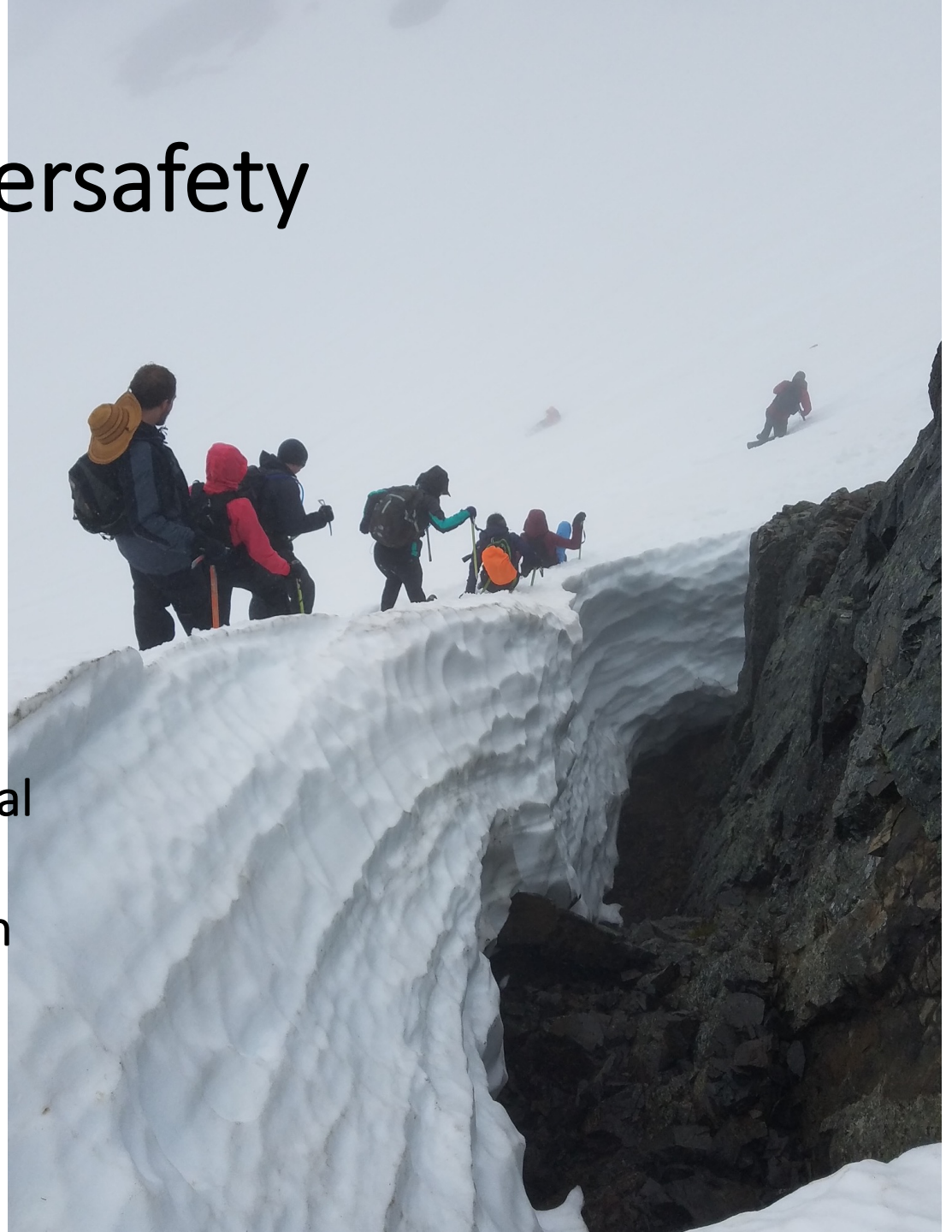


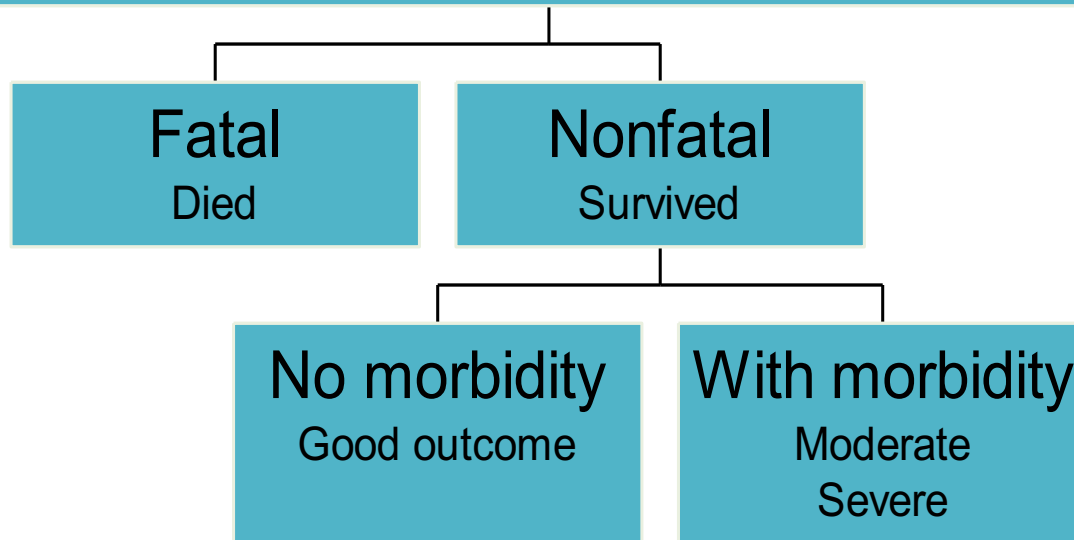
# AAP and Watersafety

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# What is Drowning? Definitions

Event during which airway is submerged in a liquid  
Respiratory Distress



# Learning objectives

Drowning

Who are the High-risk groups?

Where do pediatric age groups drown?

Prevention:

What works?

What is needed?

