The Story of 2 Children: Rescue and CPR for Drowning Victims

AAP Webinar #2

Presented by Mary Jo Quintero, RN
Disclosure

Neither I nor any member of my immediate family has a financial relationship or interest (currently or within the past 12 months) with any proprietary entity producing health care goods or services consumed by, or used on, patients related to the content of this CME activity.

I do not intend to discuss an unapproved/investigative use of a commercial product/device.
Our job today ....

- Review why Cardiopulmonary Resuscitation (CPR) is important as an integral part of drowning prevention strategy.

- Discuss how COVID challenges for bystander and health care professional CPR have been addressed.

- Look at resources available for bystander CPR as a part of injury prevention strategy.
Everyone has a reason why....

BARRETT SMADES FORREST

Barrett Smades Forrest, age 31, was born in Fresno, CA, and had suffered a tragic swimming pool accident at the age of two. He would have celebrated his thirty second birthday on November 1, 2016. He lived at Jan and Gail’s Care Home in Tulare, CA, for the last 19 years where he passed away peacefully. He was preceded in death by his father, Theodore Forrest Jr.; and grandfathers, Harold Smades, and Robert Klein Sr. He is survived by his parents, Debbie and Cliff Henes; sisters, Julie, Brooke and Tiffany Henes; brothers, Chad, Brian, and Steven Forrest; grandmother, Helen Smades; aunts, Kathi Hintz, Patti Hutchins (Wade), and Cindy Smades. The family would like to thank Jan and Gail’s Care Home. We are forever grateful to their loving staff. A Funeral Mass will be held at St. Anthony of Padua Catholic Church, 5680 N. Maroa Ave., Fresno, CA, on Friday, November 4, 2016, at 11:00 a.m. In lieu of flowers, donations may be made to the Barrett Smades Forrest Drowning Prevention Fund, c/o Valley Children’s Hospital Foundation, 9300 Children’s Place, Madera, CA 93636.

To Plant Memorial Trees in memory, please visit our Sympathy Store.

Published in Fresno Bee from Nov. 2 to Nov. 3, 2016.

Not my patient...
• Why did one survive and the other did not?
• How could Barrett’s outcome been like Mandy’s?
We have no better ICU / ALS resuscitation – we are just doing less today....
• If we can’t fix the hypoxic injured brain in the PICU with all of our many therapeutic modalities, how could Barrett’s outcome been like Mandy’s?

• 3 things......
  ○ Prevention (never happened)
• Last 2 things that could have changed Barrett’s outcome……

• Shorter downtime

Shorter submersion times are associated with better outcomes after pediatric nonfatal drowning. There is no clear association between patient age, water type, water temperature, emergency medical services response times or witnessed status and neurological outcome following nonfatal drowning. No single factor accurately predicts prognosis after nonfatal drowning.
CONCLUSIONS AND RELEVANCE  Bystander CPR is associated with improved outcomes in pediatric OHCAs. Improving the provision of BCPR in minority communities and increasing the use of conventional BCPR may improve outcomes for children with OHCA.
Clinical paper

Bystander CPR is associated with improved neurologically favourable survival in cardiac arrest following drowning

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A Change From A-B-C to C-A-B

CPR is as easy as C-A-B

Compressions: Push hard and fast on the center of the victim's chest
Airway: Tilt the victim's head back and lift the chin to open the airway
Breathing: Give mouth-to-mouth rescue breaths

2020 GUIDELINES
NEWS FROM THE AMERICAN HEART ASSOCIATION
SAVE A LIFE IN TWO STEPS WITH HANDS-ONLY CPR

Heart attacks can happen anywhere and be deadly without immediate action. Don’t be afraid to help!

After calling 911, perform hands-only CPR on the person in distress: Push hard and fast in the center of the chest to the beat of the classic disco hit “Stayin’ Alive” until help arrives.

