Health & Safety Institute™

PEDIATRIC FIRST AID | CPR AED

student book
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Pediatric First Aid | CPR AED

Student Book, Version 9.0

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Pediatric First Aid | CPR AED Student Book

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About this Student Book

HSI is in the process of transitioning all our individual health and safety training brands into a single unified one – HSI. This Student Book consolidates the American Safety and Health Institute (ASHI), EMS Safety Services, and MEDIC First Aid CPR, AED and First Aid training programs into a single, completely revised Pediatric First Aid | CPR AED training program that incorporates the most current guidelines and treatment recommendations. To address the risk of confusion in the market and among state regulators and others during our brand transition, HSI's CPR, AED, and First Aid certification cards will continue to carry the ASHI, EMS Safety, and MEDIC First Aid logos for a prolonged period of time until they are slowly phased out.

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HSI has used reasonable effort to provide up-to-date, accurate information that conforms to generally accepted treatment recommendations at the time of publication. These recommendations supersede recommendations made in previous HSI programs. Science and technology are constantly creating new knowledge and practice. Like any published material, this material may become out of date over time. Guidelines for safety and treatment recommendations cannot be given that will apply in all cases/scenarios as the circumstances of each incident often vary widely. Local or organizational physician-directed medical protocols may supersede treatment recommendations in this program. Alert emergency medical services (EMS) or activate your occupational emergency action plan immediately if you are not sure an emergency exists or when any person is unresponsive, badly hurt, looks or acts very ill, or quickly gets worse.

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NOTICE: *This HSI Training Program has been approved by the HSI Medical Board and reviewed by the HSI Advisory Council. It reflects the latest first aid and resuscitation science and treatment recommendations of the 2020 International Consensus on Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC) Science with Treatment Recommendations (CoSTR) and the 2020 International Consensus on First Aid Science with Treatment Recommendations published by the International Liaison Committee on Resuscitation (ILCOR). It conforms with the 2020 American Heart Association®, Inc. (AHA) Guidelines Update for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC), the 2020 AHA and American Red Cross (ARC) Focused Update for First Aid, and annual Guidelines Update. This HSI Training Program incorporates AHA recommendations regarding resuscitation education science (Cheng 2018) and reflects established models, theories, and principles of instructional design and training development that have been integrated into HSI training program brands for more than 40 years. HSI is a nationally accredited organization of the Commission on Accreditation of Pre-Hospital Continuing Education (CAPCE) and nationally approved by the Academy of General Dentistry (AGD) Program Approval for Continuing Education (PACE) as a continuing dental education (CDE) provider.*

This training program is dedicated to every pediatric first aid and/or CPR AED provider who voluntarily chooses to aid a child in need. Such an unselfish choice is an inspiring act of human kindness.

For that, we appreciate and admire you.

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USING THIS STUDENT BOOK

This Pediatric First Aid | CPR AED Student Book contains the information you'll need to understand to provide lifesaving first aid and cardiopulmonary resuscitation (CPR) in an emergency. You will practice many of these important skills during your class with the assistance and supervision of an authorized HSI Instructor. If you demonstrate achievement of the required knowledge and hands-on skills for the class type that you participate in, your instructor will issue an authentic HSI certification card valid for two years. This Student Book covers five different class types and certifications. They are:

1. PEDIATRIC FIRST AID
2. CHILD & INFANT CPR AED
3. CHILD, INFANT, & ADULT CPR AED
4. PEDIATRIC FIRST AID | CHILD & INFANT CPR AED
5. PEDIATRIC FIRST AID | CHILD, INFANT, & ADULT CPR AED

You may see information covered in this Student Book that was not a part of your training, depending on your class type and certification. HSI provides this informational Student Book for all participants to encourage knowledge and skill retention related to training and to provide some additional information for those who are interested. To learn more, consider additional training with HSI in first aid and CPR AED skills.

section one

INTRODUCTORY

INTRODUCTION

Medical emergencies involving children can happen anywhere, at any time. There are approximately 30 million emergency department visits involving children in the U.S. annually.[1] Unintentional injuries are the number one killer of children and teens and are a major cause of disabilities.[2]

The leading causes of unintentional child injury include motor vehicle crashes, suffocation, drowning, poisoning, fires, and falls. These facts make it obvious how critically important it is to learn to provide effective CPR and first aid for children.

Child injury is preventable. Safe practices, equipment, and proper supervision by parents, guardians, and childcare providers can prevent many child injuries from occurring. However, once an injury or sudden illness has occurred, effective pediatric first aid and CPR can save lives, prevent permanent disability, and improve recovery. Trained pediatric first aid providers have a vital role in delivering this care during the first minutes of a medical emergency, before emergency medical services, or EMS, providers arrive and take over.

Intended Audience

This course is intended for individuals who desire, or are occupationally required, to be trained in pediatric first aid and/or conventional pediatric cardiopulmonary resuscitation and automated external defibrillation. All professional childcare providers and teachers in early care and education programs should be trained in both pediatric first aid and pediatric CPR.

