



Submersions in Texas, 2014

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Foreword

As the Executive Director of the Colin's Hope, a Texas non-profit, formed after the tragic drowning of 4 year old, Colin Holst and focused solely on water safety and drowning prevention, the data contained in this submersion report is absolutely essential to our work. Accurate and timely data that shows us who is drowning, where they are drowning and the circumstances surrounding each submersion incident drives our prevention work. Using the submersion data, we can attack our drowning problems directly and ultimately reduce the drowning numbers. Colin's Hope is proud to be a preeminent leader in the water safety field and work tirelessly year round to raise water safety awareness of all Texans. Thank you for your diligence to collect, compile and make available this submersion data and thank you for sharing them to help achieve our vision of a world where children do not drown.

-Alissa Magrum, Executive Director of Colin's Hope

Executive Director, Colin's Hope



Introduction

The Injury Epidemiology and Surveillance Branch (IESB) is located in the Environmental Epidemiology and Disease Registries Section of the Division for Disease Control and Prevention Services at Texas Department of State Health Services. IESB's purpose is to improve the health of Texans by reducing morbidity and mortality resulting from injuries. The branch continually tries to improve the surveillance of reportable injuries and events through the use of the EMS & Trauma Registries (ETR) and shares results of data analysis through presentations and reports for the benefit of public health.

Texas is one of the few states in the United States with a separate submersion registry. The submersion registry is located with the ETR.

In 2014, there were 420 submersions including 67 deaths due to submersions reported to the submersion registry. Submersion data are collected from hospitals, justices of the peace, medical examiners, physicians and local county health departments.

Fatal submersions

During 2014 in Texas, among 363 submersion events with reported information about outcome, 67 were fatal. The greatest number of fatal submersions occurred in pools (22%, n = 15/67) and a majority of fatal submersions occurred at the single-family residences (40%, n = 27/67).

Age

In 2014 in Texas, 420 submersions were reported. Of these, 408 submersions reported information about age. About 81% (n = 332/408) of submersions occurred among children 14 years and younger. Among these, the greatest proportion was among children 1 to 4 years (60%, n = 199/332), followed by children ages 5 to 9 years (22%, n = 72/332).

Sex

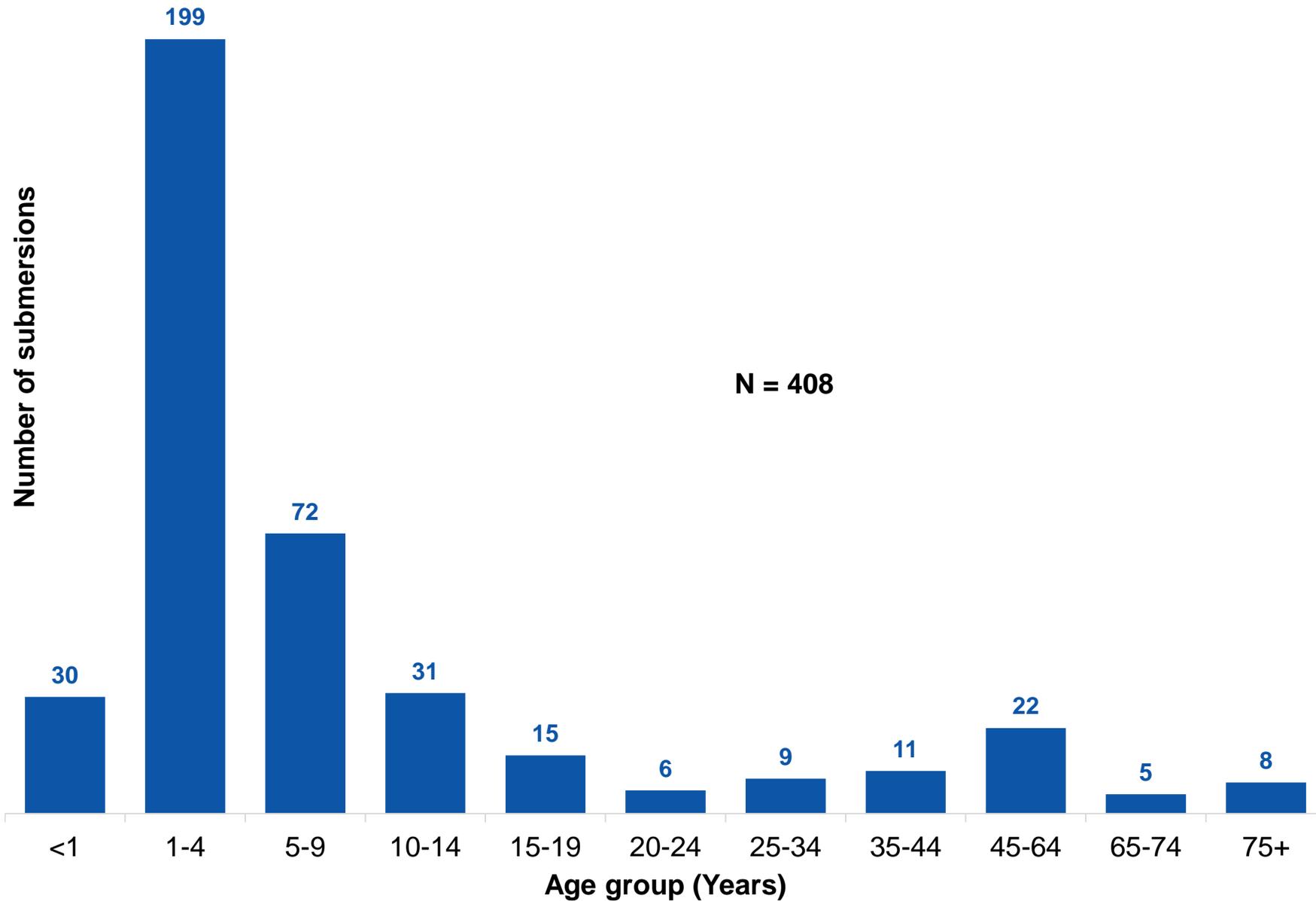
Males were seen more in all scenes of submersion incidents. In 2014, 414 of 420 submersions reported information about sex. Among these 414 submersions, 61% (n = 253/414) occurred among males, and 39% (n = 161/414) occurred among females.