Bystander-initiated conventional vs compression-only cardiopulmonary resuscitation and outcomes after out-of-hospital cardiac arrest due to drowning

Tatsuma Fukuda • Naoko Ohashi-Fukuda • Kei Hayashida • Yutaka Kondo • Ichiro Kukita

Published: October 19, 2019 • DOI: https://doi.org/10.1016/j.resuscitation.2019.08.026

Methods

This nationwide population-based observational study using prospectively collected government-led registry data included patients with OHCA due to drowning who were transported to an emergency hospital in Japan between 2013 and 2016. The primary outcome was one-month neurologically favorable survival.

Results

The full cohort (n = 5121) comprised 2486 (48.5%) male patients, and the mean age was 72.4 years (standard deviation, 21.6). Of these, 968 (18.9%) received conventional CPR, and 4153 (81.1%) received compression-only CPR. 928 patients receiving conventional CPR were propensity-matched with 928 patients receiving compression-only CPR. In the propensity score-matched cohort, one-month neurologically favorable survival was not significantly different between the two groups (7.5% in the conventional CPR group vs. 6.6% in the compression-only CPR group; risk ratio, 1.15; 95% confidence interval, 0.82–1.60; P = 0.4147). This association was consistent across a variety of subgroup analyses.

Conclusions

Among patients with OHCA due to drowning, there were no differences in one-month neurologically favorable survival between bystander-initiated conventional and compression-only CPR groups, although several important data (e.g., water temperature, submersion duration, or body of water) could not be addressed. Further study is warranted to confirm our findings.
COVID-19 and Child and Infant CPR

If a child or an infant’s heart stops and you’re worried that they may have COVID-19, you can still help.

Step 1
Make sure the scene is safe.

Check to see if the child or infant is awake and breathing normally.

Step 2
Shout for help.

If you’re alone, phone 9-1-1 from a cell phone, perform CPR with 30 compressions and then 2 breaths (if you’re willing and able) for 5 cycles, and get an AED.

If help is available, phone 9-1-1. Send someone to get an AED while you start CPR.

Step 3
Provide CPR with compressions and breaths (if you’re willing and able).

- Start child CPR
  - Push on the middle of the chest 30 times at a depth of 2 inches with 1 or 2 hands.
  - Provide 30 compressions and then 2 breaths. Repeat cycles.

- Start infant CPR
  - Push on the middle of the chest 30 times at a depth of 1½ inches with 2 fingers.
  - Provide 30 compressions and then 2 breaths. Repeat cycles.

Use the AED as soon as it arrives. Continue CPR until EMS arrives.

COVID-19 and Adult CPR

If an adult’s heart stops and you’re worried that they may have COVID-19, you can still help by performing Hands-Only CPR.

Step 1
Phone 9-1-1 and get an AED.

Step 2
Cover your own mouth and nose with a face mask or cloth.

Step 3
Cover the person’s mouth and nose with a face mask or cloth.

Step 4
Perform Hands-Only CPR. Push hard and fast on the center of the chest at a rate of 100 to 120 compressions per minute.

Use an AED as soon as it is available.
mCPR (with LUCAS device)
ACTION NEWS UPDATE

GIRL PULLED FROM KINGS RIVER DIES DAYS AFTER RESCUE
8-year-old girl rescued from Fresno County river is on life support, has tested positive for COVID-19
Prompt initiation of bystander CPR, with a focus on airway and rescue breathing before compressions and activation of prehospital advanced cardiac life support for the pediatric submersion victim, have the greatest impact on survival and prognosis. Current guidelines recommend that drowning victims who require any form of resuscitation (including only rescue breaths) be transported to the emergency department for evaluation and monitoring, even if they appear alert with effective cardiopulmonary function at the scene.

### TABLE 1 Top Tips for Pediatricians

Assess all children for drowning risk on the basis of risk and age and prioritize evidence-based strategies:

- barriers;
- supervision;
- swim lessons;
- life jackets; and
- CPR.

### FIGURE 1
Safer Response overviews emergency response techniques and emergency action plans as a path to water safety.