Class Goal

The purpose of this training program is for participants to gain or improve knowledge and skill proficiency in pediatric first aid and conventional CPR and AED.

1 Emergency Department Utilization by Children in the USA, 2010–2011. Tadahiro Goto, Kohei Hasegawa, Mohammad Kamal Faridi, Ashley F. Sullivan, Carlos A. Camargo, Jr. West J Emerg Med. 2017 Oct; 18(6): 1042–1046 [Retrieved 6/23/2021]

2 www.cdc.gov/safechild/nap/index.html [Retrieved 6/23/2021]



Definitions

Pediatric First Aid. The initial care provided for an acute illness or injury in children and infants. The goals of pediatric first aid include prevention, preserving life, alleviating suffering, preventing further illness or injury, and promoting recovery. Pediatric first aid can be initiated by anyone in any situation, including self-care.

Pediatric First Aid and/or Pediatric CPR Provider. Someone formally trained in pediatric first aid and/or pediatric CPR who can recognize, assess, and prioritize the need for pediatric first aid and CPR; provide care by using appropriate skill competencies; recognize limitations; and seek additional care when needed. First aid for children in the early care and education setting requires a more child-specific approach than standard adult-oriented first aid offers.

Designated Pediatric First Aid and/or Pediatric CPR Provider. An employee formally trained in pediatric first aid and/or pediatric CPR and identified, expected, or directed by the employer as responsible for rendering medical assistance as part of their job duties.

Automated External Defibrillator (AED). A portable, life-saving device designed to treat people experiencing sudden cardiac arrest, a medical condition in which the heart stops beating suddenly and unexpectedly. The combination of CPR and early defibrillation with an AED is effective in saving lives when used in the first few minutes following collapse from sudden cardiac arrest.

Conventional Cardiopulmonary Resuscitation (CPR). An emergency procedure that combines chest compressions with artificial ventilation to circulate oxygenated blood to the brain and heart, increasing the possibility of successful resuscitation. Artificial ventilation is also known as rescue breaths, which are provided by blowing exhaled air through a CPR mask. Conventional CPR using chest compressions with rescue breaths should be provided to infants and children in cardiac arrest.

Compression-Only CPR. Compression-only CPR is a simplified form of adult CPR for the untrained bystander. It is chest compressions without artificial ventilation. Compression-only CPR isn't recommended for children. Rescue breaths are extremely important for children because cardiac arrest typically occurs after an interruption of breathing or from inadequate oxygen in the body (asphyxia).

Age Definitions for Pediatric CPR. For pediatric CPR, an infant is defined as younger than 1 year of age, excluding newly born infants. A child is defined as 1 year of age until the onset of puberty. Puberty can be identified by breast development in females and the presence of armpit hair in males. For those with signs of puberty, provide adult CPR.

UNIVERSAL CONCEPTS

Universal concepts cover broad, principal themes that underlie and influence both first aid and CPR AED instruction as well as actual care. These universal concepts are explained on the following pages.

Procedure for Pediatric First Aid | CPR AED

A procedure is "a particular way of accomplishing something or of acting."[3] The *Procedure for Pediatric First Aid, CPR AED* is a step-by-step diagram with instructions that provide guidance for assessing, prioritizing, and performing pediatric first aid and CPR. The *Procedure for Pediatric First Aid, CPR AED* is modeled after "decision tree" type medical algorithms and is based on scientific evidence, national guidelines, and the consensus of experts. For more on the *Procedure for Pediatric First Aid, CPR AED*, see Assessment.

Infection Control

The global pandemic of the coronavirus disease 2019 (COVID-19) has resulted in widespread infection and death worldwide. While the introduction of FDA-approved vaccines in the United States and other countries is an encouraging step to ending this global ordeal, infection control practices cannot be overemphasized for all workplace pediatric first aid and/or CPR AED providers.

The federal Occupational Safety & Health Administration (OSHA) defines universal precautions as "an approach to infection control which treats all human blood and other potentially infectious materials as if they were known to be infectious for the human immunodeficiency virus (HIV), hepatitis B virus (HBV), or other bloodborne pathogens." There are other concepts in infection control that are acceptable alternatives to universal precautions, such as standard precautions. These methods define all body fluids and substances as infectious and incorporate not only the fluid and materials covered by the OSHA Bloodborne Pathogens Standard (*1910.1030*) but expand coverage to include *all* body fluids and substances.[4]



Hand hygiene and the use of appropriate personal protective equipment (PPE) are fundamental elements of infection control that must be used by designated first aid providers as part of their job duties. The phrase "take standard precautions" is used throughout this program as one of the first and necessary actions of a designated pediatric first aid and/or CPR AED provider. To *take standards precautions* means to use appropriate PPE to protect against possible exposure to infection. This may include gloves, gowns, surgical masks, respirators, eye protection (goggles/face shield), and CPR masks – preferably with a one-way valve incorporating a high-efficiency particulate air (HEPA) filter. Using a CPR mask with a HEPA-rated filter helps keep providers safe by preventing the spread of viruses.

