department of Public Health (CDPH) EpiCenter database, a comprehensive source of injury data.

Annual rates for 1999-2020 were calculated using ICD-10 External Cause of Morbidity Unintentional Drowning rates for 0-17 years and 1-4 years of age. E-codes W67 and W68 were used for pool drowning.

Hospitalization and ED data were abstracted from the updated and enhanced EpiCenter database (2017-2021).

Results

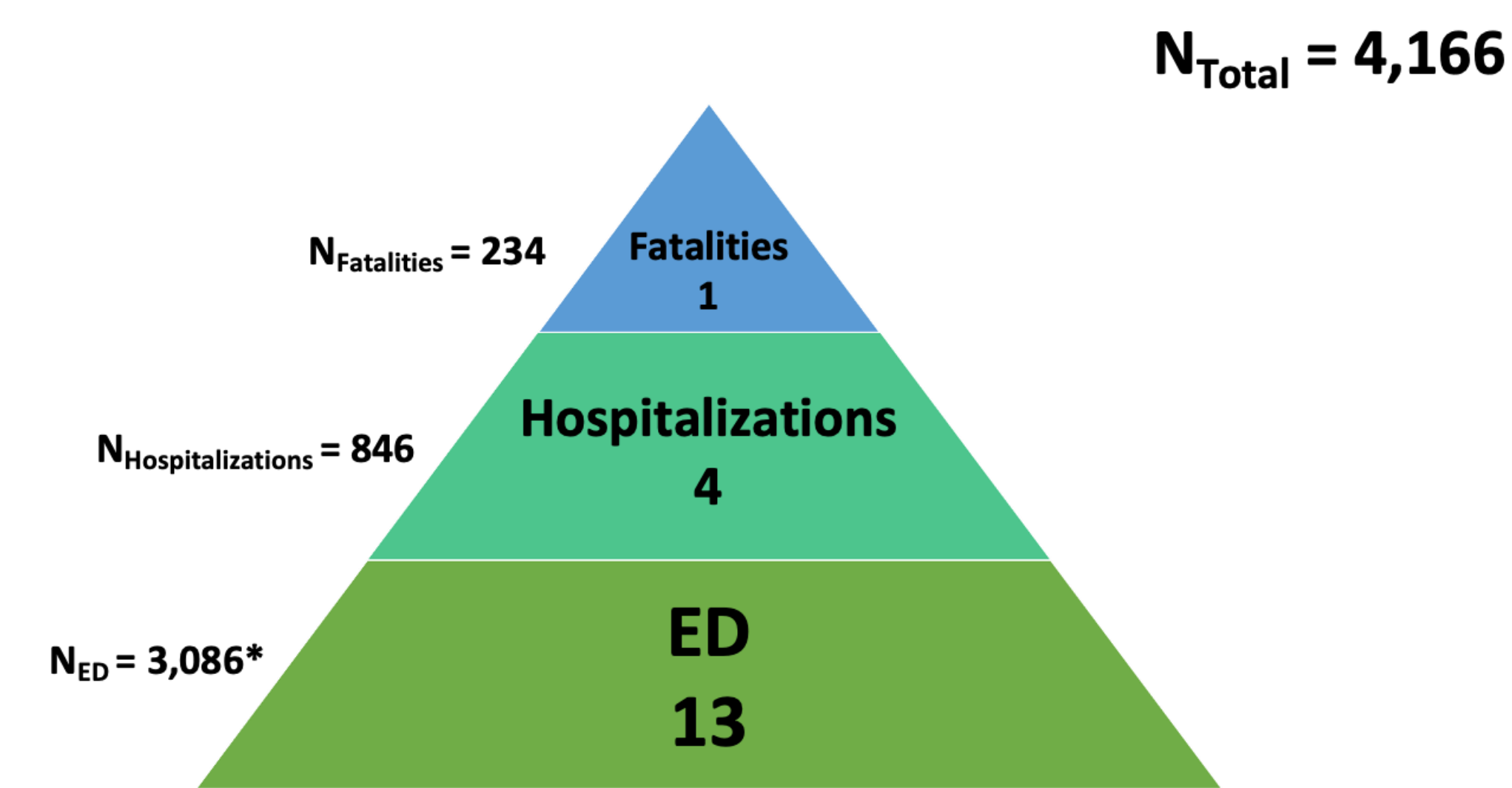
Figure 1. Annual Unintentional Fatal Drowning Rates for Children 1-4 Years of Age vs. Children 0-17 Years of Age: California Residents (1999-2020)



Source: CDPH EpiCenter

- Overall annual rates have decreased since 1999
- However, the drowning rates were not significantly different compared to 2020 for the following:
 - 2006-2019 for 0-17 y/o
 - 2005-2019 for 1-4 y/o
 - 1999-2019 for 1-4 y/o at pools
- Pools
 - 65% of 1-4 y/o fatalities

Figure 2. Drowning Outcomes Among Children 1-4 Years of Age: California Residents (2017-2021)

