



WELCOME TO  
THE 2019 FRPA  
CONFERENCE!

## LEARNING OBJECTIVES

- Understand the effectiveness of an intensive drown prevention program children with and without disabilities, ages 3-14.
- Learn if an intensive drown prevention program format shows promise for the retention of swim skills for children.
- List causes of drowning and the layers of protection that can protect a child from drowning.



## A little bit about us...



Lynn has been a CTRS for 19 years. She has had 18 interns during those years and has used the SWIM Central as a valuable teaching program to show outcomes for almost all of the interns. Lynn works in a community setting but has also worked in a clinical setting for Drug and Alcohol rehab as well as eating disorders. SWIM Central saved her career because she saw results in a short amount of time...this method of behavior training works for adults too!

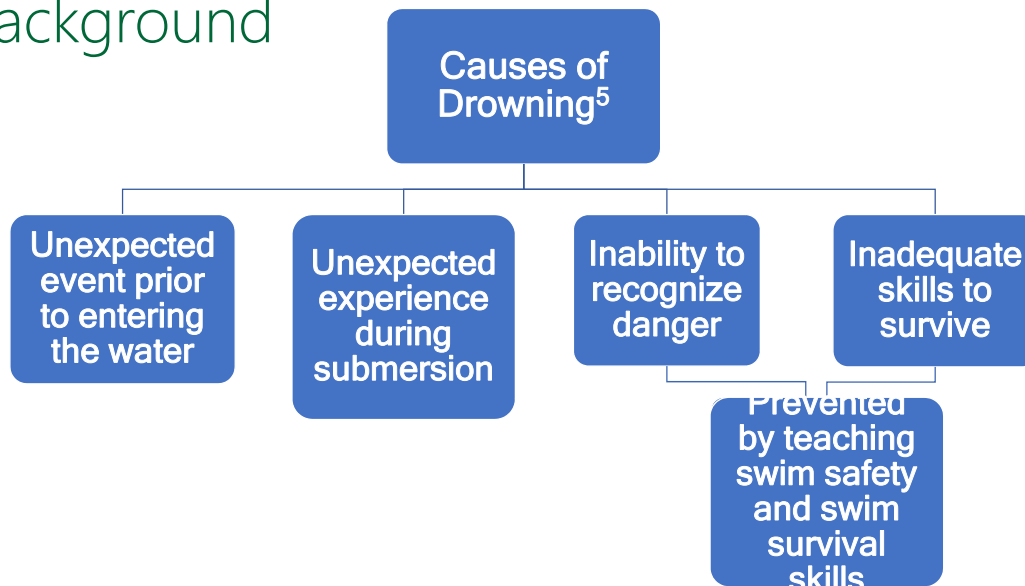
Anna completed her RT internship with SWIM Central in 2016. After graduating from ECU that same year, she pursued an OTD degree from MGH IHP. Through graduate school Anna became a CTRS and continued her love for aquatics by becoming a Swim Angelfish adaptive instructor. As part of her OT doctoral research project, Anna joined the SWIM Central program again in 2019. Today she continues to work as a certified recreational therapist and certified/licensed occupational therapist.

## Background



- Drowning is the leading cause of unintentional injury death for children ages 1-4 and the second leading cause of unintentional injury death for children ages 5-14<sup>1</sup>.
- It is also a leading cause of death for individuals with Autism<sup>3</sup>.

## Background



## Layers of Protection

- SUPERVISION
- DOOR ALARMS
- POOL BARRIERS (FENCES/CAGES)

## Background



- Swimming is leisure activity for children
  - Community learn-to-swim programs are plentiful
  - Bottom-up approach
- Disability may impact learning and skill retention
  - Top-down approach programs are developing
    - \$\$
    - Challenges the validity of typical programs

## SWIM Central- Overview



- Drown prevention program established in Broward County, Florida in 1999
- Intensive 10, 30-minute curriculum based swim safety lessons over 2 week period
- FREE
- Spread both state wide & nationally
  - YMCA Safety Around Water Program
  - **2012- Collier County, Florida**
    - Fall of 2009 2 drownings in Collier County in 3 months
    - 2010 Task force was created to understand why
    - Top down approach
- Over 606,020 participants in Broward County & over 6,371 children in Collier County
  - Only 3 children have been involved in a drowning incident\*

## SWIM Central- Funding



In Collier County the program is funded through the Naples Community Hospital non-profit Safe and Healthy Children's Coalition of Collier County. The drowning prevention is through a grant funded by the Naples Children Education Fund.