US Watersafety National Action Plan

# Drowning is a Pediatric problem

## 10 Leading Causes of Injury Deaths by Age Group Highlighting Unintentional Injury Deaths, United States – 2018

Rank	Age Groups										Total
	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	
1	Unintentional Suffocation 977	Unintentional Drowning 443	Unintentional MV Traffic 341	Suicide Suffocation 361	Unintentional MV Traffic 6,308	Unintentional Poisoning 15,353	Unintentional Poisoning 14,978	Unintentional Poisoning 13,620	Unintentional Poisoning 10,854	Unintentional Fall 32,522	Unintentional Poisoning 62,399
2	Homicide Unspecified 125	Unintentional MV Traffic 292	Unintentional Drowning 130	Unintentional MV Traffic 360	Unintentional Poisoning 4,245	Unintentional MV Traffic 6,886	Unintentional MV Traffic 5,068	Unintentional MV Traffic 5,328	Unintentional MV Traffic 5,629	Unintentional MV Traffic 7,697	Unintentional MV Traffic 37,991
3	Unintentional MV Traffic 80	Homicide Unspecified 152	Unintentional Fire/Bum 99	Suicide Firearm 202	Homicide Firearm 4,107	Homicide Firearm 4,348	Suicide Firearm 3,222	Suicide Firearm 3,787	Suicide Firearm 4,421	Suicide Firearm 6,375	Unintentional Fall 37,455
4	Homicide Other Spec., Classifiable 68	Unintentional Fire/Bum 123	Homicide Firearm 57	Homicide Firearm 134	Suicide Firearm 2,995	Suicide Firearm 3,429	Suicide Suffocation 2,688	Suicide Suffocation 2,481	Unintentional Fall 2,766	Unintentional Unspecified 4,607	Suicide Firearm 24,432
5	Undetermined Suffocation 45	Unintentional Suffocation 112	Unintentional Suffocation 30	Unintentional Drowning 86	Suicide Suffocation 2,237	Suicide Suffocation 3,117	Homicide Firearm 2,569	Suicide Poisoning 1,396	Suicide Suffocation 1,934	Unintentional Suffocation 3,793	Homicide Firearm 13,958
6	Unintentional Drowning 39	Unintentional Pedestrian, Other 70	Unintentional Other Land Transport 20	Unintentional Fire/Bum 52	Suicide Poisoning 454	Undetermined Poisoning 824	Suicide Poisoning 990	Homicide Firearm 1,382	Suicide Poisoning 1,491	Unintentional Poisoning 3,269	Suicide Suffocation 13,840
7	Homicide Suffocation 30	Homicide Other Spec., Classifiable 66	Homicide Unspecified 17	Unintentional Suffocation 43	Unintentional Drowning 431	Suicide Poisoning 753	Undetermined Poisoning 780	Unintentional Fall 1,131	Unintentional Suffocation 858	Adverse Effects 3,100	Unintentional Suffocation 6,701
8	Undetermined Unspecified 30	Homicide Firearm 54	Adverse Effects 16	Unintentional Other Land Transport 37	Homicide Cut/pierce 256	Unintentional Drowning 482	Unintentional Fall 502	Undetermined Poisoning 876	Homicide Firearm 802	Unintentional Fire/Bum 1,404	Suicide Poisoning 6,237
9	Unintentional Natural/Environment 22	Unintentional Natural/Environment 38	Unintentional Pedestrian, Other 15	Unintentional Poisoning 23	Undetermined Poisoning 224	Homicide Cut/Pierce 455	Unintentional Drowning 414	Unintentional Drowning 456	Adverse Effects 766	Suicide Poisoning 1,133	Unintentional Unspecified 6,082
10	Two Tied 18	Unintentional Firearm 30	Homicide Other Spec., NEC <sup>N</sup> 14	Suicide Poisoning 20	Suicide Fall 205	Unintentional Fall 345	Homicide Cut/Pierce 340	Unintentional Suffocation 401	Undetermined Poisoning 704	Suicide Suffocation 1,014	Adverse Effects 4,604

Data Source: National Center for Health Statistics (NCHS), National Vital Statistics System.  
Produced by: National Center for Injury Prevention and Control, CDC using WISQARS™.



Centers for Disease  
Control and Prevention  
National Center for Injury  
Prevention and Control

