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**New guidelines in place for CPR use following drowning**

*American Heart Association issues joint update with American Academy of Pediatrics*

# MILWAUKEE, Wisconsin, Oct. 23, 2024 — Updated guidance reaffirms the recommendation for  [cardiopulmonary resuscitation](https://cpr.heart.org/en/resources/what-is-cpr) (CPR) and highlights the importance of compressions with rescue breaths as a first step in responding to [cardiac arrest](https://www.heart.org/en/health-topics/cardiac-arrest) following drowning, according to a new, focused update to Special Circumstances Guidelines from the American Heart Association and the American Academy of Pediatrics.

# The organizations have previously partnered on neonatal guidelines, however, this is the first collaboration on resuscitation after drowning. The recommendations were published Tuesday simultaneously in the flagship, peer-reviewed journals of each organization, Circulation and Pediatrics. The publication in Pediatrics focuses on resuscitation of children following drowning and references pediatric literature, while the publication in Circulation is for resuscitation of both adults and children and includes literature addressing both populations.

Drowning is the third-leading cause of death from unintentional injury worldwide. The World Health Organization estimates there are about 236,000 deaths due to drowning each year globally. According to the CDC, it’s the number one cause of death for children ages 1-4 years old in the U.S.

Disparities in access to swim lessons and other preventive strategies have created inequities; among children ages 17 and younger, U.S. drowning rates are highest among Black and American Indian and Alaska Native individuals.

“The focused update on drowning contains the most up-to-date, evidence-based recommendations on how to resuscitate someone who has drowned, offering practical guidance for health care professionals, trained rescuers, caregivers and families,” said writing group Co-Chair Tracy E. McCallin, M.D., FAAP, associate professor of pediatrics in the division of pediatric emergency medicine at Rainbow Babies and Children’s Hospital in Cleveland. “While we work on a daily basis to lower risks of drowning through education and community outreach on drowning prevention, we still need emergency preparedness training that can be used in tragic circumstances if a drowning occurs.”

Detailed in the new guideline update:

* Anyone removed from the water without showing signs of normal breathing or consciousness should be presumed to be in cardiac arrest.
* Rescuers should immediately initiate CPR that includes rescue breathing in addition to chest compressions. Multiple large studies over time show more people with cardiac arrest from non-cardiac causes such as drowning survive when CPR includes rescue breaths compared to Hands-Only CPR (calling 911 and pushing hard and fast in the center of the chest).

Drowning generally progresses quickly from initial respiratory arrest (when a person is unable to breathe) to cardiac arrest, meaning that the heart stops beating. As a result, blood cannot circulate properly throughout the body, and it is starved of oxygen.

“CPR for cardiac arrest due to drowning must focus on restoring breathing as well as restoring blood circulation,” said writing group Co-Chair Cameron Dezfulian, M.D., FAHA, FAAP, senior faculty in pediatrics and critical care at Baylor College of Medicine in Houston.

“Cardiac arrest following drowning is most often due to severe hypoxia, or low blood oxygen levels,“ Dezfulian said. ”This differs from sudden cardiac arrest from a cardiac cause where the individual generally collapses with fully oxygenated blood.”

The updated guidance advises untrained rescuers and the public to:

* Provide CPR with breaths and compressions to all people who have a cardiac arrest after drowning. If a person is untrained, unwilling, or unable to give breaths, they can provide chest compressions only until help arrives.
* In-water rescue breathing should be given only by rescuers trained in this special skill if it doesn’t compromise their own safety. Trained rescuers should also provide supplemental oxygen if available.
* The initiation of CPR should always be prioritized and begin as soon as possible as early lay responder CPR has been shown to improve outcomes from drowning.
* The writing group recommends an [automated external defibrillator](https://cpr.heart.org/en/training-programs/aed-implementation) (AED) should be placed in public facilities where aquatic activities are present such as swimming pools or beaches. They can be used once the person is removed from the water, if available, yet should not delay initiation of CPR. If available, the AED should be connected to the patient to assess for shockable rhythms once CPR is ongoing. Although most cases of cardiac arrest following drowning do not have shockable rhythms, if a primary cardiac event such as a heart attack occurs while in the water, the best outcomes are when defibrillation is done quickly. AED use is safe and feasible in aquatic environments.
* All individuals requiring any level of resuscitation following drowning, including those who only need rescue breaths, should be transported to a hospital for evaluation, monitoring and treatment.

In addition to the recommendations on drowning resuscitation, the guideline update also highlights the Drowning Chain of Survival, which includes the steps needed to improve chances of survival: **prevention**, **recognition** and **safe rescue**.