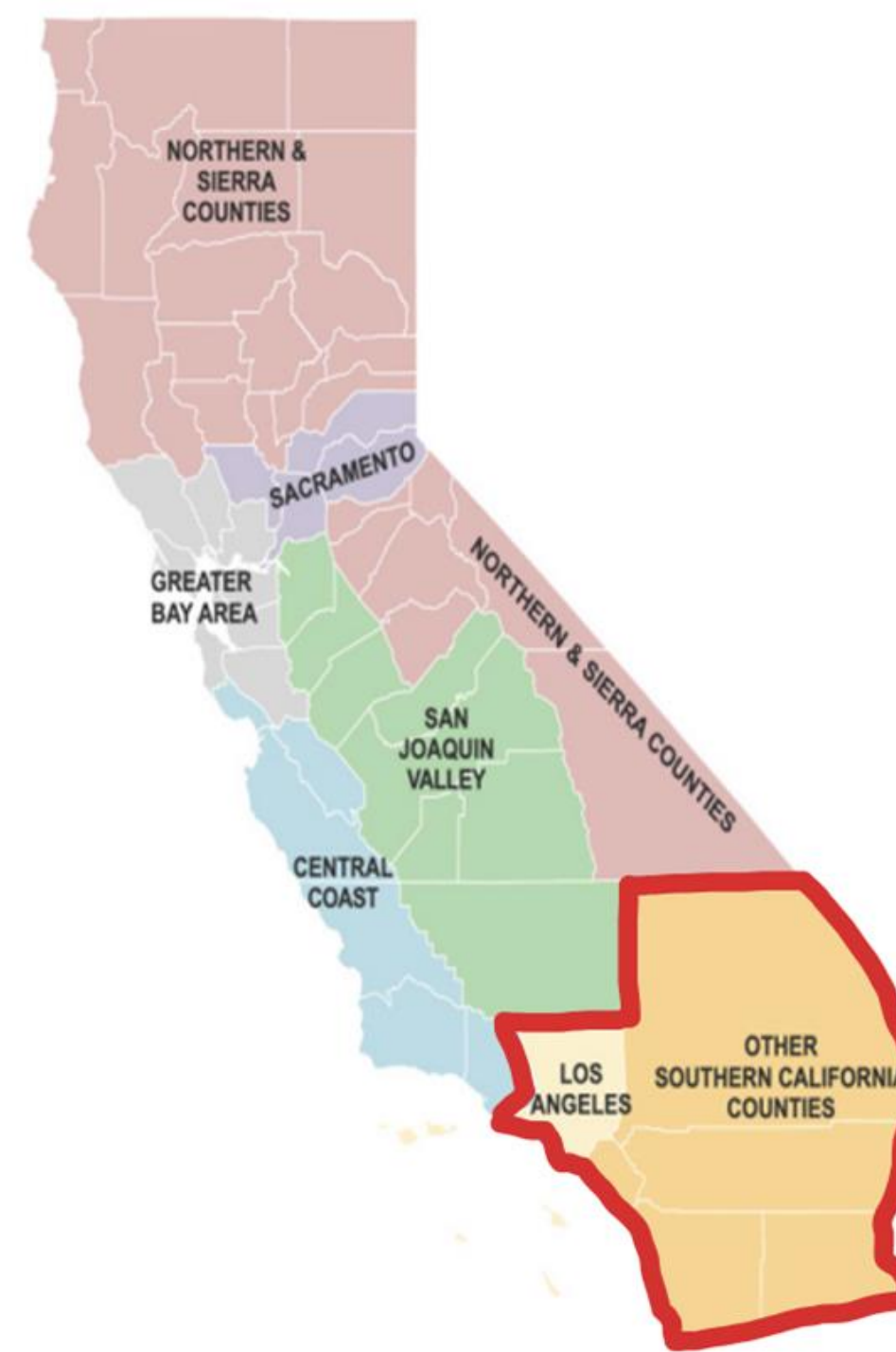


For every fatality, there are 17 non-fatal cases.*

Source: CDPH EpiCenter

*Some of the ED encounters may also be included in the hospital data.

California Regions and Counties



The Los Angeles and Other Southern California regions comprised 58% of all fatalities, hospitalizations, and ED visits in the state of California.

Limitations and Gaps

- CA residents only
- Type of pool not known
- Circumstance detail limited

Conclusions

- Insufficient progress in reduction of childhood drowning rates
- Did not detect a steady decrease in annual fatal drowning rates for 0-17 y/o; 1-4 y/o and 1-4 y/o at pools
- Study informed on Newman, Ch. 817, Stat. 2022: Childhood Drowning Data Collection Pilot Project — CDPH to produce
 - °California Water Safety Action Plan for Children;
 - °standardized electronic form for counties to report drowning statistics. (AAP-CA, sponsor)

Recommendations

- Fatal and nonfatal data collection with key elements on circumstances informs best practices, community interventions, and policy enhancements to reduce drowning.

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Pool Safety Devices (California Law)

Isolation enclosure • Removable mesh fencing • Safety pool cover • Home exit alarms • Self-closing, self-latching device on direct access doors • Alarms in pool/spa • Equally protective, approved and tested alternatives.

Municipality can amend California Building Code (CBC) with stricter provisions. Some amended CBC.

References

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