CALIFORNIA WATER SAFETY STRATEGY

A California where everyone is safe in and around the water.

CALIFORNIA
WATER SAFETY
COALITION

About

The mission of the California Water Safety Coalition (CWSC) is to reduce the rate and burden of drowning and aquatic injuries in California through intentional collaboration across the age and developmental spectrum, bodies of water, recreational activities, and Californian geography. CWSC serves as the backbone organization for drowning prevention and water safety organizations in the state to collaborate in pursuit of a collective vision: A California where everyone is safe in and around the water.

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California Water Safety Strategy (CA-WSS)

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Contents

Forward from the California Water Safety Coalition (CWSC)

On behalf of the California Water Safety Coalition, we are pleased to present the California Water Safety Strategy (CA-WSS).

Each year in California, over 400 people die from drowning and more than 1,200 are involved in non-fatal drowning incidents which require a visit to the emergency department or hospitalization. Each one of these events is tragic and preventable.

This is California's first strategy specific to preventing drowning in the state, the result of nearly two years of stakeholder consultation and research. The collaborative development process re-enforced just how complex and multifaceted this problem is, and encouraged us to pursue all drowning issues. To this end, the CA-WSS serves as an aligning agenda for all. It is our hope that California's drowning prevention stakeholders both see themselves in this strategy and are pushed and inspired to take new action.

The strategy framework presented here is intended to provide guidance on policies and priorities of state and local governments and organizations, and stimulate collaborative action by local communities. We know that as drowning prevention in California evolves and advances, this strategy will require review and updates. Core to the success of this ongoing process is our collective commitment to preventing drowning, no single government, organization or individual can do this alone.

Finally, while the release of this strategy marks an important milestone in California's efforts to prevent drowning and aquatic injury in the state, it is not the first. This work stands on the shoulders of decades of experience and advocacy in California, especially from those who have lost loved ones to drowning. To these tireless champions, we owe a great debt of gratitude.

In closing, we would like to acknowledge the many people that contributed their expertise, time and energy to the CA-WSS. We welcome your feedback as this important work advances, and will strive to continue listening and learning as we work together to save lives from drowning in California.

Rob Williams
CWSC Chair

William Koon
CWSC Vice-Chair

Introduction

Background

The World Health Organization (WHO) and United Nations General Assembly recommend that countries adopt national water safety frameworks to advance drowning prevention.[1, 2] A consensus driven effort to draft the United States National Water Safety Action Plan is due to release national level recommendations in 2023.[3]

California is a large and diverse state with nearly 40 million residents, thousands of miles of ocean coast and inland lakefront, nearly 200,000 miles of rivers, several thousand miles of canals, and over 1.3 million pools. Californians love the water, but the risk of drowning is ever present.

This document represents the first California Water Safety Strategy (CA-WSS). It is intended as a document of alignment; a broad strategy that highlights major priorities and action areas that will lead to a reduction in the burden of drowning across the state.

Importantly, this is not a specific plan with prescriptive action steps. Instead, it serves as a starting point to influence individual and organizational priorities, motivate the development of future strategic plans dedicated to an action area, population, or local geography, and promote ongoing collaborative efforts aimed at reducing drowning.

Consultation

The CA-WSS is the result of extensive consultation with stakeholders from California, across the United States, and other countries. There were several important input activities to this strategy:

- California drowning epidemiological analysis
- Comprehensive stakeholder/landscape analysis
- Online workshop with 72 participants (Oct 2021)
- Multiple working group online meetings involving 47 participants (Aug/Sep 2022)
- Review and incorporation of over 150 initial draft knowledge gaps and action recommendations from the USA National Water Safety Action Plan
- In-person workshop held in Newport Beach involving 38 participants (Oct 2022)
- Strategy draft reviews from 96 stakeholders

Although the consultation process for drafting this strategy endeavored to incorporate a diverse range of voices, there may be components missing in this strategy and stakeholders who have not yet had an opportunity to contribute to this work. We want to hear from, listen to, and collaborate with those communities who did not have input to this document. We strive to incorporate additional perspectives into future versions of the CA-WSS.

To this end, feedback to this strategy is welcome and encouraged, please see https://www.cawatersafety.org/strategy for more information.

Strategy Framework

The CA-WSS presents a framework for California's drowning prevention sector that:

- Identifies water safety priorities, knowledge gaps, action levels, and cross-cutting core values
- Establishes areas for multi-sectoral alignment
- Reflects decades of expertise and collaboration
- Inspires individuals, communities, organizations, and governments to act

The CA-WSS Framework, described in detail in Section 2, is structured into eight Water Safety Priorities that contain a number of Key Action Areas based on research and consultation. See Section 3 for details of each Water Safety Priority.

WATER SAFETY PRIORITIES

01. Public Significance	05. Pools
02. Data	06. Open Water
03. Everyone a Swimmer	07. Lifeguards
04. Safety at All Ages	08. Water Emergency Preparedness

ACTION LEVELS

Community Programs & Education

Professional Training & Capacity

Policy & Systems

CORE VALUES

Equity	Collaboration
Evidence & Evaluation	Local Context

Section 01
Understanding The Issue

Data and Context

An important step in understanding the drowning issue in California is understanding the available data related to the burden of the problem, these are the statistics that tell us about the who, what, when, why and where of fatal and non-fatal events. However, data alone does not provide the entire picture - understanding the issue also means understanding the context and environment of the drowning events represented in the numbers. This section introduces a few important concepts for understanding drowning data and the wider context, including exposure and access, followed by a high level data snapshot of the fatal and non-fatal drowning burden in California.

Understanding the definition of drowning

The internationally accepted definition of drowning is: "The process of experiencing respiratory impairment from submersion or immersion in liquid."[1] There are three outcomes for a person who experiences drowning: death, survival with morbidity, or survival with no morbidity.[1] Terms such as "near-drowning," "secondary drowning," and "wet/dry drowning" are no longer used.

Understanding counts versus rates

When analyzing drowning data, it is important to differentiate between counts and rates. Both measures are useful, but each serves a distinct purpose. Counts represent the number of drowning events that occur within a given time frame, geographic location, and/or subgroup. Counts are useful for understanding the scope of the problem, communication about the burden, and for determining the required capacity and scale of services or programs.

Rates take into account the size of the population at risk. Rates are especially useful for making comparisons between groups or locations and identifying high-risk populations to guide prevention efforts. Comparing counts alone may be misleading because larger populations are more likely to have higher drowning counts simply due to their size. By using rates, we can compare the drowning burden across populations that vary in size, allowing us to identify groups that are disproportionately affected by drowning.

This data snapshot provided in this section includes both rates and counts, be sure to look at both.

Understanding exposure

Exposure refers to the amount of time that individuals spend in or around water, which varies depending on age, location, and activity. For example, children may have more exposure to swimming pools during the summer months, while adults may have more exposure to open bodies of water during recreational activities. Reliable information on exposure is often missing, but even anecdotal understanding (e.g., increased visitors to a remote waterfall) can provide context that informs the development of tailored prevention strategies.

Understanding access

Not all communities have equal access to the resources, programs, and services that aim to reduce drowning risk such as swimming lessons, pools and aquatic facilities, lifeguarded areas, and other water safety educational materials. Some communities face greater barriers to accessing and participating in water-related activities due to factors such as socioeconomic status, race/ethnicity stemming from historical exclusion (e.g., segregation), geographic location, and disability.

Equity is a core value presented later in this strategy's framework (Page 17). However, part of understanding the issue is recognizing that social, economic, and systemic factors contribute to disparities in access to services or programs, and ultimately result in some communities and populations being disproportionately affected by drowning.

Drowning Data Snapshot: Key Facts

12,588 California residents died from drowning between 1991 and 2020[4]

For every fatal drowning, **there are three non-fatal drowning events**[4]

Three males die from drowning for every female[4]

92% of drowning deaths in California are residents
5% are from other states and 3% are from other countries[5]

48% of all drowning deaths occur in June, July and August[5]

12.5% of drowning deaths in California are intentional (Suicide/Homicide)[5]

Children aged 0-4 years and those **75 years and older** have the highest fatal drowning rates, 2 per 100,000 residents for both age groups[4]

The highest drowning rates are in **Northern California & Sierra** (2.1/100,000 Residents) and the **San Joaquin Valley** (1.6/100,000 Residents)[4]

Approximately **800 people currently require long term care** in California for permanent disabilities caused by non-fatal drowning[6]