# Identifying who's at risk for drowning

## Characteristics of victims



Age

Sex

Race, ethnicity

Visitor, immigrant

Behaviors

Activities

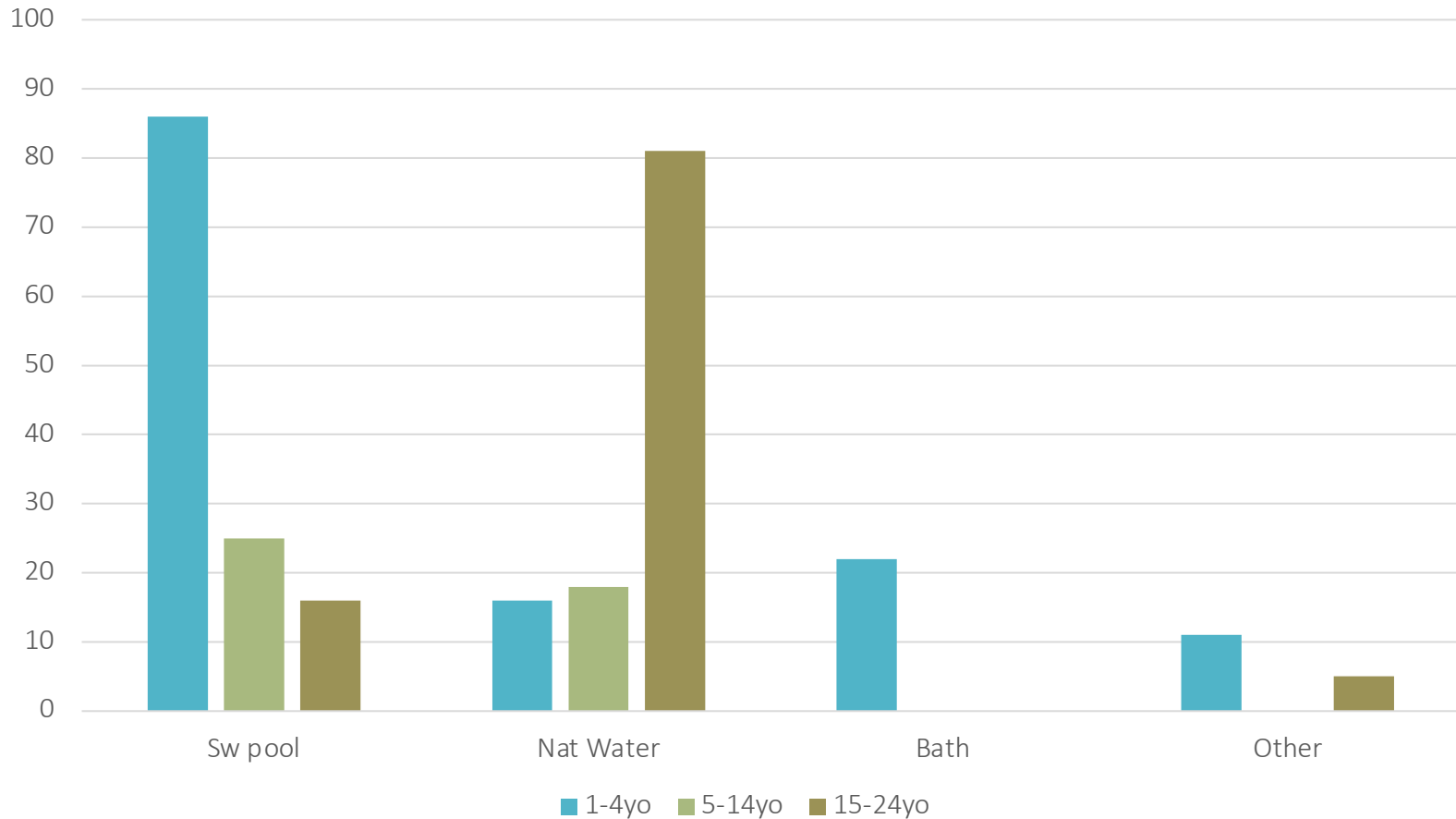
Medical

condition





# Number of fatal drownings Location by Pediatric age group

California 2017-2019



# States with most fatal pool drownings in 1-4 yo

	<u>2017</u>	<u>2019</u>
	n (rate)	n (rate)
California	24 (1.2)	31 (1.6) 
Texas	30 (1.9)	30 (1.8)
Florida	45 (4.9)	28 (3.0) 