It is the employer's responsibility to evaluate the task and the type of exposure expected, and then to select and supply the appropriate PPE. Experience putting on and taking off PPE, also called donning and doffing, is critical for the safety of designated first aid providers and helps to minimize potential delays in first aid. Designated first aid providers should frequently train and practice with their employer-provided PPE and established procedures. The responsibility for providing, laundering, cleaning, repairing, replacing, and disposing of PPE at no cost to employees rests with the employer.[5]

3 "procedure," Merriam-Webster.com Dictionary, https://www.merriam-webster.com/dictionary/procedure [Retrieved 8/2/2021].

4 Standard Precautions for All Patient Care. Available: https://www.cdc.gov/infectioncontrol/basics/standard-precautions.html [Retrieved 2/3/2021]

5 OSHA Standard Interpretations. Most frequently asked questions concerning the bloodborne pathogens standard. Available: https://www.osha.gov/laws-regs/standardinterpretations/1993-02-01-0 [Retrieved 5/11/2021]

PROCEDURE FOR PEDIATRIC FIRST AID | CPR AED

PERFORM AN ASSESSMENT

- Assess **Scene Safety**
- Take **Standard Precautions***
- Assess **Responsiveness**
- Activate **EMS** and/or **EAP**†
- Send Someone to **Get a First Aid Kit & AED** (unless readily available to you)

ASSESS BREATHING FOR NO MORE THAN 10 SECONDS

RESPONSIVE, BREATHING

OBTAIN CONSENT

- Obtain consent from a parent or legal guardian, if readily available.
- Introduce yourself and let the child know you are there to help.
- Assess for life-threatening conditions. If present, immediately provide appropriate first aid.
- If a child shows signs of shock, and there is no difficulty breathing, keep them lying down, face up.

PERFORM A SECONDARY ASSESSMENT

- Ask the child, parent, or legal guardian to describe the current problem.
- Look for medical identification jewelry.
- Visually assess the child from head to toe.
- Look for Deformities and Open injuries. Ask about Tenderness and Swelling. (DOTS)
- Provide appropriate first aid for any problems found.

UNRESPONSIVE, BREATHING NORMALLY

MAINTAIN AN OPEN AIRWAY

- Place an uninjured, unresponsive child on their side in the recovery position to help protect the airway.
- Cradle an infant in your arms, with their head tilted downwards.
- Assess for life-threatening conditions. If present, immediately provide appropriate first aid.
- Give naloxone for suspected opioid overdose (if available).

UNRESPONSIVE, NOT BREATHING NORMALLY OR ONLY GASPING

START CONVENTIONAL CPR

- Position child or infant on a firm, flat surface.
- Perform cycles of 30 high-quality chest compressions and 2 rescue breaths. §
- If alone after about 2 minutes, activate EMS and/or EAP and get an AED (if not already done).
- Return to the infant or child, continue CPR, and use the AED.
- Give naloxone for suspected opioid overdose (if available).

UNRESPONSIVE. NOT BREATHING NORMALLY. USE THE AED AS SOON AS IT IS AVAILABLE. APPLY PADS TO BARE CHILD OR INFANT'S SKIN ACCORDING TO THE PICTURES. FOLLOW AED PROMPTS

SHOCK ADVISED?

YES

- Clear the child/infant.
- Give 1 shock.
- Immediately resume high-quality CPR.
- Follow AED prompts.

NO

- Immediately resume high-quality CPR.
- Follow AED prompts.

CONTINUE UNTIL OTHER CPR OR EMS PROVIDERS TAKE OVER OR THE PERSON STARTS RESPONDING (BREATHING, MOVING, REACTING).

* Use appropriate personal protective equipment (PPE) to protect against possible exposure to infectious agents. PPE may include gloves, goggles or face shields, surgical masks, gowns, respirators, and CPR masks. Wash your hands immediately after removing gloves.

† If you are not sure an emergency exists or when any person is unresponsive, badly hurt, looks or acts very ill, or quickly gets worse - call 911 to activate Emergency Medical Services (EMS) using a mobile device and/or activate your emergency action plan (EAP). Listen to the dispatcher's instructions.

§ In the case of drowning, begin with 2 rescue breaths. Child Compressions: Push in the middle of the chest about 2 inches with one or two hands. Infant Compressions: Push in the middle of the chest about 1 ½ inches with 2-Finger or 2 Thumb-Encircling Hands Technique. Rescue breaths are extremely important for infants and children. If unwilling or unable to provide rescue breaths, perform compression-only CPR because it is better than no CPR.