One in every 100,000 Californians die from drowning annually[4]
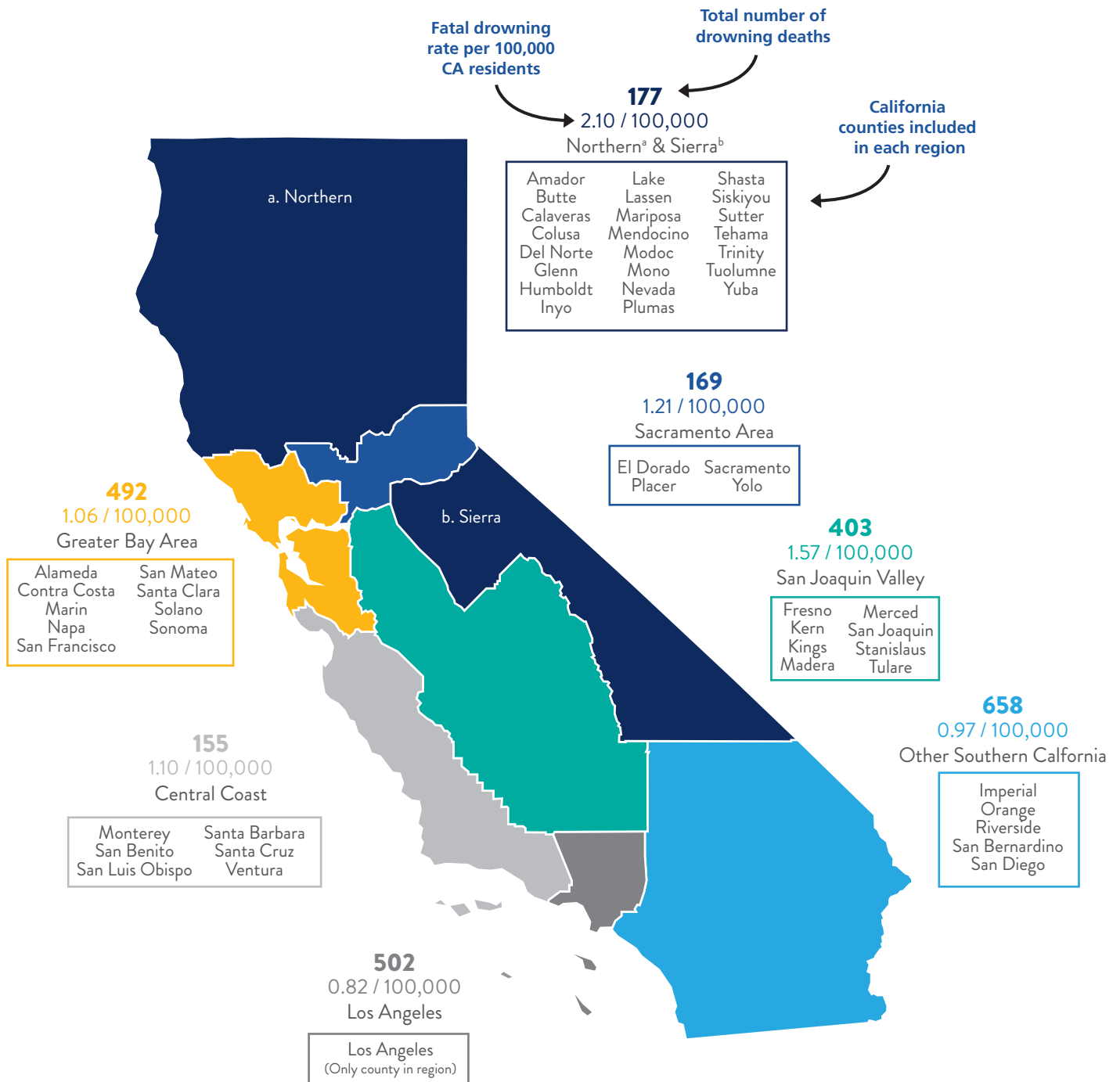(Crude fatal drowning rate = 1.1/100,000 CA Residents)

Drowning Data Snapshot: 2016 - 2021 Statistics

## About the data from CDPH EpiCenter

The data presented in this Snapshot with a superscript reference number four ([4]) are from the California Department of Public Health (CDPH), Injury and Violence Prevention Branch via the EpiCenter California Injury Data Online platform. CDPH EpiCenter data represents counts and rates for unintentional drowning/submersion injuries including ICD-10 codes: W65, W66, W67, W68, W69, W70, W73, W74. The data portal can be accessed by visiting: https://skylab4.cdph.ca.gov/epicenter/

Unintentional fatal drowning counts and crude death rates per 100,000 California residents by region of residence, 2016 - 2021* (Data source: CDPH EpiCenter)[4]

Fatal drowning rate per 100,000 CA residents

Total number of drowning deaths

California counties included in each region

177
2.10 / 100,000
Northern[a] & Sierra[b]

Amador	Lake	Shasta
Butte	Lassen	Siskiyou
Calaveras	Mariposa	Sutter
Colusa	Mendocino	Tehama
Del Norte	Modoc	Trinity
Glenn	Mono	Tuolumne
Humboldt	Nevada	Yuba
Inyo	Plumas	

a. Northern

b. Sierra

169
1.21 / 100,000
Sacramento Area

El Dorado	Sacramento
Placer	Yolo

492
1.06 / 100,000
Greater Bay Area

Alameda	San Mateo
Contra Costa	Santa Clara
Marin	Solano
Napa	Sonoma
San Francisco	

403
1.57 / 100,000
San Joaquin Valley

Fresno	Merced
Kern	San Joaquin
Kings	Stanislaus
Madera	Tulare

658
0.97 / 100,000
Other Southern Calfornia

Imperial
Orange
Riverside
San Bernardino
San Diego

155
1.10 / 100,000
Central Coast

Monterey	Santa Barbara
San Benito	Santa Cruz
San Luis Obispo	Ventura

502
0.82 / 100,000
Los Angeles
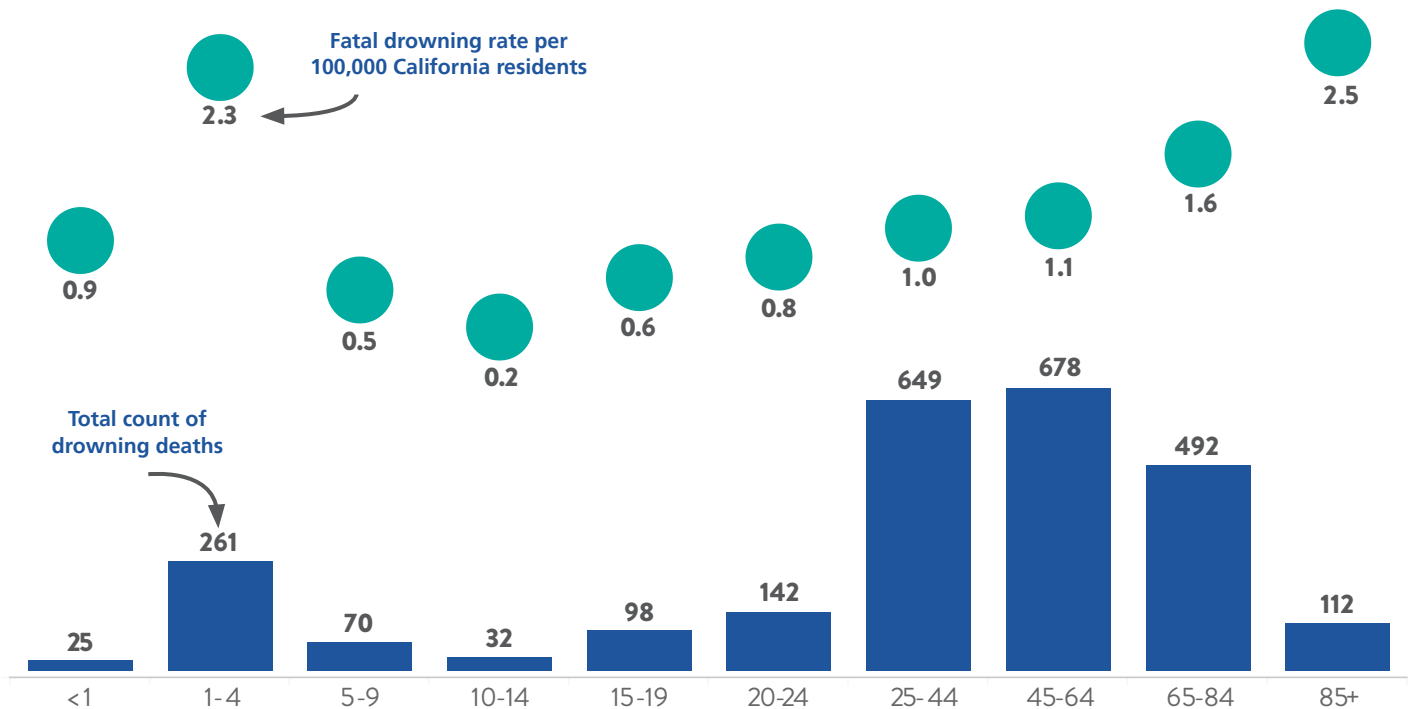
Los Angeles
(Only county in region)

*The regional groupings shown are those provided by CDPH EpiCenter.

Unintentional fatal drowning counts and crude death rates per 100,000 California residents by sex, 2016 - 2021* (Data source: CDPH EpiCenter)[4]