Learning cardiopulmonary resuscitation (CPR) and first aid, as well as having a phone by the pool at all times, are just a few of the water safety tips covered here.
Sink or Swim—Clinicians Don’t Often Counsel on Drowning Prevention

Shari Barkin, MD, MSHS*, and Lillian Gelberg, MD, MSPH‡

Abstract. **Objective.** Drowning is one of the leading causes of injury death for young children in the United States. This study examined primary care providers’ knowledge of and counseling on drowning prevention.

**Methods.** A random sample of 465 Los Angeles County pediatricians, family physicians, and pediatric nurse practitioners who serve families with young children received mailed questionnaires; 325 (70%) responded.

**Results.** About two thirds of clinicians did not know that injury deaths attributable to drowning were more common than those attributable to toxic ingestions and firearm injuries in young children. Only one third of clinicians stated they counseled on drowning prevention. Counseling drowning prevention was positively associated with female gender (odds ratio: 1.97; 95% confidence interval: 1.64, 2.30) and negatively associated with an attitude that drowning prevention counseling was less important than other injury prevention topics (odds ratio: .73; 95% confidence interval: .61, .85). Clinician specialty, age, years out from training, proportion of well-child examinations in a typical week, having children, practice setting, and knowledge of drowning injury deaths were not significant in multivariate analysis.

**Conclusion.** The belief of clinicians that it is less important to counsel on drowning prevention than other injury prevention topics poses a substantial challenge to their providing such education to families with young children. *Pediatrics* 1999;104:1217–1219; drowning, counseling, physician’s role.
A Pilot Study on Water Safety Education of Providers and Caregivers in Outpatient Pediatric Clinical Settings to Increase Drowning Prevention Knowledge

Tracy McCallin, MD¹,², Mickinzie Morgan, MD³, Elizabeth A. Camp, PhD², and Shabana Yusuf, MD, MEd²

Figure 3. Intervention process.

Overall, pediatricians demonstrated increased water safety counseling with their patients after a brief, targeted educational intervention. Both provider and caregiver knowledge of drowning prevention and water safety increased at the end of the pilot phase.
Redcross CPR training in your neighborhood

[Link to Redcross CPR training website]

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<th>Location</th>
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<th>Time</th>
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[Link to Redcross CPR training search page]

https://www.redcross.org/take-a-class/search?cgid=cpr&zip=fresno%2C+ca&latitude=36.7377981&longitude=-119.7871247&zipcode=&searchtype=class
Policy Statement: CPR training in the school

The American Academy of Pediatrics recommends that students receive training in cardiopulmonary resuscitation (CPR) at some time during grades 8 through 12.

In the last 20 years, there has been a dramatic decrease in the number of deaths from cardiovascular disease. This reduction in mortality has been occasioned by multiple factors, not the least of which is the early detection of, and prompt intervention in, a vaso-occlusive event. Immediate cardiopulmonary resuscitation is lifesaving for 30 percent to 45 percent of victims of cardiac arrest. However, despite all this positive movement, each year approximately 700,000 Americans die of cardiovascular disorders.

In addition, as part of our attempt to reduce this problem further, the medical profession has introduced cardiovascular risk reduction programs to an ever-younger population and promoted "healthy life-styles" among our youth. The next step is to train these same young people in CPR intervention techniques. Such programs are already in place in several states, and there has been at least one demonstrable record of success.

With evidence of the ability of the schools to implement these programs and with an indication of their effectiveness, the AAP recommends that local school districts undertake the implementation of CPR training programs for students between grades 8 and 12. We further recommend that:

1. All instructors be certified as CPR instructors by either the American Red Cross or the American Heart Association.
2. All students completing the course be certified as having been trained in CPR.
3. All students complete an annual update of the CPR training.
4. All students completing the course be able to: a) describe ways of preventing cardiovascular disease; b) identify the early signs of heart attack and the need for emergency intervention; c) open an obstructed airway on both a conscious and an unconscious victim; and d) perform one-person and two-person CPR correctly.

Pediatricians should make known their support of this endeavor by their willingness to serve as organizers and instructors in their community.

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References
WATER SAFETY