Use of Flotation Devices for Recreational Swimming

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WA Drowning Prevention Network Meeting

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Washington State Department of Health

Seattle Children's
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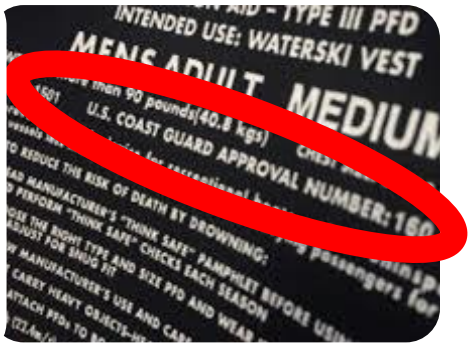
Flotation Devices vs. Life Jackets

Flotation Devices: Fun but not designed or designated to prevent drowning.



U.S CG Approved Life Jackets: Designed & designated to prevent drowning.

Life Jackets vs. Other Flotation Devices At Swim Areas

- Does life jacket use differ by age and gender?
- Does the close presence of an adult alter a child's use of a life jacket?

Observational Study Methods

- **Observations Conducted by JSI Research and Training Institute of Boston (JSI)**
  - JSI has conducted annual boater life jacket observation studies for the U.S. Coast Guard since 1998
  - JSI has conducted observations for the National Park Service since 2013
  - JSI conducted WA State boater Life Jacket Observations during same time period

Observation Form

- **Type of Body of Water**
- **Site Conditions**
  - Water temp
- **Weather observations (x3)**
- **Any special conditions that may have influenced swimmers.**

1. Site Information

Observer Names: _____ City: _____

Site Name: _____ Water: _____

Life Jacket Loan Board: O Yes (COMPLETE 'Loan Board' section on back of page.) O No

Date of Observation: ☐☐ / ☐☐ / ☐☐ Day of the week: O Sat. O Sun.

Observation start time: ☐☐ : ☐☐ O AM O PM Observation end time: ☐☐ : ☐☐ O AM O PM

2. Type of Body of Water

O Bay, inlet or sound O River, stream, creek or canal O Other: _____

O Harbor O Lake, pond, or reservoir (not Great Lakes)

O Intercoastal waterway O Great lake (not including tributaries)

3. Site Conditions

Water temperature: ☐☐ degrees F

A. First Weather Observation (to be completed during 1st time block of boat observations)

Time:

O 7:59 or before O 8-9:59 AM O 10-11:59 AM O 12-1:59 PM O 2-3:59 PM O 4-5:59 PM O 6 PM or later

Air Temp. ☐☐☐ F	Water Conditions	Current	Visibility	Weather Conditions
Wind Speed ☐☐ knots	O Calm (less than 6")	O Strong	O Good	O Sunny O Raining
	O Choppy (6" to 2')	O Moderate	O Fair	O Partly Cloudy O Stormy
	O Rough (over 2')	O Weak/None	O Poor	O Cloudy

B. Second Weather Observation (to be completed during 2nd time block of boat observations)

Time:

O 7:59 or before O 8-9:59 AM O 10-11:59 AM O 12-1:59 PM O 2-3:59 PM O 4-5:59 PM O 6 PM or later

Air Temp. ☐☐☐ F	Water Conditions	Current	Visibility	Weather Conditions
Wind Speed ☐☐ knots	O Calm (less than 6")	O Strong	O Good	O Sunny O Raining
	O Choppy (6" to 2')	O Moderate	O Fair	O Partly Cloudy O Stormy
	O Rough (over 2')	O Weak/None	O Poor	O Cloudy