Race-ethnicity

During 2014, 395 of 420 submersions had reported information about race-ethnicity. Nearly half (45%, n = 177/395) of submersions occurred among non-Hispanic whites, followed by Hispanics (30%, n = 117/395).

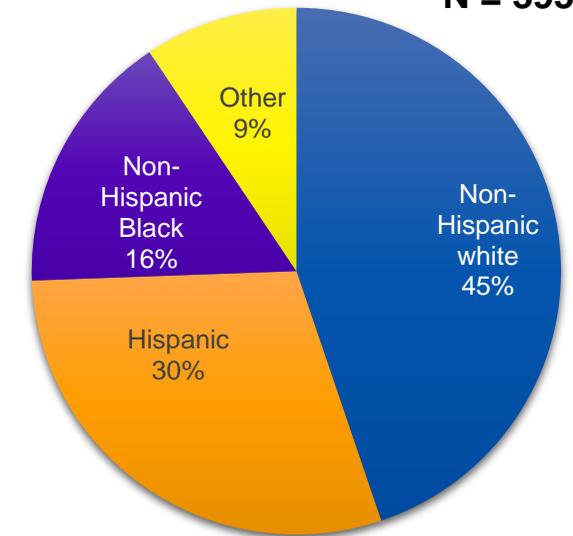
Demographic distribution of submersions

81% of submersions occurred in the children of age 14 years and younger
IESB Submersion data 2014