Fatal drowning rate per 100,000 California residents

1.6

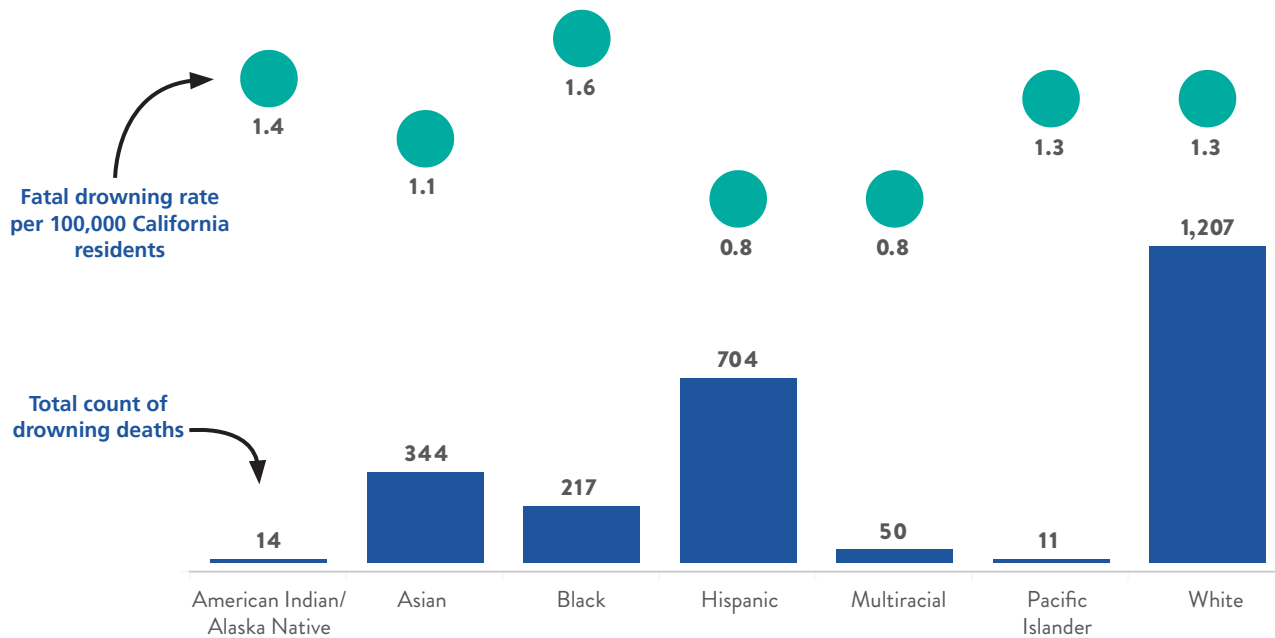**Total count of drowning deaths**

0.5

1,919

640

| Female | Male |
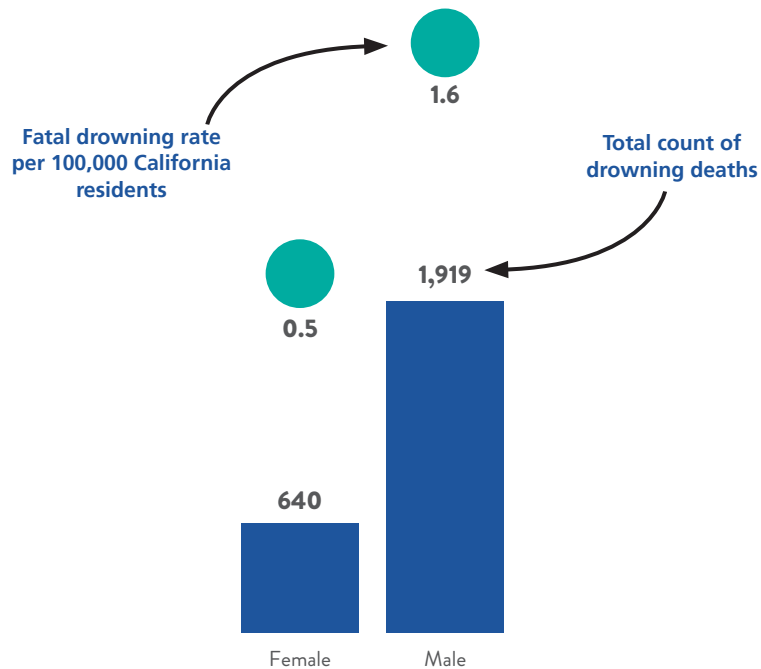
*These data represent the decedent's sex, as noted on the death certificate. "Other/Unknown" is used when sex is not recorded or unknown; there were no "Other/Unknown" cases recorded for this time period. Appropriate gender classification for transgender and non-binary individuals is a data gap among this data source.[7]

Unintentional fatal drowning counts and crude death rates per 100,000 California residents by age group, 2016 - 2021 (Data source: CDPH EpiCenter)[4]

Fatal drowning rate per 100,000 California residents

2.3

2.5

0.9

0.5

0.2

0.6

0.8

1.0

1.1

1.6

Total count of drowning deaths

261

649

678

492

25

70

32

98

142

112

| <1 | 1-4 | 5-9 | 10-14 | 15-19 | 20-24 | 25-44 | 45-64 | 65-84 | 85+ |

Unintentional fatal drowning counts and crude death rates per 100,000 California residents by race/ethnicity, 2016 - 2021* (Data source: CDPH EpiCenter)[4]

Fatal drowning rate per 100,000 California residents

| 1.4 | 1.1 | 1.6 | 0.8 | 0.8 | 1.3 | 1.3 |

Total count of drowning deaths

American Indian/ Alaska Native	Asian	Black	Hispanic	Multiracial	Pacific Islander	White
14	344	217	704	50	11	1,207

*Race and ethnicity is reported here using the CDPH EpiCenter's Race/Ethnicity categories, which uses race fields on the death certificate to calculate a single race value for all individuals. Race and ethnicity is an important risk factor for drowning,[8] and it is important to acknowledge that these categories simplify the complexities of race and ethnicity and do not reflect variation in how individuals identify themselves. Moreover, the data presented here reflect a high-level overview that cannot fully represent the disparities that exist in drowning risk and access to water safety programs and education.

Proportion of fatal drowning by body of water, 2005 - 2019
(Data source: California Comprehensive Master Death File as presented in Koon et al., 2023)[5]

22% Rivers/canals
20% Coastal
11% Bathtub
10% Lake/pond
2% Other
7% Unknown
27% Pools
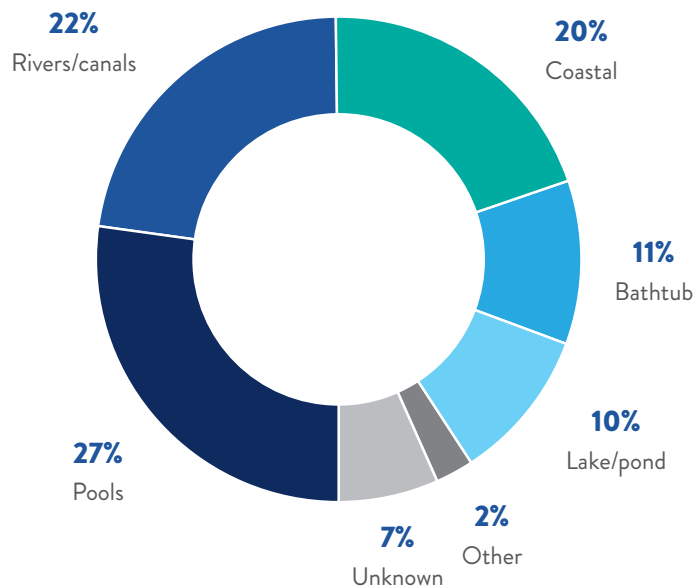
*Note these body of water data are not available from CDPH EpiCenter; the source and case inclusion for this graphic differ from the rest of this Data Snapshot section. These data are from the California Comprehensive Master Death File as presented in Koon et al, 2023; a California fatal drowning research study spanning the years 2005 - 2019 inclusive of unintentional, intentional, and undetermined intent drowning deaths.[5]

Comparing Fatal and Non-Fatal Drowning

Non-fatal drowning comprises a major component of the overall drowning burden in California, and is an understudied and underreported component of the problem. An average of 1,253 emergency department visits and hospitalizations occur each year as a result of non-fatal drowning, which is three non-fatal drowning events for every fatality. For young children this number is much higher: For each four-year-old in California that dies from drowning, 16 additional four-year-olds are involved in a non-fatal drowning event.[4]

Non-fatal drowning events have significant, long term impacts on physical, emotional, and mental health, not only for the person who drowns but also their family, friends, rescuers, caretakers, and the broader community. While there are a range of outcomes, many who survive a drowning event experience permanent brain damage. In 2022, the California Department of Developmental Services reported that nearly 800 people required lifelong assistance for disabilities caused by non-fatal drowning.[6]

Key Non-fatal Facts:

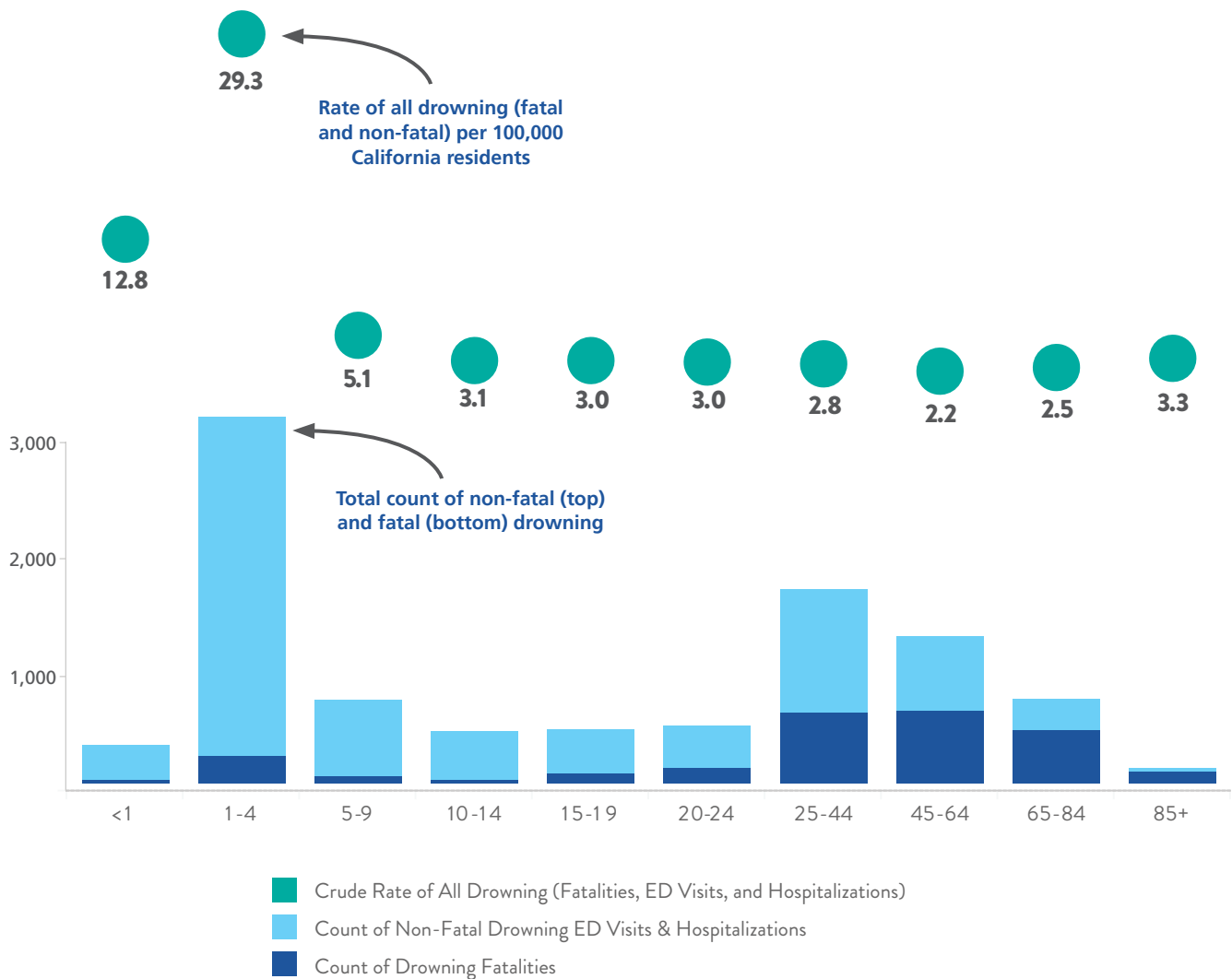Average of **1,680** drowning events per year (includes fatal + non-fatal)[4]

For children 1-4 years, the rate of non-fatal drowning is **12 times the fatal drowning rate**[4]

All unintentional drowning, 2016 -2021 (Data source: CDPH EpiCenter)[4]

When fatal and non-fatal drowning incidents are combined, a total of 10,081 drowning events occurred in California in the years 2016 - 2021, representing a crude drowning rate of 4.24 drowning incidents per 100,000 California residents. Note that Emergency Department and Hospitalization are generally mutually exclusive categories, see the CDPH EpiCenter FAQ section for more information.