## SWIM Central- Instructor Training



- It is recommended that instructors be WSI (Water Safety Instructor) trained
- CTRS with a knowledge of water based activities would be an acceptable instructor.
- Collier County - Once a year evaluation/training to make sure the program is consistent from pool to pool and instructor to instructor.

## SWIM Central- Program Format

SCORE	SKILLS ASSESSMENT CHECKLIST	PRETEST	POSTTEST
P/T/W/R	Skill 1) NEVER SWIM ALONE/CALL FOR HELP/REACH, THROW, DON'T GO!		
P/T/W/R	Skill 2) ENTER WATER BY JUMPING IN		
P/T/W/R	Skill 3) FORWARD PROGRESSIVE ARM STROKE		
P/T/W/R	Skill 4) BACK FLOAT-NO SUPPORT-3 SECONDS		
P/T/W/R	Skill 5) JUMP IN-TURN/KICK/STROKE TO WALL		
P/T/W/R	Skill 6) EXIT WATER USING LADDER/STEPS/SIDE		
P = pass, on his/her own, T = tried independently, W = did with help, R = refused to attempt			





## SWIM Central- Research

### Aim 1:

To determine if children with & without disabilities, ages 3-14, who have previously participated in SWIM Central, are retaining the learned swim & safety skills, per parent report, & if there is a difference in skills of children identified with disabilities versus those who are identified without disabilities.



### Aim 2:

To determine if SWIM Central is effective in increasing swim & safety skills for children with & without disabilities, ages 3-14, & if there is a difference in skills of children identified with disabilities versus those who are identified without a disability.

## Research- Aim 1



- Email survey
  - **Inclusion Criteria:** Children ages 3-14, with & without disabilities who participated in past SWIM Central sessions from July 1- November 30, 2018
  - **Measurement:** Post Participation Parent/Guardian Survey

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
My child knows that they should never swim alone	1	2	3	4	5
My child knows that they should call for help if they are in trouble while swimming	1	2	3	4	5
My child can enter the pool independently	1	2	3	4	5
My child can exit the pool independently	1	2	3	4	5
My child can put their head under water and regain surface independently	1	2	3	4	5
My child uses their arms to stroke in the water	1	2	3	4	5
My child has relaxed breathing when they swim	1	2	3	4	5
My child can change direction in the pool	1	2	3	4	5
My child can roll to/from their back in the water	1	2	3	4	5
My child can float on their back for more than 3 seconds	1	2	3	4	5

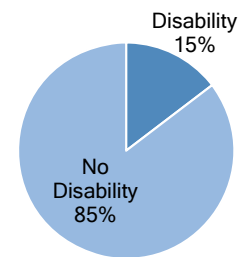
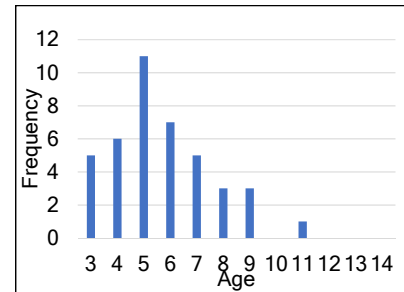




## Aim 1- Results



- 41 Participants
- Mean age of 5.7 years
- 6 children with a disability
- 35 children without a disability