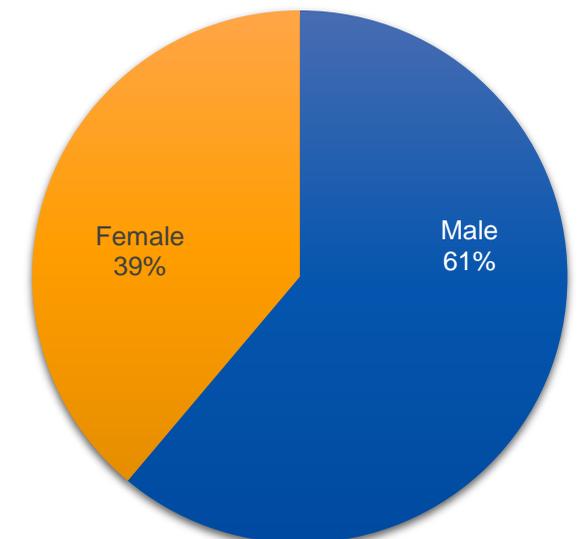
Race-ethnicity

N = 395



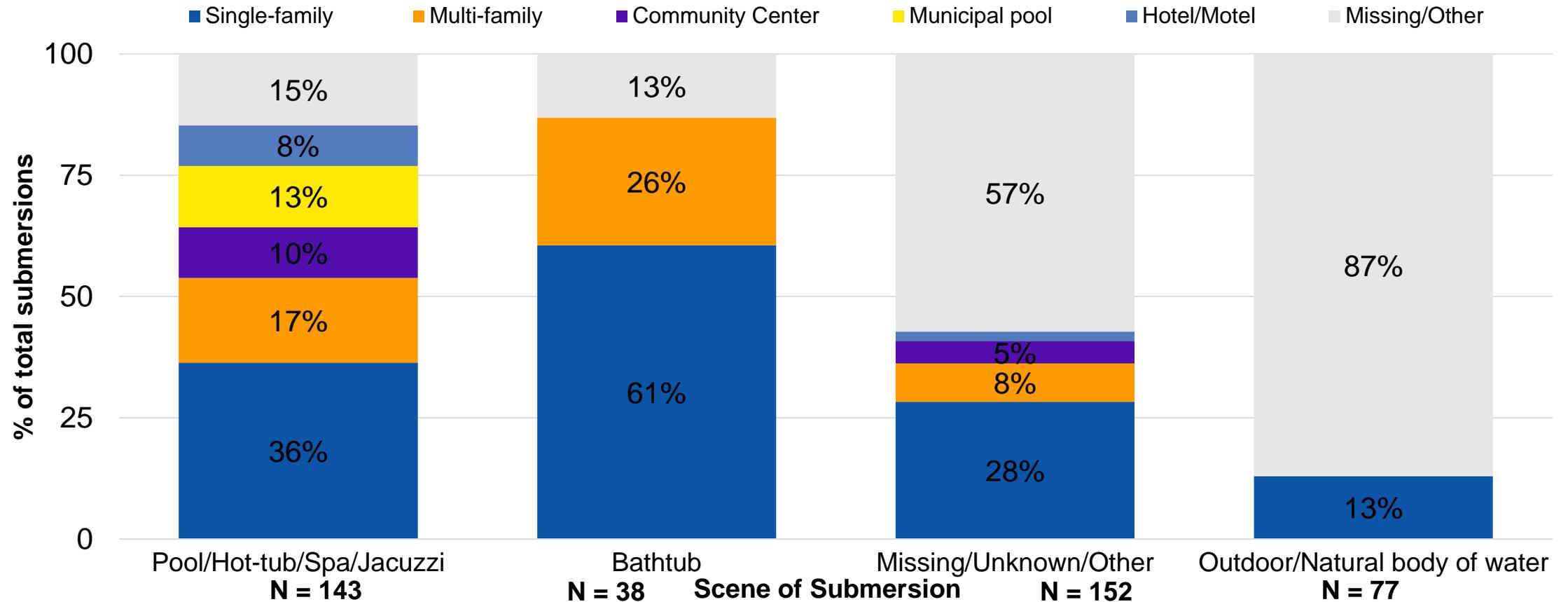
Sex

N = 414



Submersions by scene and location

Majority of submersions occurred at single-family residences.
 IESB Submersion data 2014