**Prevention**

It has been estimated that more than 90% of all drownings are preventable. Research has found most infants drown in bathtubs, and the majority of preschool-aged children drown in swimming pools. The American Heart Association and the American Academy of Pediatrics recommend being water aware and practicing water safety. A full review of prevention is outside the scope of this guideline, however, the topic is addressed in the American Academy of Pediatrics 2021 technical report, [Prevention of Drowning](https://publications.aap.org/pediatrics/article/148/2/e2021052227/179784/Prevention-of-Drowning?autologincheck=redirected), and in guidelines from the World Health Organization and the Wilderness Medical Society.

**Recognition**

Recognition of drowning may be challenging because someone who is drowning may not be able to verbalize distress or signal for help. Drowning happens quickly. People in distress will rapidly submerge, lose consciousness and may be hidden from anyone not actively seeking them.

**Safe Rescue and Removal**

The guideline update recommends that appropriately trained rescuers, such as lifeguards, swim instructors or first responders, should provide in-water rescue breathing to an unresponsive person who has drowned if it does not compromise their own safety. Previous studies have proven this leads to more favorable survival outcomes. A drowning person who is unconscious and likely in cardiac arrest should be removed from the water in a near-horizontal position, with the head maintained above body level and airway open. If the drowning individual is conscious, a more vertical position may be preferable to reduce the risk of vomiting.

In summary, “These updated guidelines are based on the latest available evidence and are designed to inform trained rescuers and the public how to proceed in resuscitating people who have drowned. Drowning can be fatal. Our recommendations maximize balancing the need for rapid rescue and resuscitation, while prioritizing rescuer safety,” Dezfulian said.

The American Heart Association urges all individuals to enroll in CPR training programs available through its online platform or local community centers. [CPR education and training](https://cpr.heart.org/en/) is offered for health care professionals, first responders, individuals, schools and communities. Provision of good rescue breathing requires hands on practice using a manikin or other simulation training.

This joint focused update was prepared by the volunteer writing group on behalf of the American Heart Association and the American Academy of Pediatrics. These updates to current clinical guidelines were developed with input from experts in drowning, pediatrics, adult and pediatric critical care, anesthesiology, emergency medicine, EMS and related fields. It is based on seven systematic reviews completed by the International Liaison Committee on Resuscitation Basic Life Support Task Force, used to generate updated treatment recommendations and good practice statements. This guideline update supersedes the American Heart Association’s prior recommendations for drowning issued in 2020 and serves as a complement to the American Academy of Pediatrics 2021 Prevention of Drowning technical report and the related 2019 Prevention of Drowning policy statement. All other recommendations and algorithms published in the [2020 American Heart Association Guidelines for CPR and Emergency Cardiovascular Care](https://www.ahajournals.org/toc/circ/142/16_suppl_2?utm_campaign=sciencenews20-21&utm_source=science-news&utm_medium=phd-link&utm_content=phd10-21-20) remain the official clinical recommendations for resuscitation outside the special circumstance of drowning.

**Additional Resources:**

* Available multimedia is on right column of [release link](https://newsroom.heart.org/news/updated-guidance-reaffirms-cpr-with-breaths-essential-for-cardiac-arrest-following-drowning?preview=fa93c335e31a2263bd918ca948ff51b6).
* View the [manuscript online](https://www.ahajournals.org/doi/10.1161/CIR.0000000000001274).
* AHA news release: [Impact Update: CPR willingness grows in the U.S., need to act remains](https://newsroom.heart.org/news/impact-update-cpr-willingness-grows-in-the-u-s-need-to-act-remains) (June 2024)
* [Summer safety starts with CPR](https://newsroom.heart.org/news/summer-safety-starts-with-cpr)
* [Swim Lessons: When to Start and What Parents Should Know](https://www.healthychildren.org/English/safety-prevention/at-play/Pages/Swim-Lessons.aspx)
* [Join the Nation of Lifesavers](https://www.heart.org/en/nation-of-lifesavers)
* [Find a CPR course](https://cpr.heart.org/en/training-programs/aed-implementation)
* [AED Implementation](https://cpr.heart.org/en/training-programs/aed-implementation)
* [Today You Were Ready CPR PSA](https://www.youtube.com/watch?v=hMtcktHCGuk)
* [AAP Prevention of Drowning Technical Report](https://publications.aap.org/pediatrics/article/148/2/e2021052227/179784/Prevention-of-Drowning?autologincheck=redirected)
* [AAP Drowning Prevention Campaign Toolkit](https://www.aap.org/en/news-room/campaigns-and-toolkits/drowning-prevention/?srsltid=AfmBOooMy46bSq7hBBC7YJHIFWI4TSUti6v9A5eInkkzL8MBmaoB8okk)
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