## Parent Perception of Swim Skill Retention

Skill	Child with Disability			Child without Disability			p
	N	M	SD	N*	M	SD	
My child knows they should never swim alone	6	2.17	0.98	34	1.65	0.95	0.110
My child knows they should call for help if they are in trouble while swimming	6	2.50	0.84	35	1.46	0.82	0.012
My child can enter the pool independently	6	2.17	1.47	35	2.14	1.22	0.788
My child can exit the pool independently	6	1.50	0.55	34	1.75	1.15	0.619
My child can put their head underwater and regain surface independently	6	2.67	1.37	34	2.09	1.14	0.176
My child uses their arms to stroke in the water	6	1.67	0.52	34	2.65	1.19	0.733
My child has relaxed breathing when they swim	6	2.50	0.84	34	2.24	1.16	0.201
My child can change direction in the pool	6	2.17	0.98	34	2.09	1.08	0.327
My child can roll to/from their back in the water	6	3.00	1.55	33	2.39	1.07	0.334
My child can float on their back for more than 3 seconds	6	3.17	1.47	34	2.32	1.07	0.130
<b>Overall</b>	6	2.35	1.06	34	2.04	1.09	0.265

Note: \*Change in N value due to unanswered skill questions from survey respondents. Score Interpretation- 1= Strongly Agree, 2= Agree, 3= Undecided, 4= Disagree, 5=Strongly Disagree

## Aim 1- Discussion



- 15% of children with disabilities represented in survey is representative of number of students enrolled in public school special education in the US<sup>4</sup>.
- Children who have previously participated in SWIM Central, on average, are able to demonstrate learned swim & safety skills per parent report. This was not correlated to previous swim skill assessments & does not determine swim skill adequacy.
- Correlation of having a disability with “child knows to call for help” corroborates with other data highlighting children with disabilities in the

## Research- Aim 2

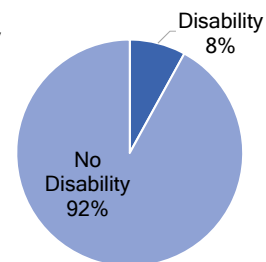
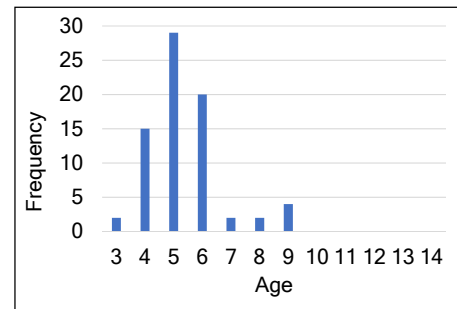


- Convenience sample
  - **Inclusion Criteria:** Children ages 3-14, without & without disabilities, enrolled in SWIM Central sessions between January 1- March 30, 2019
  - **Measurement:** SWIM Central Overall Skills Assessment

SCORE	SKILLS ASSESSMENT CHECKLIST	PRETEST	POSTTEST
P/T/W/R	Skill 1) NEVER SWIM ALONE/CALL FOR HELP/REACH, THROW, DON'T GO!		
P/T/W/R	Skill 2) ENTER WATER BY JUMPING IN		
P/T/W/R	Skill 3) FORWARD PROGRESSIVE ARM STROKE		
P/T/W/R	Skill 4) BACK FLOAT-NO SUPPORT-3 SECONDS		
P/T/W/R	Skill 5) JUMP IN-TURN/KICK/STROKE TO WALL		
P/T/W/R	Skill 6) EXIT WATER USING LADDER/STEPS/SIDE		
P = pass, on his/her own, T = tried independently, W = did with help, R = refused to attempt			

## Aim 2- Results

- 76 Participants
- Mean age of 5.4 years
- 6 children with a disability
- 70 children without a disability



## Swim Skill Assessment Child with Disability

Skill	Pretest Scores			Posttest Scores			<i>p</i>
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	
1) Never Swim Alone/Call for Help/Reach, Throw, Don't Go!	6	3.17	0.98	6	2.17	1.33	1.000
2) Enter the Water by Jumping In	6	2.17	1.33	6	1.50	0.84	0.180
3) Forward Progressive Arm Stroke	6	2.17	0.98	6	1.33	0.52	0.059
4) Back Float- No Support- 3 Seconds	6	2.67	0.52	6	1.33	0.52	0.023
5) Jump in/Turn/Kick/Stroke to Wall	6	2.67	1.03	6	1.83	0.98	0.102
6) Exit Water Using Ladder/Steps/Side	6	1.00	0.00	6	1.00	0.00	0.014
<b>Overall</b>	6	2.31	1.09	6	1.69	0.98	<0.001