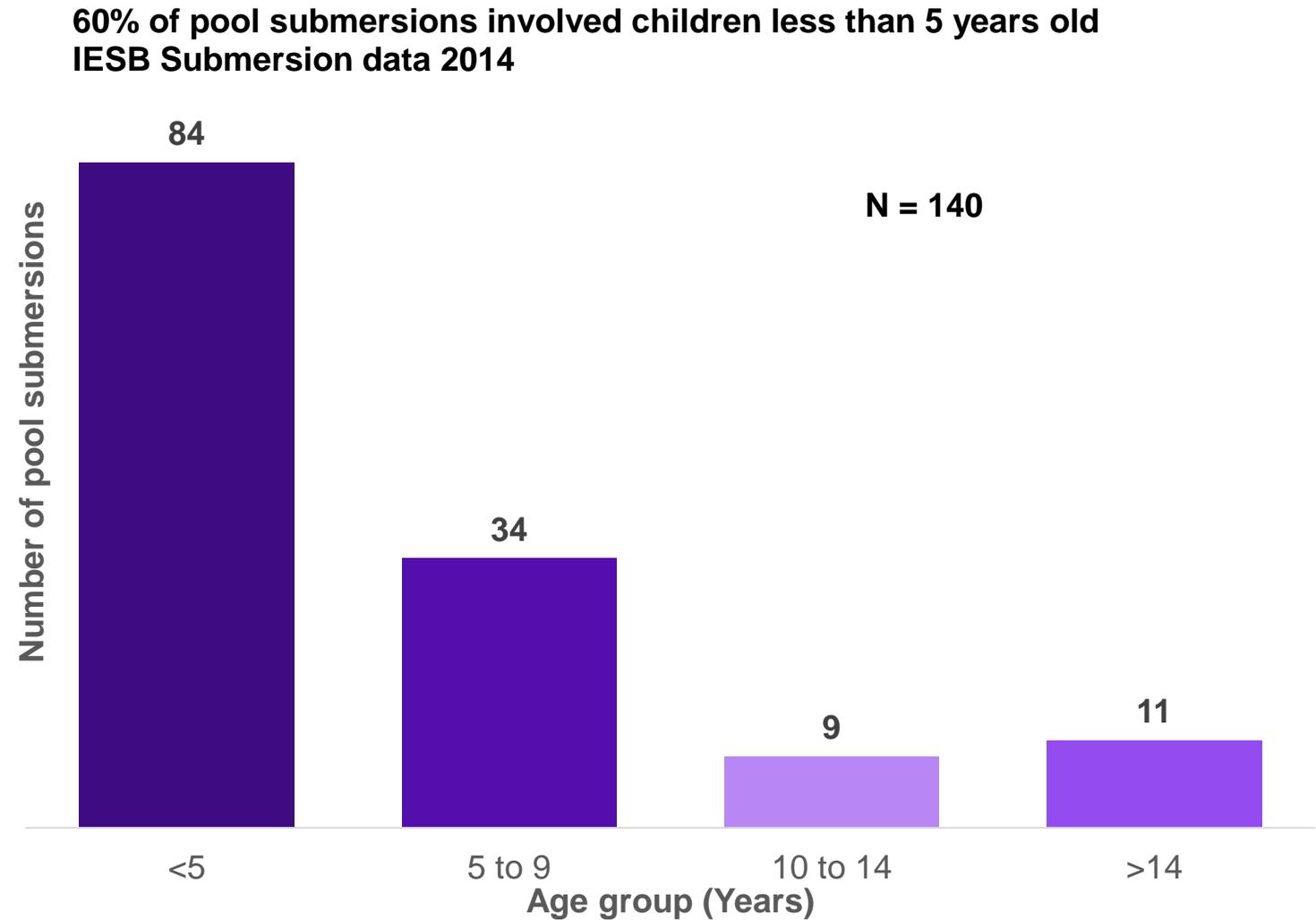


In 2014, 360 of 420 submersions had a reported scene and location of the incident. Of these, 40% (n = 143/360) occurred in the pools, spas, hot-tubs and jacuzzis; among these, 36% (n = 52/143) occurred at single-family residences. Other scenes of submersions included outdoor or natural bodies of water (22%, n = 78/360) and bath-tubs (11%, n = 38/360).

Pool submersions by age

There were 140 reported pool submersions, 91% of which involved children ages 14 years and younger (n = 127/140). Among these, the highest proportion were children 1 to 4 years of age (66%, n = 84/127), followed by children 5 to 9 years of age (27%, n = 34/127).

Among pool submersions, 60% were among males (n = 84/140), and 39% were among females (n = 54/140). Nearly half of pool submersions occurred among non-Hispanic whites (47%, n = 66/140), followed by Hispanics (24%, n = 34/140).