5,854
Non-fatal Emergency Department Visits

1,668
Non-fatal Hospitalizations

2,559
Deaths

10,081
TOTAL DROWNING INCIDENTS
2016 - 2021
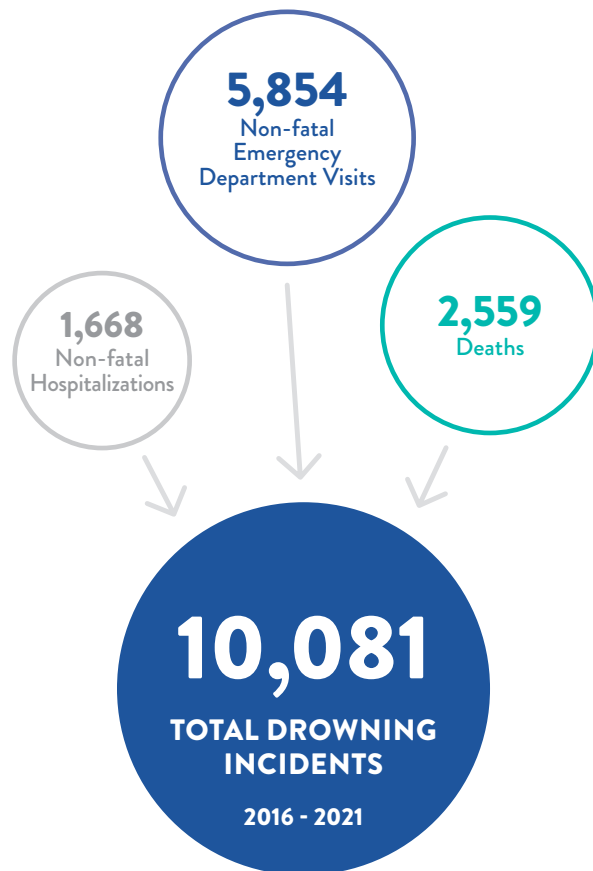
Count and crude rate of all unintentional drowning incidents (fatal & non-fatal) by age group, 2016-2021 (Data source: CDPH EpiCenter)[4]

29.3

Rate of all drowning (fatal and non-fatal) per 100,000 California residents

12.8

5.1 **3.1** **3.0** **3.0** **2.8** **2.2** **2.5** **3.3**

Total count of non-fatal (top) and fatal (bottom) drowning

3,000

2,000

1,000

<1 1-4 5-9 10-14 15-19 20-24 25-44 45-64 65-84 85+

- Crude Rate of All Drowning (Fatalities, ED Visits, and Hospitalizations)
- Count of Non-Fatal Drowning ED Visits & Hospitalizations
- Count of Drowning Fatalities

Understanding what is counted - The full burden of drowning

The traditional approach used to count and report on drowning typically focuses on deaths only (not non-fatal events), and excludes drowning deaths due to boating and other water-transport, disaster events (e.g., floods), intentional drowning (e.g., suicide, homicide), drowning of undetermined intent, and deaths where drowning is listed as a contributing cause (i.e. not the primary cause of death). A preliminary analysis of fatal drowning based on 2005-2019 data from the California Comprehensive Master Death File found that the traditional approach severely underrepresented the number of drowning deaths, capturing only 67.5% of all drowning cases.[5] When taking all fatal drowning cases into account, more than 600 drowning deaths occur per year in California.

A restricted view of the problem limits understanding of the issue and influences which populations and places are prioritized for intervention. Additionally, it creates artificial boundaries and silos within the issue, which may impact prevention. Broader criteria of which fatal and non-fatal cases are counted and included in analysis and reports is imperative to characterizing the full burden of drowning in California, and an important component of Priority 2 (Page 24).

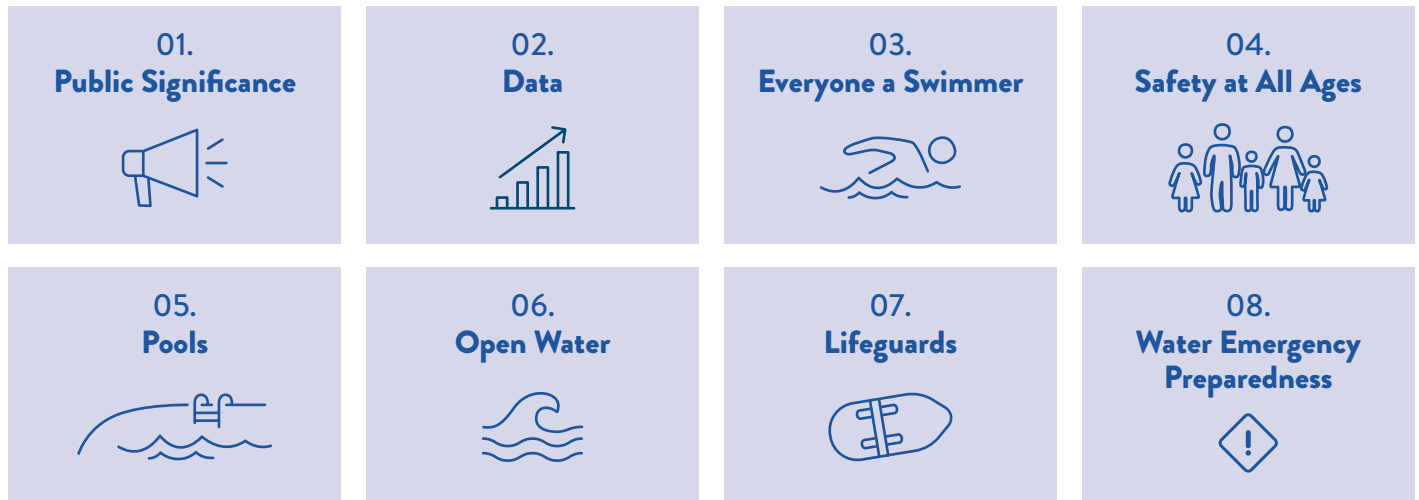# Understanding the Framework

Strategy Framework

The California Water Safety Strategy Framework has three distinct components:

PRIORITIES
ACTION LEVELS
CORE VALUES

This general framework allows for flexibility by users to define community and geography in ways that make practical sense to their work. Each component of the framework is described below.

STRATEGY FRAMEWORK

PRIORITIES

01. **Public Significance**	**02.** **Data**	**03.** **Everyone a Swimmer**	**04.** **Safety at All Ages**
05. **Pools**	**06.** **Open Water**	**07.** **Lifeguards**	**08.** **Water Emergency Preparedness**

ACTION LEVELS

Community Programs & Education	Professional Training & Capacity	Policy & Systems

CORE VALUES

Equity	Collaboration	Evidence & Evaluation	Local Context

PRIORITIES

PRIORITY	GOAL
01. Public Significance	To elevate drowning prevention and water safety as an issue of public significance.
02. Data	To establish and communicate valid, timely, and accessible information on the burden of drowning.
03. Everyone a Swimmer	To ensure that everyone has the opportunity to learn skills to be safer in and around the water.
04. Safety at All Ages	To ensure resources, programs, and competencies exist for all life stages across the age and developmental spectrum.
05. Pools	To improve safety at pools in California.
06. Open Water	To improve safety at the coast, lakes, rivers, canals, and other open bodies of water in California.
07. Lifeguards	To create sustainable and adaptable systems for lifeguards in California.
08. Water Emergency Preparedness	To ensure individuals and systems are prepared to prevent and respond to drowning incidents and community-level water-related disasters.

Further information about the priorities including the rationale for selecting each priority area, corresponding knowledge gaps, and Key Data Activities is presented in-depth in Section 3: Understanding the Priorities.

ACTION LEVELS

Key Action Areas for stakeholders are identified within each priority, which work to make progress towards achieving the stated goal for the priority. These action areas are organized using a modified micro-meso-macro level framework based on multisectoral drowning prevention research.[9]

Community Programs & Education	Professional Training & Capacity	Policy & Systems
Community-level action is foundational for effective drowning prevention. This action level includes individual or community-level domains and in this strategy, refers to action areas within community programs and education.	California's drowning prevention workforce is multisectoral, complex, and critical to reducing the burden of drowning. This action level describes professional training and capacity building activities that are broad and generally applicable to multiple sectors, although some Key Action Areas are directed at specific professions.	Systems frameworks generally describe macro-level action as occurring at the global or national level, this strategy refers to macro-level action as policy, legislation and systems-based actions at the state and local levels.

CORE VALUES

The four core values that affect all work done in this strategy are:
Equity
Collaboration
Evidence & Evaluation
Local Context

These core values are driving principles that need to be considered within each priority area and at every action level. They are interdependent and informed by one another. For example, collaboration will be informed by equity principles, research and evaluation, and local context.

Equity

The legacy of historical segregation at public pools[10,11] and open water swimming areas, including beaches in California,[12] has resulted in constraints on minority swimming participation[13] and persistent disparities in drowning rates.[14] To address these gaps, the Key Action Areas in each priority should be examined with careful consideration for diversity, equity, inclusion, and justice. An equity lens requires communities to understand what is and what is not available for whom.

Examples of equity-informed questions include:

- Do policies, programs, and/or professional training opportunities differ by age group, race/ethnicity, gender, disability status, LBGBTQ+ identify, socioeconomic status, or location of intended participants?

- Are certain groups excluded from access to available current state information, ideas and programs? Have certain groups been historically excluded in the past?

- Can existing data be used to report on different groups of people to understand different experiences of drowning throughout the state?

- What policies are in place? Whom do they impact and who do they leave out?

- How can the water safety professions, including lifeguards and swim instructors, diversify and open employment pathways to people from a variety of backgrounds and communities?