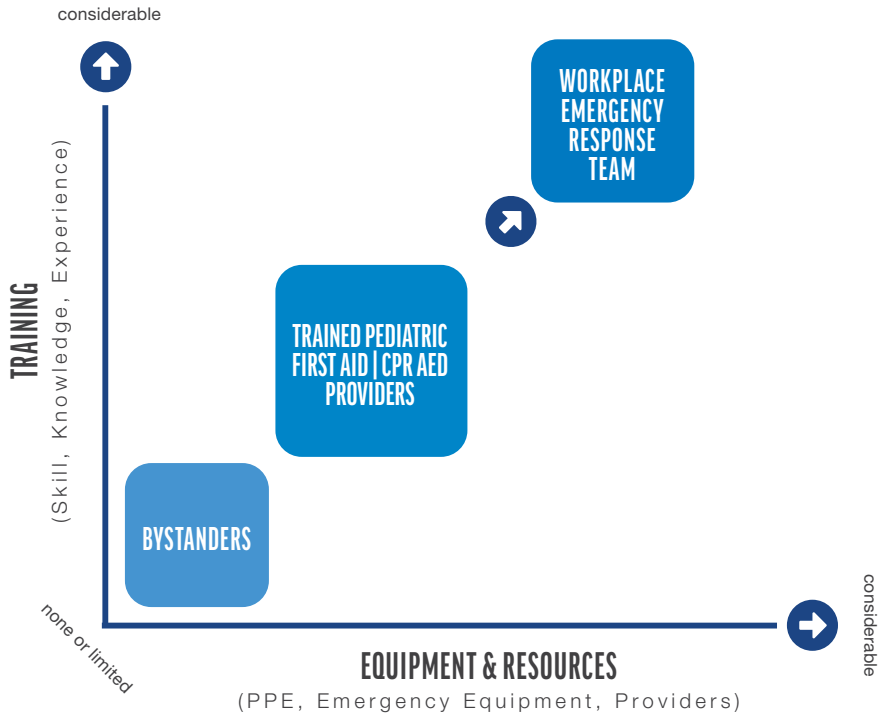
This training program is intended to reinforce infection prevention practices. It is not an infection control training curriculum. It is not intended for meeting any occupational licensing regulations or requirements for infection control training, including the OSHA Bloodborne Pathogens Standard, and should not be used for that purpose. Comprehensive training in infection control is vital to make appropriate decisions in each employee's occupational setting.

Pediatric First Aid, CPR AED Continuum

What is done for a suddenly ill or injured person and how it is done often exists on a continuum, "a set of things on a scale, which have a particular characteristic to different degrees."[6] The continuum in pediatric first aid, CPR AED can be represented by a linear scale on two axes. On the horizontal axis is equipment and resources. On the vertical axis is training. Each axis begins at "none or limited" and scales up to "considerable." On one end of the continuum is an untrained layperson bystander. This person has little or no skill, knowledge, or experience in first aid and/or CPR AED; no PPE; and no emergency equipment. Even so, this person can play a critical role in the EMS system by recognizing an emergency, calling 911, and following the dispatcher's instructions, which typically include encouragement to perform simple first aid, including compression-only CPR.

Trained pediatric first aid and/or CPR AED providers represent the middle ground of the continuum and are the primary focus of this training program. Trained pediatric first aid and/or CPR AED providers possess the necessary first aid skills, knowledge, and experience to perform assessments and first aid interventions using PPE and a minimal amount of medical equipment including dressings and bandages, tourniquets, epinephrine auto-injectors, CPR masks, and AEDs.

On the high end of the continuum is the emergency response team (ERT), also called incident response teams. These are thoroughly trained groups of people with considerable skill, knowledge, and experience. They train, prepare, and are designated to respond to workplace emergencies, such as fires or explosions, medical emergencies, natural disasters, and hazardous material spills. ERT members have well-established communication systems and protocols and site-specific response procedures. ERT members may be trained in the use of various types of fire extinguishers, self-contained breathing apparatus, plant shutdown procedures, chemical spill control procedures, search and emergency rescue procedures, hazardous materials response, first aid, CPR, and basic or advanced life support. ERT members are typically not licensed healthcare providers, though they may be. Wherever a pediatric first aid provider is on the continuum, each person possesses the ability to help alleviate suffering, prevent permanent disability, and preserve life, sometimes even their own.



6 https://www.collinsdictionary.com/us/dictionary/english/continuum [Retrieved 1/5/2021]

Barriers to Action

In first aid and CPR AED, barriers to action are psychological or physical obstacles to providing pediatric first aid or CPR AED to a child in need.

Bystander Effect

A phenomenon called the "bystander effect" occurs when as few as four other people are present and bystanders become hesitant to step forward in an emergency. When one person does not act, this is seen by the others as a decision that whatever is taking place is not an emergency.[7] As a trained pediatric first aid provider, it's normal to feel hesitant. When others are present, this natural hesitancy may be heightened. It's important to recognize this hesitancy, but do not let it stop or slow you from helping. If it is safe to do so, and you have implied or expressed consent (see Legal Concepts), you should act—even when you are not sure that an emergency exists. Taking quick, effective action can potentially save the life of a child.



Fear

Another common barrier to action in an emergency is fear. These fears include fear of legal action, fear of disease transmission, and the fear of doing the wrong thing and hurting someone. [8,9] Good Samaritan laws are intended to encourage people to help others in an emergency without having to worry about being sued (see Legal Concepts).

In the workplace, fears of disease transmission can be alleviated by appropriate vaccination, good hand hygiene, and the use of PPE. Rescue breaths are extremely important for infants and children. If unwilling or unable to provide rescue breaths, perform compression-only CPR because it is better than no CPR.