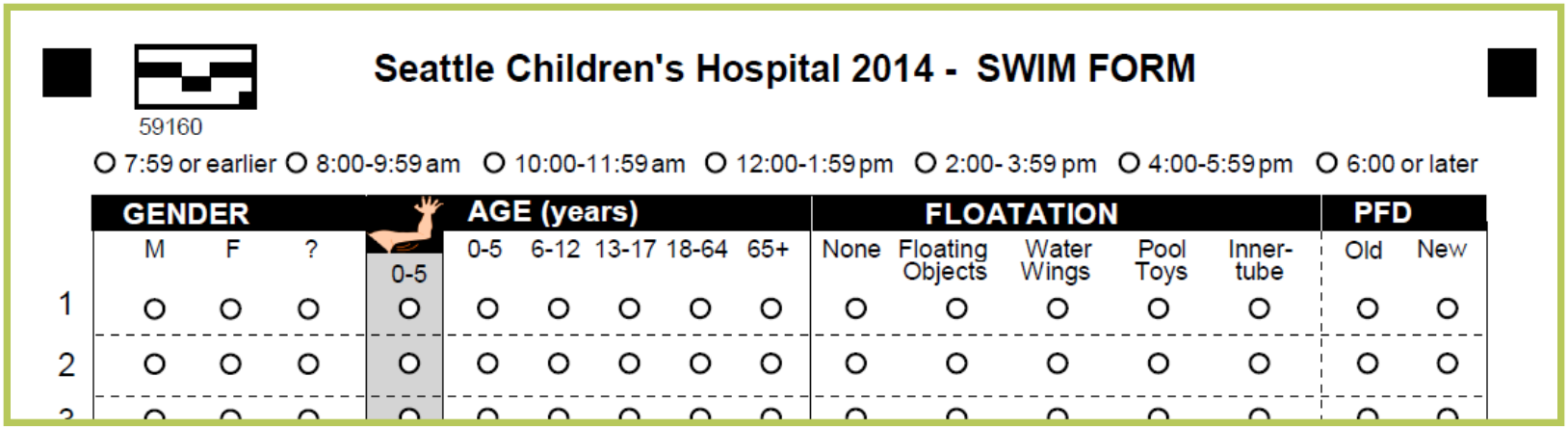
C. Third Weather Observation (to be completed during 3rd time block of boat observations)

Time:

O 7:59 or before O 8-9:59 AM O 10-11:59 AM O 12-1:59 PM O 2-3:59 PM O 4-5:59 PM O 6 PM or later

Air Temp. ☐☐☐ F	Water Conditions	Current	Visibility	Weather Conditions
Wind Speed ☐☐ knots	O Calm (less than 6")	O Strong	O Good	O Sunny O Raining
	O Choppy (6" to 2')	O Moderate	O Fair	O Partly Cloudy O Stormy
	O Rough (over 2')	O Weak/None	O Poor	O Cloudy

Observation Form



Seattle Children's Hospital 2014 - SWIM FORM

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○ 7:59 or earlier ○ 8:00-9:59 am ○ 10:00-11:59 am ○ 12:00-1:59 pm ○ 2:00- 3:59 pm ○ 4:00-5:59 pm ○ 6:00 or later

	GENDER			AGE (years)						FLOATATION					PFD	
	M	F	?	0-5	0-5	6-12	13-17	18-64	65+	None	Floating Objects	Water Wings	Pool Toys	Inner-tube	Old	New
1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
2	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
3	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

- Gender
- Arm's-Length?
- Age
- Type of Flotation Device
- Life Jacket

Results

- **1st published observational study on the use of flotation devices among swimmers in open water settings.**
- **1,967 Swimmers Observed at 10 locations**
  - 212 children (under the age of 6)
  - 652 children (6 to 12 years)
  - 325 (13 to 17 years)
  - 778 Adults (18+ years)

Rates of Types of Floatation Device Use (%), By Age of Swimmer
All WA Swim Sites*

Age Group	Total N	No Flotation Use		Substandard** Flotation Use		PFD	
		(n)	(%)	(n)	(%)	(n)	(%)
Toddlers (0-5)	212	72	34	33	15.5	107	50.5
Preteen (6-12)	652	347	53.2	169	25.9	136	20.9
All Kids (0-12)	864	419	48.5	202	23.4	243	28.1
Teens (13-17)	325	229	70.5	86	26.5	10	3.1
Adults (18+)	778	595	76.5	166	21.3	17	2.2