CDC Wonder

# Risk factors for fatal drowning

Age: 1-4, 15-29 yo

Sex: Males

Nonwhite/ethnic minority

Alcohol use

In water activities- swimming, Xing rivers

Boating: Motorboat, hand powered craft

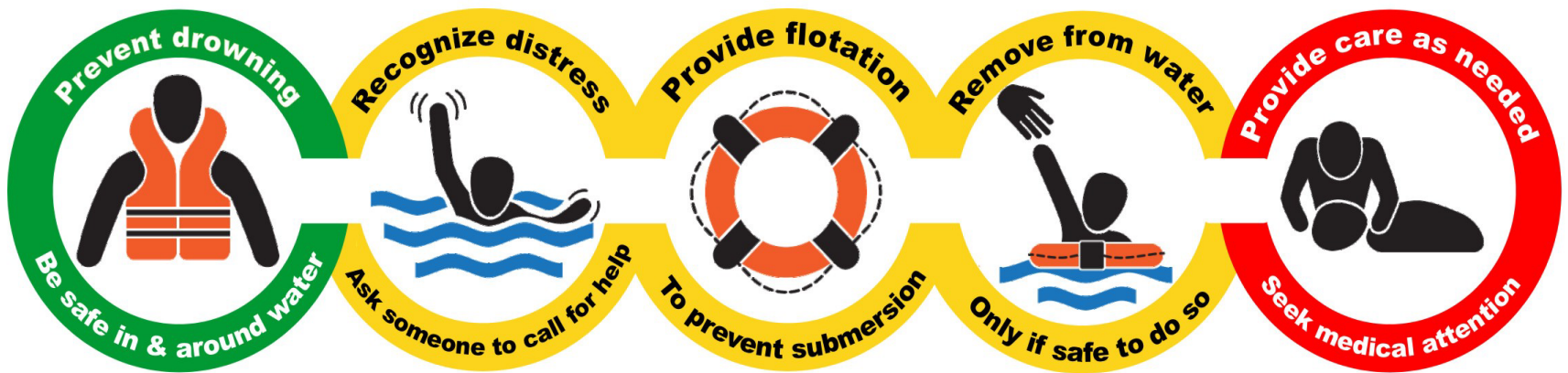
No lifejacket use, No boater education

No Swimming lessons



# Primary vs Secondary Prevention

## **DROWNING CHAIN OF SURVIVAL** A call to action



David Szpilman, Jonathon Webber, Linda Quan, Joost Bierens, Luiz Morizot-Leite, Stephen John Langendorfer, Steve Beerman, Bo Løfgren  
Creating a drowning chain of survival. Resuscitation (2014), <http://dx.doi.org/10.1016/j.resuscitation.2014.05.034>

# What Works: Circle of Drowning Prevention

## Drowning Prevention



**American Red Cross**

# Barriers: Prevent Access Isolation Fencing

## Four-sided pool fencing

-50% decrease  
drowning deaths

- Maricopa Cty,  
USA
- New Zealand

-Failures due to  
inadequate  
fence/gate  
*Enforcement*



# Evidence for Pool covers, pool alarms, door alarms? None

No national law, no state law requires pool isolation fencing

California barrier law requires any 2 of 7 interventions

- **Isolation fence**                      -**removable mesh isolation fence**
- Pool cover                                -Pool alarm
- Door alarm                                -Doors self-closing, self-latching
- Other verified system

What's needed: State/national 4-sided fencing mandate



# Life Jackets

Must be US Coast Guard approved

Must fit and be secured/buckled

Evidence *WEARING* life jackets works:

- Decreased drowning death risk in boats by 50% nationally (Cummings, 2011)
- Decreased drowning death risk in boating accidents by 40%, WA State (Stempski)
- Mandated wear decreased boat related drowning deaths by 50%, Australia (Bugeja, 2019)

## California law

- Appropriate size USCG approved life jacket for each person must be IN the boat
- Age 13 and under must wear life jacket
- ALL ages on Personal Watercraft
- ALL ages being towed

# Life jackets: What's needed

Mandate life jacket wear in boats/vessels

- All Ages
- Age 18 and under

Better Life jacket design

- More comfortable
- More fashionable

Flotation alternatives for swimming



# Swimming Lessons

## Decreased drowning deaths in < 5 yo children:

- No swim lessons increased likelihood of death RR=2.3 (1.4 to 4.5) *Yang 2007- China*
- Any “formal swim lessons” decreased likelihood of death 50% among children 1-4 yo *-Brenner 2009- USA*