As to the fear of doing the wrong thing and hurting someone, proper training provides the ability to use first aid knowledge and skills confidently and effectively. Learning, practicing, and using step-by-step procedures for handling life-threatening conditions will help you develop the necessary competency in pediatric first aid to help (not harm) a child in need.

When it comes to adult CPR, various chest compression-associated injuries have been reported including rib and breast bone fractures and injuries to heart, lungs, and soft tissue of the neck.[10] Injuries to children rarely occur after pediatric CPR and are not considered significant or life-threatening.[11] A person in cardiac arrest is without a heartbeat and breathing. CPR is potentially lifesaving. Injuries from performing it do not make a person without a heartbeat and breathing "worse." CPR significantly increases the chance of survival.

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7 Darley JM, Latané B. Bystander intervention in emergencies: diffusion of responsibility. J Pers Soc Psychol. 1968 Apr;8(4):377-83.

8 Bouland AJ, et al. Evaluating Barriers to Bystander CPR among Laypersons before and after Compression-only CPR Training. Prehosp Emerg Care. 2017 Sep-Oct;21(5):662-669. doi: 10.1080/10903127.2017.1308605. Epub 2017 Apr 19. PMID: 28422540 [Retrieved 11/29/21]

9 Jiang Y, Wu B, Long L, Li J, Jin X. Attitudes and willingness toward out-of-hospital cardiopulmonary resuscitation: a questionnaire study among the public trained online in China. BMJ Open. 2020 Oct 8;10(10):e038712. doi: 10.1136/bmjopen-2020-038712. PMID: 33033095; PMCID: PMC7545623. [Retrieved 11/29/21]

10 Righi FA, Jenkins S, Lin PT. Nonskeletal injuries related to cardiopulmonary resuscitation: An autopsy study. J Forensic Sci. 2021 Nov;66(6):2299-2306. doi: 10.1111/1556-4029.14791. Epub 2021 Jul 12. PMID: 34250595. [Retrieved 11/29/21]

11 Ondruschka B., et al. Cardiopulmonary resuscitation-associated injuries in still-/newborns, infants and toddlers in a German forensic collective. Forensic Sci Int. 2017 Oct;279:235-240. doi: 10.1016/j.forsciint.2017.09.007. Epub 2017 Sep 12. PMID: 28926779.

Emotional Considerations

Caring for someone in an emergency can create emotional distress. Exposure to an extreme situation or having a close relationship with those involved can intensify these feelings. Common reactions include the following:

- Anxiety
- Trembling or shaking
- Sweating
- Nausea
- Fast breathing
- Pounding heartbeat

This is a normal human reaction to a traumatic event. Calm yourself as best you can and acknowledge your limitations. When an emergency is over, a first aid provider is often left alone while the ill or injured person is quickly transported away by EMS. With limited time for closure, you may begin to experience a variety of reactions. These may include the following:

- Feeling abandoned or helpless
- Recalling the event over and over
- Self-doubt about not doing enough
- Difficulty concentrating
- Heaviness in the chest
- Upset stomach or diarrhea
- Difficulty sleeping or nightmares

These feelings are normal and should pass with time. However, there are actions you can take to help work through the difficulty:

- Share your feelings.
- Talk with someone you trust to listen without judgment, such as a family member, friend, or coworker.
- Get back to a normal routine as soon as possible.

Accept that it will take time to resolve these emotions. If unpleasant feelings persist, formal assistance from a professional counselor may be helpful as you deal with your emotions about the event.



LEGAL CONCEPTS

There are relevant legal concepts that all first aid and CPR providers need to be familiar with.

Duty to Rescue[12,13]

Duty to rescue is a concept in law that refers to the duty of a person to rescue another who is in a dangerous situation. In the U.S., in general circumstances, there is no duty to rescue. A person cannot be held liable for doing nothing while another person is in peril. However, there are certain situations where a person may have legal duty to provide aid to an ill or injured person. For example, the driver of vehicle involved in a crash resulting in an injury or death of any person would have that duty. Some people, by the nature of their occupation, have a legal duty to provide first aid. This includes firefighters, law enforcement officers, lifeguards, schoolteachers, and others.

Regulatory Requirements

Every state has childcare licensing regulations for adults working with children in all types of childcare settings. These regulations generally require pediatric first aid and pediatric CPR training.[14] Although these regulations have the force and effect of law, most only impose a training requirement, not a legal duty to provide aid.

If you take pediatric first aid or pediatric CPR training to meet state licensing or employment requirements, or to maintain an active professional certification or credential, it is your responsibility to understand your regulatory requirements and to make sure the training you receive meets those requirements.



Good Samaritan Definition[15]

A Good Samaritan is defined as “one who voluntarily renders aid to another in distress although under no duty to do so.”