Understanding more about the who, what, where and when of drowning incidents will raise additional questions about equity and access. Drowning prevention researchers and practitioners in California and across the United States are engaged in meaningful work to understand and address disparities in drowning burden and access to swim lessons and other services.[15, 16] Their lessons can guide action that is inclusive and equitable.

Examples of equity-informed activities include:

- Ensuring that the make-up of drowning prevention coalitions and organizations reflects the communities they serve.

- Learning about the concerns and experiences of high risk groups within a community, for example:

    – Interviews or focus groups with different community members to help provide context and understanding

    – Including community members in the design and implementation of a drowning prevention program to improve impact

    – Identifying and addressing barriers to employment in the aquatics industry or rescue services

- Organizing, attending, and participating in workforce training or other development opportunities focused on justice, equity, diversity, and inclusion.

Collaboration

Drowning is a complex problem, and no single solution or technical approach will be able to fully address the issue. Making progress towards reducing the rate and burden of drowning requires different perspectives to diagnose the issue and determine what effective action looks like. A collaborative approach is well suited for the challenge. Learning from and partnering with different stakeholders allows for alignment of activities, reinforced programming and education messages, and increased public profile with a collective voice. Ultimately, collaborative efforts like this have shown to be effective in reducing drowning rates in other countries. For example, in Australia, the National Water Safety Council composed of several different drowning prevention organizations has aligned stakeholders to a national strategy, which reduced the nation's fatal drowning rate by nearly 30%.[17]

Drowning prevention involves a range of actors that approach the problem with diverse perspectives, skill sets, methods, and motivations - a feature and strength of collaborative action. In California, water safety leadership and advocacy has come from those with backgrounds in public health and injury prevention, medicine and healthcare, lifeguarding and rescue, parks and recreation, the pool and water sports industry, and swim instruction.

Additionally, significant motivation and progress has been inspired and driven by community and family organizations founded in honor of a person who drowned. The commitment and contribution to drowning prevention in California from these families and organizations cannot be overstated; they have had and will continue to have a fundamental role in reducing the burden of drowning.

Drowning prevention also involves a series of less-traditional stakeholders. Urban planners, engineers, realtors, architects, short term rental owners and others all have an important role to play in drowning prevention. Some may be unaware that their jobs or areas of focus even have a connection to water safety, and their activities could be saving lives or placing others at risk.

Additional subject matter areas with important connections to drowning prevention have been noted in the literature including adolescent health, alcohol and substance abuse, child mortality, disaster risk reduction, environmental health, occupational health, urban health, water sanitation and hygiene, and refugee and migrant safety. Stakeholders from these areas would also be important collaborators.[18]

Improving collaborative systems that invite and incorporate everyone with a nexus to drowning prevention, including less-traditional stakeholders, is vital for success.

Who is involved in water safety in your community?

This is a non-comprehensive list of stakeholders who have an important role in drowning prevention and water safety. Who else would you add?

Emergency Medical Services · Homeowners · Summer Camps · Childcare Centers · Realtors · Tourism Industry · Affected Families · Hope Inspectors · Hospitals · Researchers · Nurses · Schools · Pediatricians · 911 Dispatchers · Harbor Patrol · Parks and Rec · Builders · **Who Else Would You Add?** · Fire Department · Senior Centers · Property Managers · Emergency Planners · Lifeguards · Swim Instructors · Surf Industry · Hotels · Sporting Goods Stores · Public Health · Boating Community · SUP & Kayak Rental Companys · After School Programs · Local Council Members · Univiersities · Local Businesses · Water Resource Professionals

Evidence & Evaluation

Drowning prevention and water safety require evidence to guide action, and evaluation to ensure what we are doing is making a difference. Evidence and evaluation as a core value that cuts across all parts of this strategy allows for improved programs, policies, and systems, ultimately preventing injury and death. Each CA-WSS Priority outlines Key Data Activities with calls for improved metrics, dedicated research, or specific evaluation that will enhance prevention efforts.

While improving valid, timely, and reliable data on the burden and risk factors is the goal of Priority 2, building capacity for monitoring and evaluation is an important objective for all stakeholders working in drowning prevention. Generating evidence to support decision-making, policy solutions, and training opportunities will further enhance impact.

Example evidence and evaluation activities that can help inform improvements include:

- Conduct an inventory of currently available and/or routinely collected program or operations data to help guide advances in evaluation capability. What can you learn from this information? What data would help answer the questions you want to ask?

- Assess whom your program or operation serves. Does your program reflect your community's needs?

- Identify what components of your operation or program are evidence-based, evidence-informed, or have data that demonstrate effectiveness. Where are the evidence gaps? What does advancing knowledge in this area look like?

- Share the data and information that you do have; others may be able to learn from your work.

Local Context

California is a large state with residents from a wide variety of cultures, geographies, and socio-economic realities. The state also has a robust tourism industry that attracts a diverse array of visitors throughout the year. Additionally, each county and region has changing population needs over time. Each region of the state has its own considerations for drowning prevention which is why local context is called out as an important core value upholding drowning prevention work. Including local context means thinking through questions such as:

- What do people who live here value?
- What do people who live here already know about water safety? What do they want to know?
- What sort of services or programs are available in our community? What is missing?
- What water environments exist for residents and tourists in our area?
- What are popular times of year for tourists?
- What types of water activities do residents and tourists engage in?
- What disparities exist in our area?
- Who are trusted, local leaders in this community?
- How do people in this community like to receive information? Radio? Social media? Print?

Many local areas in the state already have water safety coalitions, task forces, or other groups organized around drowning prevention and/or water safety. Connecting with these county/regional groups is a helpful way for drowning prevention stakeholders and community members to engage with local water safety issues.

In those areas without established multisectoral local water safety entities, developing such groups to address drowning and water safety, and cultivate community-level collaborative action is an important next step.

Section 03
CA-WSS Priorities

Using The California Water Safety Strategy

The CA-WSS is designed to be a living document that will grow and expand as collective work progresses, issues emerge, and the landscape evolves. This is a guidance document flagging areas that are important for decreasing drowning, need focused attention, and responsive to cross-sector alignment. As such, the CA-WSS does not contain a specific plan for each area. Future strategic plans, which outline specific steps, responsible parties, timelines, and evaluation metrics can be created for action areas, key data activities, or entire priorities, if there is interest and support. The following pages provide a high level outline of each of the eight California Water Safety Priority Areas.

Each priority includes information on two major branches of work that need attention:

1. Addressing knowledge gaps via Key Data Activities Each priority area outlines key data activities to address knowledge gaps. The knowledge gaps presented within each priority area call attention to incomplete understanding of this issue, which results in many gaps such as insufficient data, lack of evaluation, not knowing who is working in local areas, and being uninformed about disparities. Closing the gaps outlined within each priority will lead to better data collection and analysis, more effective program design and implementation, and improved evaluation of intervention efforts. Working on closing these gaps through research, evaluation, and collaboration will help refine the Key Action Areas outlined in this document with more specificity.	**2. Aligning and advancing activities in Key Action Areas** Key Action Areas within community programs and education, professional training and capacity, and policy and systems are presented as important domains within each priority area that require attention. While addressing knowledge gaps will inform and enhance activities, the Key Action Areas reflect work that can start now, aligned with what is known about the issue from global and national drowning prevention efforts, research, and, most importantly, identified by California's drowning prevention stakeholders.

Consider The Work Ahead

The Key Data Activities and Action Areas are intentionally broad to promote flexibility among stakeholders, organizations, and regions. Progress in both addressing knowledge gaps and advancing action areas is required and can happen in parallel to reduce the burden of drowning in California. As drowning is a complex and multifaceted issue, there is some overlap between the priorities. Action areas may be applicable to multiple stakeholders and, conversely, some are more focused on particular stakeholder groups.

Users of the CA-WSS are invited to read this document and consider:

1. What Key Data Activities could I and/or my organization contribute to?

2. What Key Action Areas could I and/or my organization contribute to?

3. What Key Data Activities and Key Action Areas does my existing work within drowning prevention and water safety align with?

4. How could I use this strategy to support and advocate for drowning prevention and water safety work I and/or my organization are currently engaged in?

5. How could I use the CA-WSS to advocate for the development of new work within drowning prevention and water safety for me and/or my organization?

6. What partners could I collaborate with to advance Key Data Activities or Key Action Areas in my area?

Public Significance
California Water Safety Priority 1

Goal: To elevate drowning prevention and water safety as an issue of public significance.
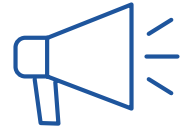
WHY IS THIS A PRIORITY?

Water safety is a recognized issue of importance for young children, however, strategies to prevent drowning are required for all populations and environments. This is especially important for communities with high drowning rates and those who have been historically excluded or had limited access to programming and services. The data on the burden of drowning in California shows just how broad the problem is, from disparities in drowning rates in different regions or among different populations, to the varying circumstances of drowning events across different bodies of water. Elevating drowning prevention as an issue of public importance to governments, businesses, community organizations, and the public at large is an important step in reducing drowning.

Multiple international health organizations and drowning prevention bodies across the world have recommended a public health approach to drowning prevention. A public health framing promotes focusing on people and communities where they live, learn, work and play, but does not mean drowning prevention is only a health issue. Rather, this approach calls us to examine the complexity of the problem from multiple perspectives. Involving a wide array of stakeholders allows us to address the issue from many vantage points in a coordinated way, and elevate the issue in the public's eye.

Given this, the Key Data Activities within this priority area are focused on ensuring there is a knowledge base about what stakeholders are currently working on and building on this base with the action areas outlined. Key action areas outline activities to incorporate water safety and drowning prevention into other stakeholders' strategic planning and key activity areas. This will require leadership and communication skills.

KNOWLEDGE GAPS

A baseline of knowledge about current activities within drowning prevention in California is essential to build from and expand. Key Data Activities within this priority are focused on understanding what is currently happening in local areas with regard to drowning prevention and water safety so as not to duplicate efforts and waste resources. While some of this work has occurred,[13] a robust and systematic landscape analysis focused on the points below is required to identify gaps, create solutions, and track progress.

Key Data Activities

Identify current state and local policies related to drowning.

Document and map all current drowning prevention stakeholders and their activities.

Identify stakeholders not yet involved, ensuring diversity among people and organizations.

Determine existing community education programs, identifying geographic and other access gaps.