## Decreased drowning deaths in older children:

- SwimSafe *Rahmen 2012 Bangladesh*

2010 AAP Policy Report

Supported swim lessons

2019 AAP Policy Report

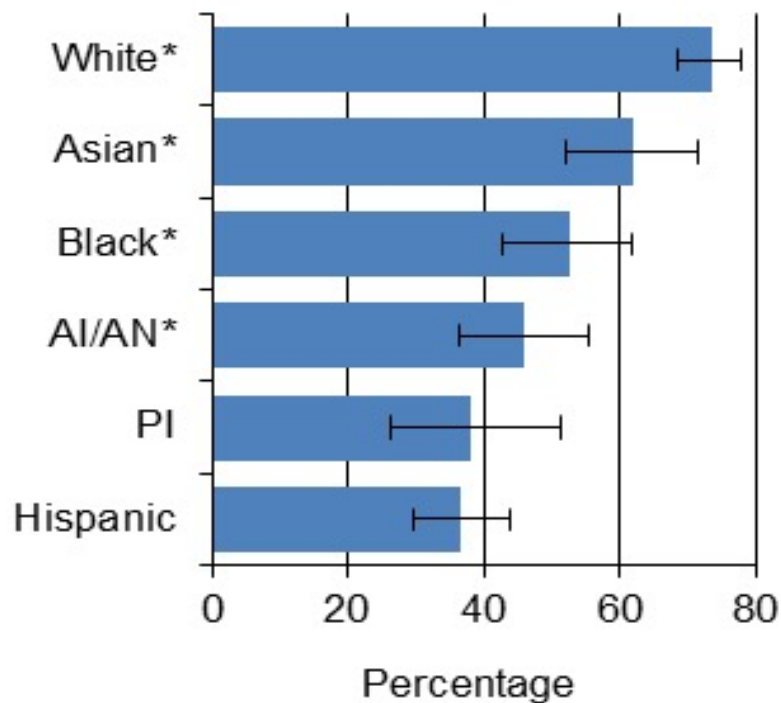
Support swim lessons  $\geq$ 12 month old



# What's needed for Swim Lessons?

## Access

**Taken Formal Swim Lessons  
10th Graders  
Healthy Youth Survey**



\* Non-Hispanic

AI/AN=American Indian/Alaska Native

PI=Pacific Islander





# Define Adequate supervision

Preparation

Preset rules

Availability of  
life jackets

Site hazard  
assessment

Designated  
water  
watcher

Attentive- Not  
distracted, not  
impaired

Close: Arm's  
length for  
poor  
swimmers

Capable-  
recognize,  
respond, rescue

Ratio:  
observer to  
"swimmers"



# What's needed for Supervision?

First Aid teaching

Recognition

"I thought he was kidding"



Safe Rescue

Aug 9, 2021

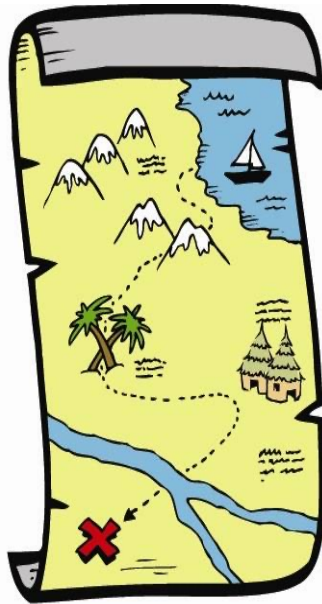
California father drowns at Lake Powell  
after saving his child