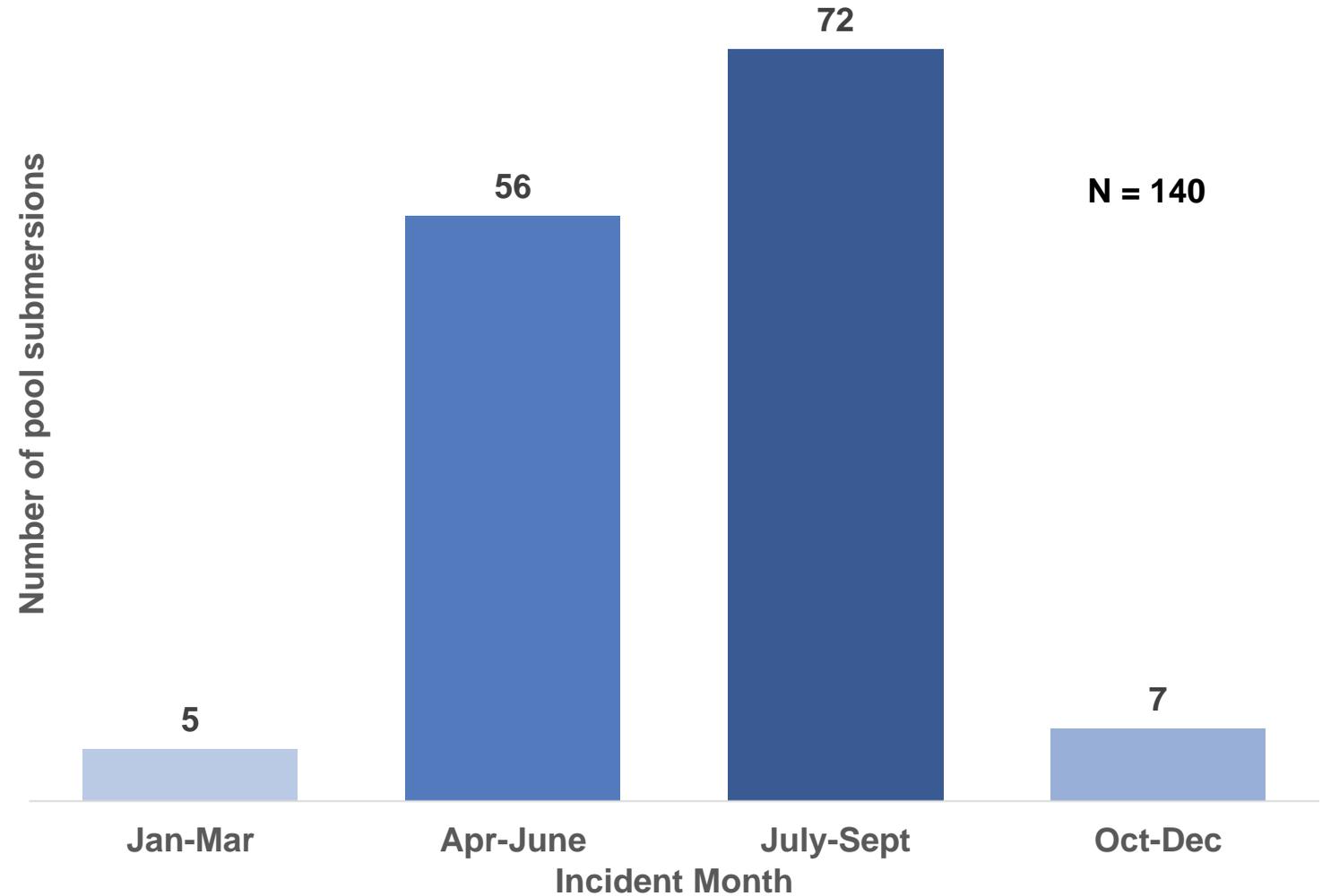


Pool submersions by time of year

Most submersions in pools occurred during the months of April through September (91%, n = 128/140). Nearly one-third of all pool submersions occurred in July (31%, n = 44/140).

The majority of pool submersions occurred between Friday and Sunday, with the largest proportion occurring on Saturday (26%, N = 36).

**50% of pool submersions occurred during July through September
IESB Submersion data 2014**



Pool submersions by time of day

Texas weather is dry and hot in summer with an average statewide high temperature in July in the high 80's. Pool submersions were observed more frequently during the hottest parts of the day. Of the 140 pool submersions, 98 had reported information about the incident time. Among these, the majority occurred during 1:00 PM to 5:00 PM (59%, n= 59/98), with the greatest number occurring in the 3:00 PM hour (15%, n = 15/98).