Public Significance
California Water Safety Priority 1

Community Programs and Education

Mass Media Campaigns
Research, create and deploy strategic, representative and inclusive mass media campaigns to elevate water safety and drowning prevention.

Local Collaboration
Establish and cultivate diverse local coalitions and collaborative groups composed of a variety of stakeholders to address drowning at the local and community level.

Professional Training and Capacity

Strategic Communications & Social Marketing
Create, communicate, and deliver purposeful messages designed to educate specific audiences about water safety, promote safe behavior around the water, and influence safety related decision making.[19]

Cross-sector Cooperation
Partner with stakeholders from other fields to design and deliver programs and public communication; work with families affected by drowning to elevate the profile of water safety efforts.

Policy and Systems

Planning and Strategy Integration
Integrate drowning prevention and water safety in the planning processes of state and local agencies including public health, parks and recreation, emergency medical services, and fire and rescue.

Focused Programming
Advocate for specific water safety programs in local and state governmental agencies, such as public health, parks and recreation, and emergency services.

Dedicated Personnel
Advocate for agencies, departments, and organizations to dedicate personnel to drowning prevention.

Policy Agenda
Establish a policy agenda and advocacy plan for drowning prevention and water safety that is rooted in equity principles, based on evidence, and inclusive of collaborative input from multiple stakeholders.

Data

California Water Safety Priority 2

Goal: To establish and communicate valid, timely, and accessible information on the burden of drowning.

WHY IS THIS A PRIORITY?

A baseline set of metrics examining the burden of drowning in the state allows drowning prevention advocates to better answer questions such as:

- Who has a higher risk of drowning? Who does not? Why the difference?
- Where do drowning events occur?
- Why do people drown? What are the circumstances around the event?
- When do drownings happen? Are there peak times of year or day?
- How could this event have been prevented?

In order to provide timely and reliable data to answer these questions, data systems need to be usable and follow best practices in collection, standardization, management, analysis and dissemination. Importantly, data must be able to be communicated in a manner that is accessible to drowning prevention advocates, the media, policymakers, community leaders, and parents. Finally, robust data on fatal and non-fatal drowning allows for the evaluation of policies and programs to ensure that resources are being used judiciously and equitably.

KNOWLEDGE GAPS

Three major areas require attention to improve understanding of the drowning burden in California:

1. Societal burden of drowning
    Descriptive epidemiological information of health data including death and hospitalization information, and disaggregating data is essential, but only the start. Water safety interventions and advocacy would benefit from data and research that improves understanding of the economic cost of drowning to the health system and society at large, and the social, emotional, and mental toll drowning has on families, communities, rescuers, and caretakers. Furthermore, improving data collection using variables that are more inclusive of racial, ethnicity, gender and ability status are needed.

2. Broader case inclusion
    As introduced in Section 1, how drowning and non-fatal drowning are traditionally classified has the potential to undercut the burden. As international and national conversations around drowning classification issues continue, California's drowning prevention stakeholders should consider inclusion of cases from boating, water-transport, and disasters; of intentional and undetermined intent; and where drowning is listed as a contributing cause.

3. Non-fatal drowning
    Reporting must go beyond death. Improved understanding of the non-fatal drowning burden in California is required; inclusion of this information in decision-making around development of prevention interventions is key.

Key Data Activity

Identify and Map Existing Data Sources
A comprehensive scan which identifies existing databases and systems that store fatal and non-fatal drowning data would provide baseline understanding on what data currently exist, where they are stored, and how these data are collected. Initial drowning data source mapping projects have occurred in some California counties;[20] extending this work to other locations and the state level will improve systems and help prioritize and guide prevention efforts. Information sources that provide scene and circumstantial context beyond vital statistics should be prioritized.

This data mapping activity should address the following:

- How is the data collected?
- How and who manages the data?
- Who uses and is able to access the data for use?
- How are data analyzed?
- How and in what format are data disseminated to the public?
- What are the strengths and limitations of the data?
- How do the data collection, analysis and dissemination activities reflect principles of equity?

Data
California Water Safety Priority 2

Community Programs and Education

Data Communication and Reporting
Work to share data in public facing reports to ensure stakeholders, organizations and community members can access data and understand the issue.

Program Metrics
Develop and collect useful and inclusive program metrics for monitoring and evaluation purposes.

Professional Training and Capacity

Data Collection Training
Develop easy to use collection systems that help inform operations or prevention. Train emergency responders, lifeguards, healthcare and other water safety professionals on the importance of valid and reliable data, and their important role in collection.

Analysis Capacity
Improve organizational capacity to collect, analyze, and report data that will help inform programs or operations within any organization involved in water safety, and/or develop partnerships to do so.

Policy and Systems

Surveillance Working Group
Establish a surveillance workgroup composed of analysis professionals from across the state to advance these action areas, to share lessons learned, work with existing data, and make recommendations on improving drowning data collection and analysis.

Drowning Registry
Investigate the feasibility of developing a fatal and non-fatal drowning registry to inform prevention activities. Learn from the forthcoming California Department of Public Health Childhood Drowning Data Collection Pilot Program with intent to expand to all age groups.[21]

Data Linkage
Link death, hospital, and scene based data sources (EMS, Lifeguard, Police) to identify risk factors across the drowning process.

Syndromic Surveillance
Investigate the feasibility and applicability of syndromic surveillance for drowning case identification.

Child Death Review
Enhance capacity of California Child Death Review teams to investigate the circumstances of drowning incidents to inform and recommend prevention efforts. Explore the feasibility of including non-fatal incidents for review.

Standardization of Data Collection Tools
Work to ensure data collection tools for submersion and rescue events are uniform and representative of all populations between locations and organizations.

Everyone a Swimmer

California Water Safety Priority 3

Goal: To ensure that everyone has the opportunity to learn skills to be safer in and around the water.

WHY IS THIS A PRIORITY?

The ability to swim is a survival skill that reduces the risk of drowning, the basis for a broad range of recreation and sport opportunities associated with health, mental, and social benefits, and the foundation for aquatic employment as a swim instructor or lifeguard. Teaching school-aged children basic swimming skills is recommended by the World Health Organization as a key intervention to prevent drowning,[1] and there are opportunities to expand learn to swim programs across the age spectrum of California's population. Importantly, there are gaps in access to swim lessons: Who has and does not have the ability to receive and participate in swim education programs varies based on geography, socio-economic status, age, developmental skills, race, ethnicity, and other categories. With an acute lens towards equity, the key action areas within this priority strive to address this.

"Learning to swim" has a variety of meanings. This priority is focused on ensuring everyone has an opportunity to develop essential water competency skills, which includes being able to enter the water and resurface, controlling breathing, floating, turning, moving to safety in the water, and exiting.[22] These basic swim skills represent minimum proficiency, and are the foundation to gain experience and comfort in the water required for more advanced aquatic skills, such as learning swim strokes or being able to swim in open water environments.

KNOWLEDGE GAPS

A variety of different types of swim lesson instruction exist and evaluation of these lessons as to the impact on drowning prevention is limited.

Key Data Activities

Identify Current Programs
A scan of current swim lesson and water competency education programs will clarify what groups currently do and do not have access to instruction and where the programs are offered.

Conduct Policy Analysis
Determining what state and local policies directly or indirectly relate to swim education is an essential step in developing advocacy plans that seek to further establish learning to swim as an important life skill supported by state and local governments.

Identify Barriers and Facilitators to Learning to Swim
Research characterizing the reasons why some groups have higher or lower participation in swim education is essential to increasing access and developing tailored programs to address and expand basic water competency skills.[23]

Everyone a Swimmer
California Water Safety Priority 3

Community Programs and Education

Promote Swimming for All
Develop and deliver representative and inclusive messages highlighting swimming as a critical life skill and activity with important health benefits for all people.

Open Water Education
Build upon basic swimming skills with subsequent programs designed to increase skill development outside controlled pool environments, such as at beaches, rivers, or lakes. Where possible, facilitate the transition from swimming lessons to Junior Lifeguard programs.

Professional Training and Capacity

Instructor Recruitment and Retention
Promote swim instruction jobs in new communities, including rural areas. Explore ways to make swim instructor jobs competitive, including wages, sign-on and other incentives, career advancement opportunities, and specialized training.

Recruit Instructors from Diverse Backgrounds
Investigate opportunities and implement initiatives to diversify the swim instructor and aquatic facility workforce. Remove barriers to entry to the profession, including initial costs for certification and training.

Streamline Instructor Education
Provide low or no cost training to become a swim instructor. Enhance opportunities for multi-organization training, collaborate to provide access to courses in traditionally under served locations.

Policy and Systems

Expand Programming
Deliver swim lessons and water competency education to new populations and locations, prioritizing low resource settings.

Increase Access
Address barriers to participation in swim lessons. Provide program scholarships, swimsuits, and coordinated and free transportation.

Swim Lesson Policies
Promote policies at the local and state levels that ensure all school-aged children learn to swim.

Safety at All Ages

California Water Safety Priority 4

Goal: To ensure resources, programs, and competencies exist for all life stages across the age and developmental spectrum.
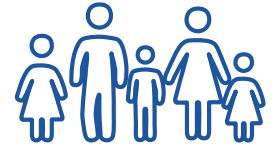
WHY IS THIS A PRIORITY?

Drowning prevention programs and resources need to be accessible to everyone, no matter their age and abilities. While young children are overrepresented in drowning statistics and have rightly been a population of focus for prevention activities in California,[18] drowning affects all ages. Infants have distinct drowning risk profiles to toddlers, and compared to these younger age groups, teenagers and young adults have different risk taking behaviors, middle aged adults have different drowning circumstances (e.g., body of water), and older adults have similarly high fatal drowning rates. As water activities change throughout the lifespan, so too does the risk for drowning. As such, prevention efforts need to be customized for specific life stages, accounting for variation in physical, social, and mental development, life experience and cultural background, as well as mobility, propensity for risk taking behavior, and general health.

Several prevention strategies span multiple life stages, although focusing efforts on specific age groups is likely to increase effectiveness. For example, a learn to swim program for adults may be promoted differently than one for school-aged children; a campaign to encourage life jacket use might include separate messages for older adults and teenagers; and an education program about the risk of alcohol and swimming would frame the issue differently for young adults versus older adults.