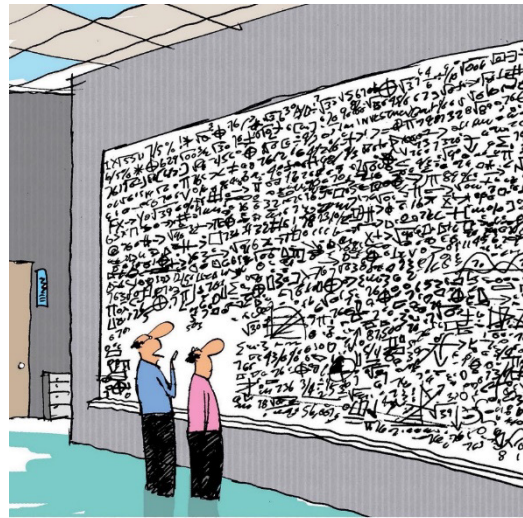
CPR

Bystander CPR improves outcome

# National Water Safety Action Plan



Strategic direction  
Framework  
Priorities



*"...And that, in a nutshell, is my marketing plan. Any questions?"*

Awareness  
Better data  
Reporting



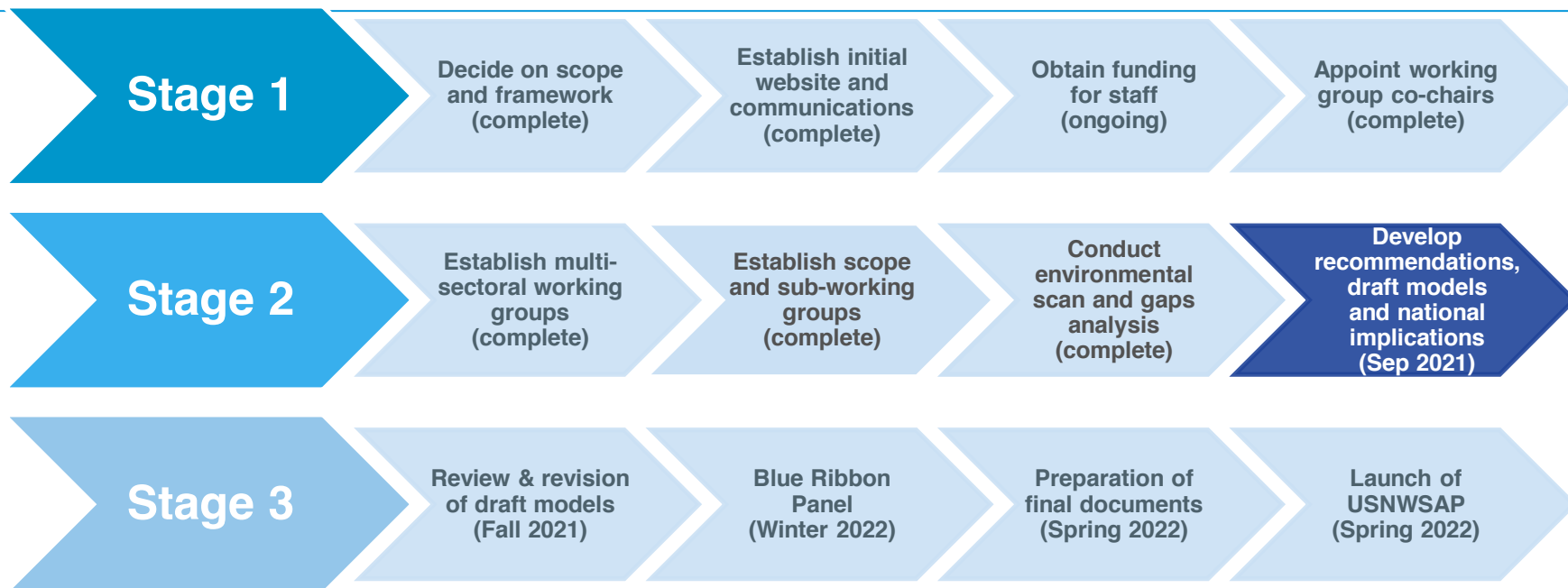
Relevant partners  
Consensus



## Scope

- 10-year plan
  - Focus on 5 evidence-based strategies and data/surveillance plus necessary infrastructure and capacity to support implementation
- 
- Life Jackets / PFDs and Other Floatation
  - Water Safety / Water Competency / Swimming Lessons
  - Supervision/Lifeguards
  - Rescue/CPR
  - Barriers, Entrapment & Electrical Safety
  - Data/Public Health Surveillance

# Three Stage Development Process



# Data/Surveillance

## DATA NEEDED FROM:

Lifeguard

EMS

Police/Marine patrol

Emergency dept

Hospital

Medical examiner/coroner

## EXISTING SURVEILLANCE BY:

Parks- State, NPS

Child Death Review

USCG Boating Accident Report

CDC Mortality



KEEP THIS FAMILY WATER SAFE