Good Samaritan Laws

All 50 states and the District of Columbia have statutes that provide immunity from liability for people who assist others; these are called “Good Samaritan” laws. They are intended to encourage people to help others in an emergency without having to worry about being sued. Good Samaritan laws generally apply to any person, who voluntarily comes to the aid of an ill or injured person and acts as an ordinary reasonably prudent person would have acted under the same or similar circumstances. Although these laws vary from state to state, they typically require these circumstances to apply:

- The situation is an emergency.
- Any aid is voluntary given.
- The victim must give consent whenever possible.
- The aid must be given free of charge and in good faith.
- The aid cannot be “grossly negligent.”

12 Available: https://definitions.uslegal.com/d/duty-to-rescue/ [Retrieved 5/18/21]

13 Available: https://www.findlaw.com/injury/accident-injury-law/specific-legal-duties.html [Retrieved 5/18/21]

14 U.S. Department of Health & Human Services. National Database of Child Care Licensing Regulation. Available: https://licensingregulations.acf.hhs.gov/ [Retrieved 12/06/21] Legal Definition of good samaritan Available:https://www.merriam-webster.com/dictionary/Good%20Samaritan [Retrieved 5/18/21]

15 Legal Definition of good samaritan Available:https://www.merriam-webster.com/dictionary/Good%20Samaritan [Retrieved 5/18/21]

Grossly negligent means a lack of care that demonstrates reckless disregard for the safety or lives of others, which is so great it appears to be a conscious violation of other people's rights to safety. It is more than simple carelessness.[16] To locate state Good Samaritan laws, search the internet for "Good Samaritan Act; immunity from civil liability, [state]" – where "[state]" is the state law desired.

Consent

To provide first aid care for someone in an emergency, you must have their consent, meaning their approval or agreement. Minors, or those under the age of 18, are generally not legally qualified to give their consent to treatment. Consent must be received from a parent or legal guardian. Consent comes in two forms: expressed and implied.



Expressed Consent

Expressed consent can be given verbally, in writing, or non-verbally, for example, when a person nods their head to agree when asked "May I help you?" Don't touch or give first aid to a conscious adult who objects to it. In the childcare or school setting, expressed consent is typically established during the enrollment process when the parent or legal guardian signs a first aid and emergency medical care consent form.

Implied Consent

Consent is implied when circumstances would lead a reasonable person to believe that consent *would* be given but it was not directly expressed. Implied consent in an emergency usually occurs when you're unable to communicate with the person, such as if someone is unresponsive. The assumption is that they would ask for help if they were able to.

For a minor, consent is implied when the child is severely ill or injured and a parent or legal guardian is not readily available to provide consent. The assumption is that if a parent or legal guardian were present, they would consent to the child receiving first aid in an emergency.

Confidential Medical Information

Employers, including educational institutions and early childhood education programs, are legally obligated to keep certain records of staff and children confidential, including disability-related medical information. However, this information may be disclosed to first aid and safety personnel, when appropriate, if the disability might require emergency treatment.[17] If you learn confidential medical information in your role as a pediatric first aid provider, it is your responsibility to keep it confidential.

Assault and Battery

The crimes of assault, assault and battery, and aggravated assault all involve intentional harm inflicted on one person by another. Any crime involving a physical attack (or the threat of an attack) is usually classified as an assault, a battery, or both.[18] Forcing care on a person against their wishes can be grounds for assault or even battery. Don't touch or give first aid to a conscious adult who refuses it for themselves, or a parent or legal guardian who refuses it for their child.

Abandonment

To be abandoned is to be left without needed protection, care, or support. Although there is generally no duty to rescue, once you decide to help, you should not abandon the victim. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.

16 https://www.law.cornell.edu/wex/gross_negligence [Retrieved 5/20/21]

17 Sec. 12112. Discrimination. Available: https://www.ada.gov/pubs/adastatute08mark.htm [Retrieved 5/20/21]

18 Bergman, P. Assault, Battery, and Aggravated Assault. Available: https://www.nolo.com/legal-encyclopedia/assault-battery-aggravated-assault-33775.html [Retrieved 11/29/21]

PEDIATRIC FIRST AID PROVIDER: ROLES, RESPONSIBILITIES, & PRIORITIES

A trained pediatric first aid provider must be able to recognize, assess, and prioritize the need for first aid. Doing so requires being able to recognize life-threatening conditions. There are situations where time is of the essence, and delays can lead to serious, even fatal consequences. Anytime a child is unresponsive, you recognize the signs and symptoms of a life-threatening condition in a responsive child, or if you are just unsure an emergency exists, call 911 to activate EMS using a mobile device or activate your emergency action plan (EAP). Recognizing the signs and symptoms of a life-threatening condition and taking quick, effective action can potentially save a child's life.

A trained pediatric first aid and CPR provider must provide care using appropriate skill competencies. Skill competency in pediatric first aid and pediatric CPR is the ability to use knowledge and skills confidently and effectively. Learning, practicing, and using step-by-step procedures for handling life-threatening conditions will help you develop competency.