KNOWLEDGE GAPS

Effective prevention efforts require understanding of the circumstances of drowning events, what strategies and approaches work best for different life stages, and what policies affect the issue.

A number of key data activities will provide foundational knowledge from which to develop new, and update existing, prevention initiatives.

Key Data Activities

Review of Best Practice Drowning Prevention Activities for Different Age Groups
Review programming currently offered to different age groups. Synthesize learnings to establish best practice for life stage focused prevention efforts, especially for supervision, alcohol and drug use on or near the water, life jacket use, and water safety education and messaging. Understand how people with different cultural backgrounds perceive these activities and how they may or may not participate or engage.

Improve Information on Circumstance
Establish the circumstances of drowning and non-fatal drowning for different life stages to understand the risk and the presence or lack of preventive factors involved.

Conduct Policy Analysis
Document all current alcohol-related regulations within jurisdictions with recreational water settings. Document requirements and policies related to life jack use in boating and as a swim aid in open water and/or pools. Map current policies against best practice for the subject area to help inform advocacy efforts.

Safety at All Ages
California Water Safety Priority 4

KEY ACTION AREAS

Community Programs and Education

Tailored Messages
Promote basic swim skills, life jackets, supervision, and avoiding alcohol and substance use as important prevention strategies for all ages, tailoring messages for different age groups to increase effectiveness.

Swim Lesson and Water Safety Resource Directory
Develop an accessible, online repository that houses up-to-date water safety resources for all ages and ability, including information on swim lessons, CPR and AED training, and other drowning prevention educational materials.

Age-Specific Programs
Design and deliver public education programs focused on specific life stages (e.g., children, adolescents, older adults) that are also culturally sensitive and appropriate.

Expand Youth Programs to Other Age Groups
Explore expansion of successful youth-focused programing to other age groups, such as a adult swim lessons or Junior Lifeguard-style programs designed for adults.

Professional Training and Capacity

Inclusive Services and Programs
Ensure drowning prevention and first responder organizations have the training and capacity to serve all persons across the developmental spectrum, including neurodiverse individuals and persons with physical disability.

Educator Training
For those drowning prevention professionals involved in education programs, provide training in curriculum development and best practices for working with and instructing the age-group of focus.

Policy and Systems

Age-Specific Agenda Alignment
Partner to incorporate drowning prevention into other sectors focused on specific age groups such as those prioritizing children, adolescents, or older adults.

Policy Education and Enforcement
Improve education about and enforcement of current laws related to drowning prevention, including regulations related to alcohol, life jackets, and pool-barriers.

Routine Screening and Referral
Partner with California's medical community to incorporate drowning prevention education and referral into routine screenings within primary care.[24] For example, well-child visits may include information on swim lessons and parent supervision, preventive health checks for older adults may include discussion of medical conditions that could increase drowning risk.

School Partnerships
Partner with California's schools and school districts to deliver evidence-based water safety information and materials to both students in the classroom and their parents/caregivers and families at home. Include up-to-date and location specific information on how and where to access swim lessons in the communities near the school.

Pools

California Water Safety Priority 5

Goal: To improve safety at pools in California.

WHY IS THIS A PRIORITY?

Swimming pools are abundant in California. They are in backyards, apartment complexes, community centers, gyms, hotels, and short-term vacation rentals. Pools are areas of leisure and relaxation, sport and fitness, and for many, an important place for family and community gathering. Despite their important role in our lives, pools also carry risk. Over 100 drowning deaths and 400 non-fatal drowning events occur each year in California pools; children aged one to four years represent 27% of the deaths, 47% of non-fatal emergency department visits, and 60% of non-fatal hospitalizations.[4]

Swimming pools, however, are generally a controlled environment that can be modified to reduce risk. Pools should be designed and fitted with anti-entrapment covers to prevent entrapment injuries and death, consistent with the Virginia Graeme Baker Act. Pool fencing, specifically that which isolates the home from the pool, has been described as "one of the great injury prevention initiatives"[25] because strong scientific evidence exists showing effectiveness in preventing drowning.[26] California has been a national leader in pool safety legislation, due in large part to sustained advocacy efforts by families who have been affected by drowning. The key action areas identified in this priority outline broad principles that will continue to strengthen pool safety in the state.

This Priority has some overlap with:
- Priority 2: Data, as information on causal factors is lacking;
- Priority 3: Safe at all Life Stages, as children are an important population for this topic;
- Priority 7: Lifeguards, as public and community pool lifeguards are an essential component of safety at these sites.

Please see these sections for additional action areas relevant to improving safety at pools.

KNOWLEDGE GAPS

Despite the high number of pools throughout the state, little is known about the circumstances and situations of drowning events in various types of pools, public perceptions of pool safety legislation, or optimal messages and the effectiveness of pool safety education initiatives.

Key Data Activities

Separate Pool Drowning Events by Type of Pool
Most data systems do not differentiate between pools in a single family residence, a multifamily (e.g., apartment) dwelling, other shared community spaces, or public aquatic facilities. Understanding variation between different types of pools will inform more effective prevention strategies.

Conduct Policy Analysis
Document existing state and local laws related to pools. Map current policies against best practice, emerging evidence, and legislation from other locations to inform advocacy efforts.

Map Public Pools
Systematically document locations and operational information (e.g., hours, programs) of public pools to identify communities with low or no access to aquatic facilities and programs.

Evaluate Residential Pool Safety Devices
Assess the efficacy and effectiveness of residential pool safety devices including isolation fencing, removable mesh fencing, safety pool covers, exit alarms, self-closing/latching devices, in-pool alarms, and other safety devices designed for pools.

Pools
California Water Safety Priority 5

Community Programs and Education

Community Partnerships
Expand community partnerships to educate about pool safety in a broad variety of environments and among diverse populations.

Consistent Messaging
Develop and deliver consistent materials on pool safety, using evidence-based recommendations whenever possible.

Professional Training and Capacity

Sector-Specific Pool Safety Partnership and Training
Prioritize drowning prevention education initiatives highlighting pool safety layers of protection for professionals with a nexus to pools, such as realtors, builders, home inspectors, code officials, risk managers, pool service providers, rental property owners and managers, those in the hotel and short-term vacation rental industry, home inspectors, and architects, among others.

Policy and Systems

Strengthen Pool Safety Policy
Advocate for updates to California's Swimming Pool Safety Act, and other supporting local policies based on evidence and best practice.

Legislation Education and Enforcement
Improve education about, and consistent enforcement of, currently legislated pool requirements for homeowners, rental properties and lodging.

Aquatic Facility Infrastructure
Advocate for the maintenance and upkeep of existing public and community pools. Prioritize upgrades, such as pool heaters and accessibility infrastructure, that will create new opportunities for swim lessons and aquatics programming and ensure all people can participate.

Increased Community Pool Hours
Improve accessibility of community pools by advocating for increased pool time, that is, increasing the times of day and months of the year when pools are open, striving for all-day and year-round availability.

Aquatic Facility Audits
Develop and adopt standards for aquatic facility evaluations with the goal of strengthening lifeguard operations and facility management, and ensuring the general health and safety for all staff and patrons.

Open Water
California Water Safety Priority 6

Goal: To improve safety at the coast, lakes, rivers, canals, and other open bodies of water in California.

WHY IS THIS A PRIORITY?

California is home to a vibrant ecosystem of natural waterways used by residents and tourists alike. The state's pristine beaches, rivers and lakes are important places for both recreation and industry; ensuring the safety of those who visit and work in and near open water environments is critical for maintaining a thriving tourism and recreation industry.

Data indicates that over half of fatal drowning incidents occurred in an open water environment. Importantly, 22% of these drowning deaths occurred in rivers and canals,[5] an often overlooked environment for water safety. Additionally, while intentional drowning (suicide and homicide) is not usually included in typical drowning prevention discussions, it is worth noting that over half of intentional drowning fatalities occur in coastal spaces.[5]

This Priority has significant overlap with Priority 7: Lifeguards, as the provision of professionally trained lifeguards is a primary prevention strategy at open water sites. Please see Priority 7 for action areas relevant to open water lifeguarding.

KNOWLEDGE GAPS

Despite the fact that the majority of drownings occur in open water environments, little is known about the factors that contribute to drowning in these environments.

Key Data Activities

Conduct Risk Assessments
Land managers should systematically assess and document factors that influence risk at open water swim sites such as physical hazards, usage/attendance information, social risk factors and protective measures including signage.

Separate "Natural Water" Drowning by Type of Body of Water
A major challenge of current death and injury coding is the grouping of all open water categories into a single "Natural Water" classification.[27] Safety strategies differ by body of water (e.g., ocean, rivers, lakes, canals). Understanding drowning trends by each type of open water body will improve prevention efforts.

Improve Location Data for Hot Spot Mapping
Details on the exact location of drowning incidents will allow for the identification of drowning hotspots and provide information on the trends and causal factors related to particular high risk locations.

Open Water
California Water Safety Priority 6

Community Programs and Education

Safety Promotion
Promote both swimming in designated lifeguard areas and using life jackets as key open water drowning prevention strategies.

Outdoor Education and Tourism Programs
Incorporate principles of drowning prevention and water safety into programs and tours that expose people to California's waterways.

Risk Communication
Design, develop and deliver representative and inclusive community education programs and campaigns focused on educating the public about open water risks, including rip currents, surf hazards, river safety, and boating safety.

Professional Training and Capacity

Response Capacity for Non-Lifeguards
Improve capacity of non-lifeguard emergency responders, including fire fighters, police officers, and park rangers, to affect appropriate and safe rescue in open water settings where lifeguards are not present. Train emergency responders on local water hazards in their response areas.

Policy and Systems

Open Water Swim Area Guidelines
Develop and adopt guidelines for land managers with open water swim areas in their jurisdiction, setting minimum standards for safety signage, designated swim and recreation zones, public rescue equipment and other flotation devices, and other relevant topics.[28]

Industry Partnerships
Co-develop and implement standards for drowning prevention with companies that sell and rent products used in open waterways such as personal water crafts, boats, kayaks, stand up paddle boards, surfboards, body boards, swim products and clothing, and/or snorkel equipment.