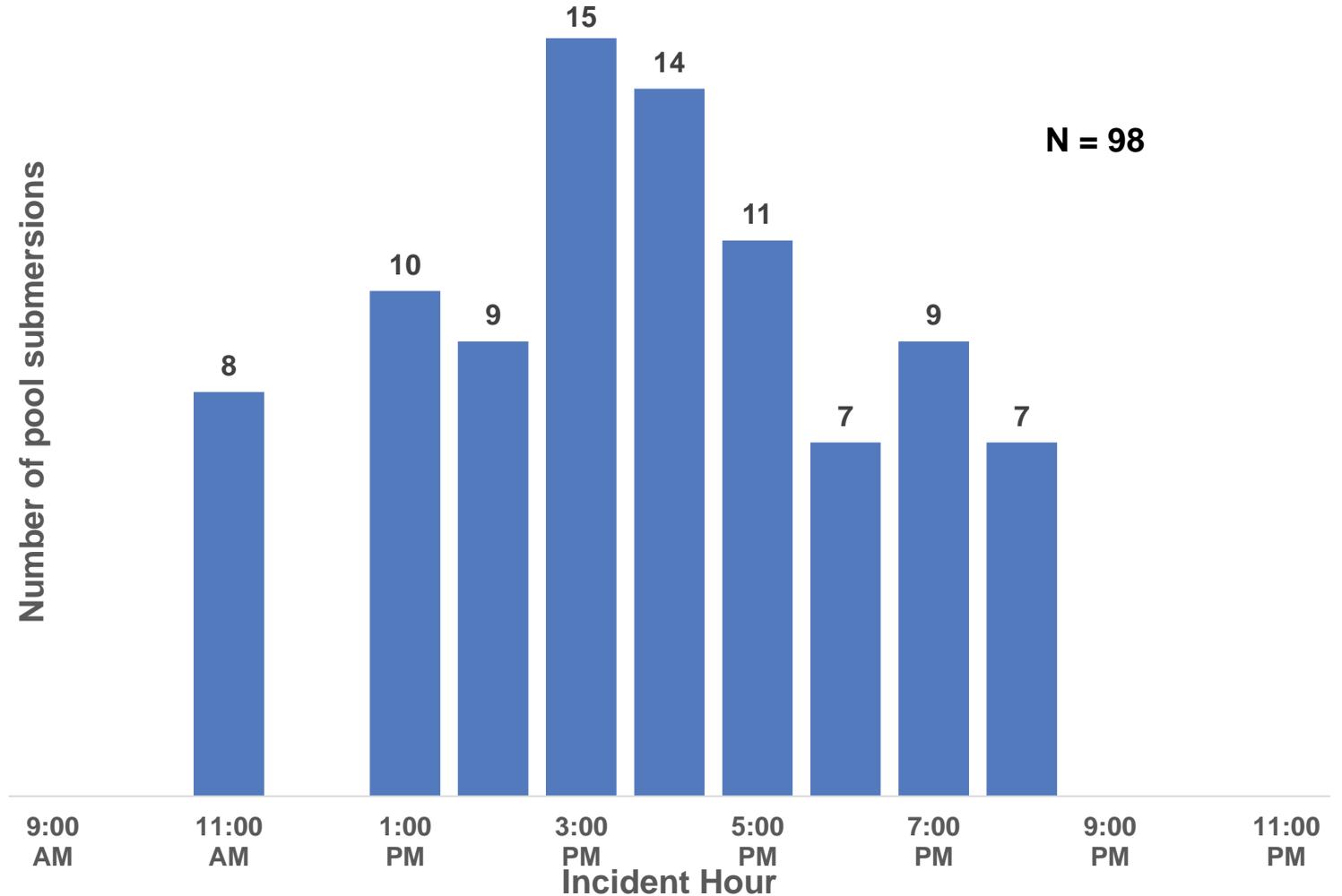
Pool submersion risk factors

Among the 140 pool submersions, 93% of cases indicated that they did not know how to swim (n = 119/128) and only 8% had some type of personal floatation device on them (n = 11/139).