Nearly 1 out of every 5 children in the United States has a special healthcare need.[19] They may require prescription medication; need extra medical, mental health, or educational services; have ongoing emotional, behavioral, or developmental problems; have activity restrictions; or use specialized therapies. A child with a special healthcare need should have a written care plan from their primary health care provider. The written plan should include instructions about the specific medical procedures the child needs, such as blood sugar regulation, supplemental oxygen, suctioning, administration of seizure medication, and tube feedings. Pediatric first aid and CPR providers should not assume care for a child with special health care needs who requires a medical procedure unless they have received specific training in the procedure, are comfortable with it, and have been approved to perform it.[20]

Recognizing your limitations means acknowledging the limits of what you know and what you can do. Failing to recognize your limitations has the potential to cause harm. A pediatric first aid and CPR provider should never go beyond the knowledge and skill competence they have learned and demonstrated in training. Know your limits and seek additional professional help when needed.

19 Children and Youth with Special Healthcare Needs in Emergencies. Available: https://www.cdc.gov/childrenindisasters/children-with-special-healthcare-needs.html [Retrieved 6/25/2021]

20 CFOC Standards Online Database. Aurora, CO; National Resource Center for Health and Safety in Child Care and Early Education; 2020. https://nrckids.org/CFOC/Database/3.5.0.2 [Retrieved 6/25/2021]

In managing emergencies, it is crucial to remember that the impact of emergencies and injuries is both physical and psychological. Any injury, whether a fall or child abuse, leaves physical and emotional bruises. Also, every incident affects not only those with physical injuries or illnesses, but also other children and adults who observed the incident or have a relationship with the injured person. Other children and adults often experience concern and fear for the injured person as well as for themselves. For these reasons, attention should be paid to both physical and psychological first aid, treatment and follow-up for children, staff, and parents during and after an incident. During and after injuries, staff should move the other children to a safe area away from the emergency scene, taking care to communicate with the injured child and the other children sensitively, and in terms they can understand, as well as other staff and parents to address their fears and concerns. It is important to provide comfort and reassurance to the children who witnessed the emergency and allow them to express how they feel through simple activities such as an art project or drawing. Programs should rely on both their emergency medical services as well as mental health professionals for consultation and help with emergencies.[21]

21 The National Child Traumatic Stress Network,Psychological First Aid—Field Operations Manual- 2nd Edition. ©2006 Available https://www.nctsn.org/resources/psychological-first-aid-pfa-field-operations-guide-2nd-edition [Retrieved 03-08-2022]

ASSESSMENT

PERFORM AN ASSESSMENT

Assess **Scene Safety** → Take **Standard Precautions*** → Assess **Responsiveness** → Activate **EMS** and/or **EAP**† → Send Someone to **Get a First Aid Kit & AED** (unless readily available to you)

ASSESS BREATHING FOR NO MORE THAN 10 SECONDS

Assessment of the scene and the person is a critical skill that applies in any emergency. The steps of assessment are crucial in all but the most minor circumstances. The first steps of assessment are always the same. The steps of assessment list the actions in sequence, but in a real emergency, they may need to be carried out in a different order or performed simultaneously when multiple providers are available.

1. Assess scene safety.
2. Take standard precautions.
3. Assess responsiveness.
4. Activate EMS and/or your emergency action plan (EAP).
5. After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED.
6. Assess breathing for no more than 10 seconds.



Assess Scene Safety

Emergency scenes can be dangerous. Your personal safety is the highest priority, even before the safety of an ill or injured child. Always pause for a moment before approaching. Look for obvious hazards and consider the possibility of hidden dangers. If the scene is unsafe, do not approach it. Activate EMS or your emergency action plan, or EAP.

Emergency Moves

It is best not to move an ill or injured child at all, especially when you suspect a spinal or pelvic injury.



You should only move an ill or injured child when there is an immediate danger and you are able to take action without placing yourself at unreasonable risk.

It may be easiest to simply carry a small child away from immediate danger. If it is necessary to move a larger child you cannot carry, the most effective move to use is a drag. When using a drag, pull in the direction of the long axis of the body to help keep the spine in line. Never pull on the child's head or pull the child's body sideways. Use your legs, not your back, and keep the child's weight as close to your body as possible. Avoid twisting. Consider if you can safely move the child, based on your physical ability, to avoid hurting yourself.



Common drags include the extremity drag, performed by grasping and pulling on the ankles or forearms; the clothing drag, performed by pulling on a child's shirt in the neck and shoulder area; and the blanket drag, performed by rolling a child onto a blanket and dragging the blanket.





Confined spaces are especially dangerous.[22] Although they are not necessarily designed for people, a confined space is often large enough for workers and children to enter. A confined space also has limited or restricted means for entry or exit and is not designed for continuous occupancy. Confined spaces include, but are not limited to, tanks, vessels, silos, storage bins, hoppers, vaults, pits, manholes, tunnels, equipment housings, ductwork, pipelines, etc. Many workers are injured and killed each year while working in confined spaces. An estimated 60% of the fatalities have been among "would-be rescuers." Specialized training and equipment are necessary to rescue anyone, including a child, from a confined space including atmospheric monitors, fall protection, extraction equipment, and self-contained breathing apparatus (SCBA). Never enter tanks or other confined spaces to perform a rescue without proper training and equipment. Children are naturally curious about confined spaces. Adults must provide barriers to entry and teach them about the dangers of these areas.