Note: Score Interpretation- 1=pass, 2= tried independently, 3=did with help, 4=refused to attempt

## Swim Skill Assessment Child without Disability

Skill	Pretest Scores			Posttest Scores			<i>p</i>
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	
1) Never Swim Alone/Call for Help/Reach, Throw, Don't Go!	70	2.80	0.55	70	1.17	0.42	<0.001
2) Enter the Water by Jumping In	70	2.34	1.10	70	1.03	0.24	<0.001
3) Forward Progressive Arm Stroke	70	2.59	0.81	70	1.30	0.62	<0.001
4) Back Float- No Support- 3 Seconds	70	2.94	0.61	70	1.56	0.71	<0.001
5) Jump in/Turn/Kick/Stroke to Wall	70	2.80	0.73	70	1.47	0.74	<0.001
6) Exit Water Using Ladder/Steps/Side	70	1.60	0.95	70	1.00	0.00	<0.001
<b>Overall</b>	70	2.51	0.93	70	1.25	0.56	<0.001

Note: Score Interpretation- 1=pass, 2= tried independently, 3=did with help, 4=refused to attempt

## Change in Swim Skill Assessment Scores

Skill	Child with Disability			Child without Disability			<i>p</i>
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	
1) Never Swim Alone/Call for Help/Reach, Throw, Don't Go!	6	0.00	0.00	70	-1.63	1.11	<0.001
2) Enter the Water by Jumping In	6	-0.67	1.21	70	-1.31	1.11	0.187
3) Forward Progressive Arm Stroke	6	-0.83	0.75	70	-1.29	0.98	0.204
4) Back Float- No Support- 3 Seconds	6	-1.33	0.52	70	-1.39	0.80	0.787
5) Jump in/Turn/Kick/Stroke to Wall	6	-0.83	1.17	70	-1.33	0.90	0.169
6) Exit Water Using Ladder/Steps/Side	6	0.00	0.00	70	-0.60	0.95	0.111
<b>Overall</b>	6	-0.61	0.44	70	-1.66	0.66	<b>0.013</b>

## Aim 2- Discussion



- There is a relationship between having a disability & knowing to “Never Swim Alone/Call for Help/Reach, Throw Don't Go!” Once again, this corroborates with other data highlighting children with disabilities in the literature.
- Study lacked power to detect small differences due to a small sample size for children with disabilities.

## Research Conclusions



- These findings suggest that, per parent report, children ages 3-14 with & without disabilities who have previously participated in SWIM Central are retaining learned swim & safety skills, & there is not an overall difference in skill ability in the presence of a disability.
- The overall significant increase in swim skills for all participants indicates that SWIM Central is effective in increasing swimming ability for children of all abilities in regard to the 6 swim skills taught during the program.

## OT/TR Tips & Tricks



## OT/TR Case Study



## References



- <sup>1</sup>Centers for Disease Control and Prevention. (2017). Unintentional drowning: Get the facts. Retrieved from <https://www.cdc.gov/homeandrecreationalafety/water-safety/waterinjuries-factsheet.html>
- <sup>2</sup>Gelinas, J. E., & Reid, G. (2000). The developmental validity of traditional learn-to-swim progressions for children with physical disabilities. *Adapted Physical Activity Quarterly*, 17(3), 269-285.
- <sup>3</sup>National Autism Association. (2017). Autism and safety facts. Retrieved from <http://nationalautismassociation.org/resources/autism-safety-facts/>
- <sup>4</sup>National Center for Education Statistics (2018). Children and youth with disabilities. Retrieved from [https://nces.ed.gov/programs/coe/indicator\\_cgg.asp](https://nces.ed.gov/programs/coe/indicator_cgg.asp).
- <sup>5</sup>Stallman, R.K., Junge, M., & Blixt, T. (2008). The teaching of swimming based on a model derived from the causes of drowning. *International Journal of Aquatic Research and Education*, 372-382.



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