In about 15% of the submersions, the pool was reported to have an operational fence as a barrier (n = 19/129). Only 26% (n = 5/19) of those fenced pools had a closed fence gate.

In 2014, 74% of the cases had reported supervision by a parent or other relative (n = 86/116), and 63% of the supervisors were aware of the victim's activities (n = 67/107). Yet, only 15% reported witnessing the submersion event (n = 16/106).

**59% of pool submersions occurred in the afternoon and early evening
IESB Submersion data 2014**



Submersions in bathtubs

Among the 38 bath-tub submersions, 61% occurred among males (n = 23/38) and 39% occurred among females (n = 15/38).

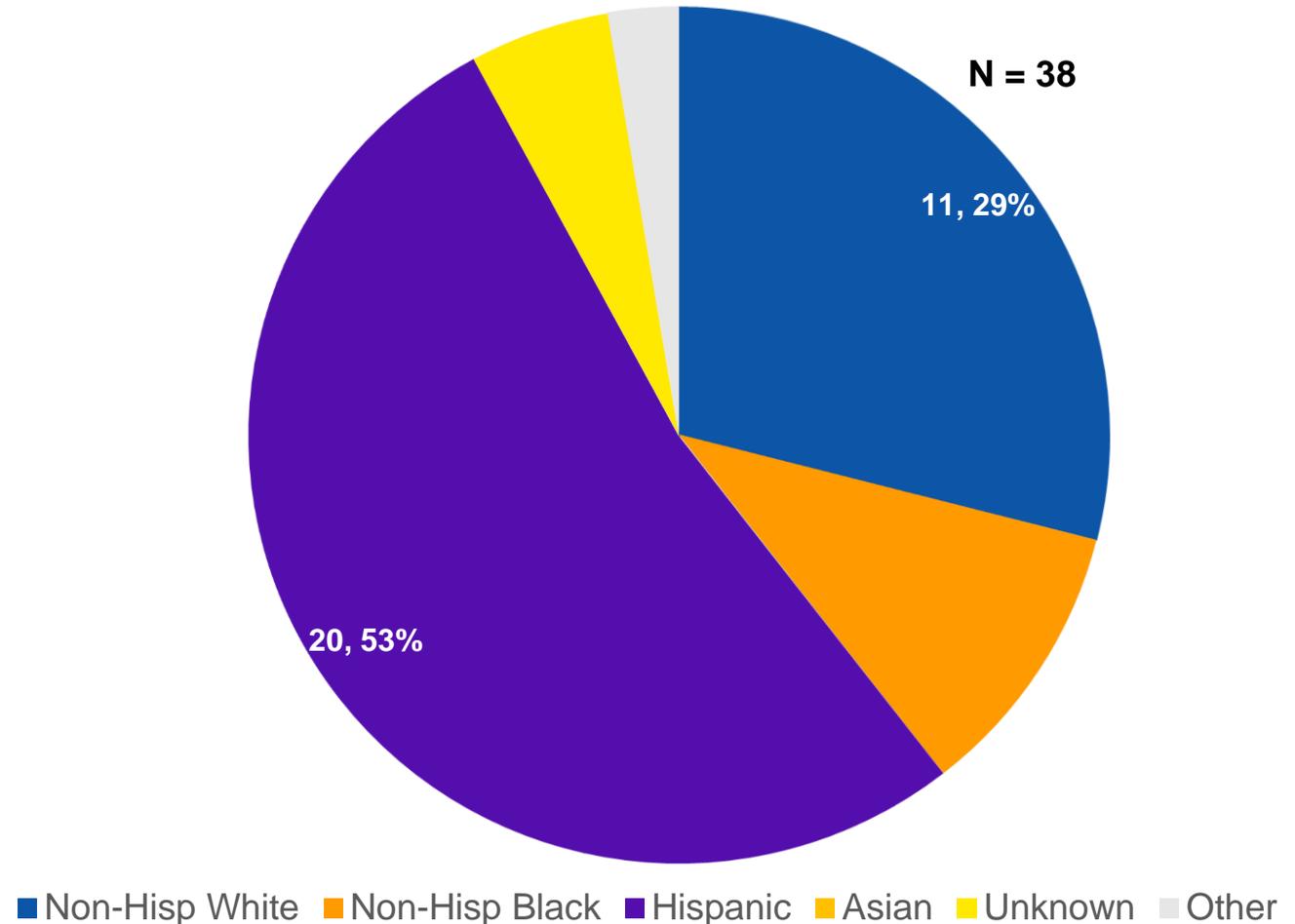
More than half of all bathtub submersions occurred among Hispanics (53%, n = 20/38) followed by non-Hispanic whites (29%, n = 11/38).