Life Jacket Loan Station Standards
Develop and adopt standards guiding life jacket loaner programs, incorporating inclusive sizing and best practice and evidence where available. Develop and provide legal framework and guidance for implementing programs in new locations.

Boating Collaboration
Partner with the US Coast Guard, the California State Parks Division of Boating and Waterways, industry, and other boating safety stakeholders to improve data and boating safety at the state and local levels.

Lifeguards

California Water Safety Priority 7

Goal: To create sustainable and adaptable systems for lifeguards in California.
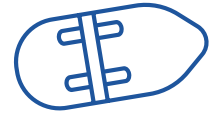
WHY IS THIS A PRIORITY?

Lifeguards are a critical layer or protection in drowning prevention,[29] and an important stakeholder in the multi-sectoral effort to reduce the burden of drowning in the state. In California, lifeguarding is a profession with highly trained people who are responsible for supervising and safeguarding millions of residents and tourists alike. Many of California's lifeguards work year-round, in departments that deliver robust services that are integrated into emergency medical and response systems.

California's lifeguards work in a variety of settings. While images of southern California's beaches or the public pool are the first to mind for many, lifeguards also work in the central and northern coast, at inland lakes and reservoirs, and at rivers with high incidence of drowning fatalities. The essence of Californian lifeguarding is prevention, and many lifeguard departments and organizations also engage in educational programs aimed at communicating water safety principles to the public.

The Key Data Activities and Action Areas here serve to strengthen pool and open water lifeguard systems that adapt and respond to changing conditions and emerging challenges, prioritize ongoing training and development for lifeguards at all levels, and use data and feedback to continually improve and refine lifeguarding practices and operations.

KNOWLEDGE GAPS

Lifeguard organizations are increasingly using data to guide operations and the following data activities will assist them in this process.

Key Data Activities

Conduct Policy Analysis
Understanding how current legislation impacts the profession from a variety of perspectives including wages, hours worked, recruitment, and retention will help improve the field.

Map Lifeguard Services and Times
Mapping which locations have lifeguards on duty and including this information in drowning data analyses will help determine if resources are being deployed to areas most in need and provide data on the effectiveness of established services.

Standardize Data Collection
Lifeguards currently have varying standards and forms for submitting incident reports, which limits the usefulness of this information. Developing and implementing a standard set of core data items with uniform definitions will provide improved insights at a regional and statewide level.

Improve Lifeguard Research
Expanding the scientific evidence base for the profession will improve operations and further establish the important prevention role of lifeguards. Potential research focus areas include: Lifeguard effectiveness and the economic value of services and/or lives saved, aspects of service delivery (e.g., scanning techniques, physical standards), and lifeguard training, among others.

Lifeguards
California Water Safety Priority 7

Community Programs and Education

Pre-Beach and Pool Programs
Design and deliver programs where lifeguards educate members of the community before they arrive at the beach or pool, for example in schools or at health fairs. Prioritize high risk populations, which will be local context dependent.

Junior Lifeguard Program Expansion
Promote Junior Lifeguard and other youth programs that educate young people about water risks and first aid. Expand access to low resource families and explore opportunities for inclusion of children with a broad range of water competencies.

Role Communication Campaign
Research and develop an education campaign about the role of lifeguards, the benefits to the public and impact on community safety.

Professional Training and Capacity

Standardized Training and Recertification
Develop standardized training requirements recognized and transferable between departments.

Mental Health
Support mental health and wellbeing with specific training, programs, and initiatives for lifeguards.

Prevention Partnerships
Lifeguards are great spokespersons for drowning prevention. Explore partnerships for lifeguards to work on, promote, and participate in prevention and safety programs outside the beach or pool.

Recruit Lifeguards from Diverse Backgrounds
Investigate opportunities and implement initiatives to diversify the lifeguard workforce. Remove barriers to entry to the profession, including unpaid training.

Policy and Systems

Expand Service Locations
Advocate for expanded lifeguard services to new locations, including open water sites and community pools without lifeguards. Places with high volumes of incidents and/or use should be prioritized.

Extend Service Times
As usage patterns evolve, update hours and seasonal time periods when lifeguards are on duty to reflect when people are swimming (e.g., later into the evening, earlier in spring months, later into the fall months).

Workforce Development
Advocate for policies that ensure lifeguarding is a viable job that offers competitive living wages and career advancement opportunities. Collaborate across different bodies of water and parts of the state to address issues of recruitment, retention, lateral and in-house advancement, and training.

Water Emergency Preparedness
California Water Safety Priority 8

Goal: Ensure individuals and systems are prepared to prevent and respond to drowning incidents and community level water-related disasters.

WHY IS THIS A PRIORITY?

A prepared population is essential to successfully reducing the burden of drowning in California. This priority covers both prevention and response to isolated acute drowning incidents, usually involving a single person or small group of people, and water-related disaster events that have community-level impact, such as flooding. Many principles for prevention and response apply to both scenarios. For example, recognizing distress or a dangerous situation, provision of flotation and safe rescue, and initial resuscitation are all important links in the drowning chain of survival applicable to any drowning event, disaster-related or not.[30]

The incorporation of drowning prevention into disaster risk reduction and preparedness agendas is an important step for California's water safety community. Drowning is the main cause of death in water-related disasters,[31] which are expected to increase both in frequency and severity in California.[32]

The impacts of climate change on weather patterns are already visible in the state; large scale rain events in early 2023 led to more than 20 deaths in just a few weeks. As state and local governments bolster emergency preparedness plans, drowning prevention strategies such as swim lessons, bystander rescue training, and public CPR courses can have an important role framed as disaster-impact mitigation efforts.

KNOWLEDGE GAPS

Knowledge gaps exist in the form of data and evaluation in response to drowning events broadly, and in disaster-related situations as well.

Key Data Activities

Quantify Drowning in Disasters
Deaths and injuries due to disasters such as floods, hurricanes and other weather events are 1.) frequently excluded from drowning statistics and 2.) often reported in aggregate including incidents due to both drowning and other causes. Improved understanding of the drowning burden in disaster events will help prioritize prevention efforts.

Evaluate Programs
Evidence and data showing if and how drowning prevention programs and education initiatives are effective is lacking. This information will help improve the efficacy of these efforts and provide justification for ongoing activities and expansion.

Characterize Bystander Rescue
There is a lack of information on how many drowning and rescue incidents involve bystanders, and what the circumstances of these events are. Knowing how bystanders intervene, and the outcome of their efforts, will help inform prevention efforts that aim to educate and prepare people to respond to drowning events.

Water Emergency Preparedness
California Water Safety Priority 8

KEY ACTION AREAS

Community Programs and Education

CPR and AED Training for All
Promote CPR as a life skill for everyone to learn. Ensure courses follow latest evidence-based guidelines and are available for all community members.

Community Emergency Response Teams (CERT)
Promote participation in Community Emergency Response Teams, integrating trained volunteers into disaster response. Include water response plans and local water hazards and risks in CERT training.

Bystander Rescue Training
Train community members to recognize the signs of drowning distress, and appropriately respond safely and within their ability.[1] Basic rescue awareness programs should focus on highly water competent populations, such as surfers or competitive swimmers; non- or limited water entry response should be prioritized for others.

Disaster Preparedness Campaigns
Develop and deliver educational, population-specific messages tailored to disaster hazards and risks for local communities.

Professional Training and Capacity

Environmental Sector Training
Incorporate drowning prevention and response (e.g., rescue equipment, non-contact assist training) into professions that work in and around water, including environmental health, urban planning, water resource management, coastal restoration, public works, emergency preparedness, and other natural resource adjacent fields. Identify water hazards at specific locations and worksites and implement appropriate risk mitigation strategies.

Integrate Water Rescuers to Disaster Response
Integrate water rescuers to disaster response.
Incorporate lifeguards and other water rescue personnel into state and local water-related disaster response teams and systems.

Policy and Systems

Emergency Preparedness Plans
Incorporate explicit drowning prevention strategies and measures in emergency preparedness plans and after action reviews.

Water Safety and Emergency Preparedness in Schools
Advocate for age-appropriate classroom-based education on water safety and disaster preparedness in California schools.

Drowning Resuscitation Protocols and Training
Ensure Local Emergency Medical Service Authorities and emergency response agencies including EMS, lifeguards, and police designate and train to specific drowning resuscitation protocols that are based on evidence and best practice.[33]

Technology for Prevention and Response
Explore emerging technologies for drowning prevention and response, especially tools and communication methods for the broader, non-rescue trained, population.

Next Steps

The California Water Safety Coalition is committed to continued monitoring and updating of the CA-WSS to incorporate additional voices and address emerging challenges.

Drowning presents an undue burden on people and communities in California.
The CA-WSS is the first attempt to present a framework and comprehensive approach for addressing drowning in the state of California. The California Water Safety Coalition is committed to continued monitoring and updating of this California Water Safety Strategy to incorporate additional voices, address emerging challenges, and include new evidence and knowledge.

Updates on implementation guides, ongoing monitoring surveys, priority or action area specific strategic plans and activities, and future workshops relevant to the CA-WSS will be available at:
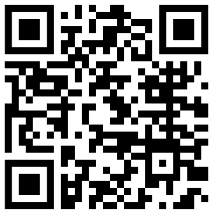
cawatersafety.org/strategy

With the release of this Strategy, California's drowning prevention stakeholders are encouraged to engage in two important activities. First, with careful consideration for the core values outlined here, assess your individual and organizational capacity to address the knowledge gaps and key action areas of this strategy. Second, as multisector collaboration is foundational for successful drowning prevention policies and programs, connect with your local water safety community and consider participating in this important conversation at the state and national level.

Assess Individual & Organizational Capacity
The CA-WSS is designed to be flexible, iterative, and comprehensive to allow for multiple stakeholders across the state to be working collaboratively and in parallel to both 1) address knowledge gaps through Key Data Activities; and 2) advance Key Action Areas listed within community programs and education, professional training and capacity and policy and systems among eight priority areas.

Users of this strategy are invited to assess where they and/or their organization can begin or continue working to advance data activities and action areas.

Connect
Reach out and connect with other stakeholders in your region to broaden your understanding of what is occurring in drowning prevention and water safety. The California Water Safety Coalition is a good resource to begin to make connections to people who work within this issue across the state.

Acknowledgments

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Notes

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