Significance Tests	*Significant differences between age groups for each PFD status*	*Significant Differences between Age Groups for Each Type of Use*		
Toddlers (0-5) vs Preteen (6-12)		***	**	***
Toddlers (0-5) vs Teens (13-17)		***	**	***
Toddlers (0-5) vs Adults (18+)		***	ns	***
Preteen (6-12) vs Teens (13-17)		***	ns	***
Preteen (6-12) vs Adults (18+)		***	*	***
Kids (0-12) vs Teens (13-17)		***	ns	***
Kids (0-12) vs Adults (18+)		***	ns	***
Teens (13-17) vs Adults(18+)		*	ns	ns

*p<0.05, **p<0.01, ***p<0.0001

*Excluding 66 missing PFD status (59) or gender/age (7)| 4 unknown gender included, not shown

** Substandard Flotation Device Use includes using floating objects, water wings, pool toys or inner-tubes.

Results:
Gender Differences Among Age Groups

Males more likely than females to wear life jackets in the following age groups:

- Toddlers (0-5 years) (58.8% vs 42.6%);
- Preteens (6-12 years old) (25.5% vs 16.5%)
- All kids (0-12 years) (33.6% vs 22.9%)
- For all swimmers ages combined (16.6% vs 11.1%)

Results
Within Arm's-Length vs. **NOT** Within Arm's-Length

Flotation use among kids 6 yrs. and under and within arm's-length vs. further-than-arm's-length from an adult.

- While in the water, 58.5% of kids 6 and under were within an arm's-length of an adult
- Life jacket use was about 50% between those within arm's- length and further than arm's length

Results
Within Arm's-Length vs. **NOT** Within Arm's-Length

- For kids **within arm's-length**, boys were somewhat more likely to use life jackets than girls (54% vs 46%)
- Girls somewhat more likely to use substandard flotation devices (17.5% vs. 8%)
  - ➢ Increased use of water wings by girls (11.2% vs. 3.2%)
- For kids **further than arm's-length**, boys were **MUCH** more likely than girls to wear life jackets (66.7% vs. 37.8%)

Results

Results rendered strong age effects and some notable gender effects.

- Other types of flotation devices (not life jackets) were used by 20-27% of kids over 6.
- Life jacket use among swimmers and those playing in open water decreased dramatically with increasing age

Results

- Life Jackets use by teens were very low for all teenagers and adults **BUT** wear rates in boats is much greater (Mangione, et al, 2015)
  - Teenagers - 45%
  - Adults 15%

Opportunity:
Promote life jacket wear to teens and adults in recreational water situations. Focus on overcoming perception that if you can swim, you don't need a life jacket while swimming in open water.

Study Limitations

- Study was conducted at the peak of summer during warm weather, near the shore and with favorable weather conditions.
- Did not evaluate association of flotations device use with ethnicity, race, familiarity with site or swim ability or comfort in the water.
- Although the study was conducted throughout the state, the findings may be regional due to state's ongoing focus on life jacket use.
- Age and "arm's-length' was a based on the observer's opinion/best guess.
- Study goal to assess life jacket loan programs not possible due to inconsistent access to loaner life jackets.

Study Limitations – Discussion

- Is the use of substandard flotation devices a drowning risk?
  - Problem poorly defined and under-described because of lack of drowning surveillance systems to collect data regarding the use of flotation objects in fatal or nonfatal drownings.
- Do parents and users recognize the difference between a tested, standards-based proven U.S. Coast Guard approved life jacket vs. toys like water wings, foam noodles, air mattresses, etc.?
  - Some flotation devices are marked as “swim aids” and some even look like life jackets making it even more confusing for parents.

Summary

- Flotation device use was relatively high in designated, unguarded swim sites in natural water settings.
- People use a lot of different kinds of flotation devices, most often using life jackets for young children.
- Prevention messages need to clarify the difference between USCG approved flotation devices as providing drowning prevention **AS WELL AS FUN.**

Thank You!

Questions?

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