Nearly half of all bathtub submersions involved children less than one year in age (47%, n = 18/38), followed by children 1 to 4 years in age (42%, n = 16/38).

About 70% of all bathtub submersions occurred at single-family residences (n = 23/33), and 30% occurred at multi-family residences (n = 10/33).

The majority of bathtub submersions cases had reported supervision by a parent (84%, n = 26/31), and 13% were supervised by a sibling (n = 4/31). The majority of supervisors were aware of the child's activities (83%, n = 24/29). However, only 10% of the supervisors reported witnessing the event (n = 3/29).

**53% of bathtub submersions occurred among Hispanics
IESB Submersion data 2014**



Layers of protection

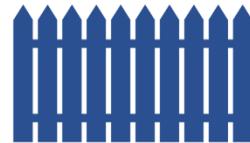
Everyone can take steps to be safer in water. These strategies from American Red Cross show steps you can take to make your adventures near water safer for you and your family (1).



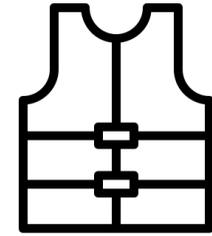
Provide close and constant attention to children you are supervising in or near water.



Always swim in a lifeguarded area.



Fence pools and spas with adequate barriers including four-sided fencing.



Children, inexperienced swimmers and boaters should wear U. S. Coast Guard-approved life jackets.



Learn swimming and water-safety survival skills.

Conclusions

There were 420 submersions reported to the ETR in Texas during 2014 and 67 were fatal. The greatest number of submersions occurred in pools and often involved non-Hispanic white males, children younger than 15 years of age and single-family residences. The majority of pool submersions occurred in the afternoon, on weekends, and during the months of June through August. Bathtub submersions occurred more often among Hispanic males, those less than one year of age, and at single-family residences.

Morbidity and mortality related to drowning can be prevented by child-proofing swimming pools, hot tubs and other manmade structures as well as proper supervision of children while they are in the pool or bathtub. Training in water survival including swimming, use of safety (personal floatation) devices and awareness of dangers related to natural bodies of water should also be prioritized.

This report aims to describe submersion events in Texas. Hopefully, the provided information will be used to inform communities and promote prevention activities in Texas.

Technical notes

Databases:

The databases used for this report is the 2014 submersion registry data from the EMS & Trauma Registries (ETR). ETR is a statewide passive surveillance system that collects reportable events data from EMS providers, hospitals, physicians, justices of the peace, medical examiners, and rehabilitation facilities.

Data Analysis:

Descriptive analysis of the 2014 submersion data was performed using Statistical Analysis Software (SAS) 9.4. The race-ethnicity variable was derived by combining data on race and ethnicity. An individual was classified as Hispanic, if Hispanic was listed as their ethnicity, regardless of race.

In analysis of submersion data, the total number of submersion records differ for different variables depending on missing data, which may affect proportion calculations. Values less than 5 are suppressed to protect the confidentiality of individuals.

Appendix 1

Law

IESB follows Texas Administrative Code 25, Part 1, Chapter, 103: Injury Prevention and Control. The rule implements Health and Safety Code, Title 2, Subtitle D, Chapter 92, Subchapter- A, for the prevention and control of injuries in Texas by establishing and maintaining a trauma reporting and analysis system, investigating injuries, and providing injury-related information for prevention.

The rule requires justices of the peace, medical examiners and physicians to report submersion injuries to the Texas EMS & Trauma Registries. Hospitals may report submersion injuries on behalf of physicians.

The submersion registry is a statewide database housed within the Texas EMS & Trauma Registries. ETR is responsible for the collection, maintenance, and evaluation of reportable submersion events as defined in the rule.

References:

- (1) Circles of protection: American Red Cross (www.redcross.org)