22 Safety and Health Topics, Confined Spaces. Occupational Safety & Health Administration. Available: https://www.osha.gov/confined-spaces/hazards-solutions [Retrieved 12/1/21]

Wash Your Hands

Wash your hands immediately after removing gloves. Follow these five steps every time.

1. Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.
2. Lather your hands by rubbing them together with the soap.
3. Scrub your hands for at least 20 seconds.
4. Rinse your hands well under clean, running water.
5. Dry your hands using a clean towel or air dry them.[23]

> ***If*** *soap and water are not readily available, use an alcohol-based hand sanitizer that contains at least 60% alcohol, and wash with soap and water as soon as you can.*



23 https://www.cdc.gov/handwashing/when-how-handwashing.html [Retrieved 5/21/21]

Take Standard Precautions



In this program, "take standard precautions" means use appropriate personal protective equipment (PPE). PPE is equipment worn in the workplace to minimize exposure to hazards that cause serious injuries and illnesses, such as blood or airborne organisms that can cause disease. During infectious disease outbreaks, take extra care to avoid exposure to potentially infectious bodily fluids, droplets, and airborne particles. Avoid unnecessary direct contact and limit the number of pediatric first aid providers near a potentially infectious child.

Depending on your role as a first aid provider, appropriate PPE may include gloves, goggles or face shields, surgical masks, gowns, respirators, and CPR masks. Practicing putting on and taking off PPE, also called donning and doffing, is critical for your safety and to minimize potential delays in emergency treatment. If you are a designated pediatric first aid provider in your workplace, training and practice in donning and doffing PPE according to the program established by your employer is required by state and federal occupational safety and health regulations. At a bare minimum, you should wear gloves and eye protection while giving first aid. They will help prevent exposure to potentially infectious body fluids, such as blood, saliva, and vomit. Due to the risk of infection, the proper removal of contaminated gloves is imperative.

Assess Responsiveness



If the scene is safe, assess for responsiveness. If the child appears unconscious, tap them and ask loudly, "Are you okay?" If the child does not move, speak, cry, blink, or otherwise react in a normal way, consider them unresponsive.

Activate EMS and/or Emergency Action Plan (EAP)



If the child is unresponsive, or if you recognize the signs and symptoms of a life-threatening condition in a responsive child or you are just unsure, call 911 to activate EMS using a mobile device and/or activate your EAP.

EMS dispatchers, also called telecommunicators, have the responsibility to prioritize emergency calls using the information provided by the caller. They notify and dispatch the appropriate responders and may offer first aid instructions to callers. When you activate EMS, listen to and follow the dispatcher's instructions. Answer questions as clearly and concisely as you can. Turn on the speaker function of your mobile phone so you can listen to the dispatcher and provide first aid following their directions at the same time.

Emergency Action Plan (EAP)

A workplace emergency action plan is a written document required by the U.S. government, various state licensing agencies, and national childcare standards.[24,25,26] The purpose of an EAP is to facilitate emergency preparedness and response planning, and organize employer and employee actions during workplace emergencies and natural disasters.

Written Plan and Training for Handling Urgent Medical Care

An EAP should contain an urgent medical care plan that provides detailed information on how to respond to and report on emergencies involving children, staff, or volunteers. The plan should describe the procedure activating EMS or the EAP and promptly contacting the parent or legal guardian. The plan should require that a staff member accompany the child to the hospital and stay with them until the parent or legal guardian arrives. The plan should also describe procedures for moving other children away from the emergency and ensuring their proper supervision and safety.

As a trained pediatric first aid provider, you must know how to activate your EAP at work.

It might be just calling 911 or you may have to use an internal telephone number, intercom, public address system, or a specialized emergency notification system.

Send Someone to Get the First Aid Kit & AED



After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED. Your EAP should provide information on locating and responding to a medical emergency with a first aid kit - and when available, an automated external defibrillator (AED). The first kit should meet or exceed the minimum requirements for workplace first aid kits and supplies. (See First Aid Kits and Supplies in the Appendix) Both the first aid kit and AED should be able to be obtained quickly and easily from a well-marked, designated location.

National standards for early care and education programs recommend a fully equipped first aid kit be available in each classroom. The first aid kit should always be accessible to staff and be kept out of reach of children.[27] When children leave the facility for recess, a walk, or to be transported, a designated staff member should

24 CFOC Standards Online Database. Aurora, CO; National Resource Center for Health and Safety in Child Care and Early Education; 2020. 23. https://nrckids.org/CFOC/Database/9.2.4.1 [Retrieved 6/25/2021]

25 Occupational Safety and Health Administration. 1910.38 Available : https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=9726&p_table=standards [Retrieved 6/25/2021]

26 Office of Child Care. Available: https://www.acf.hhs.gov/occ/faq/does-new-law-include-health-and-safety-requirements-specific-topic-areas [Retrieved 6/25/2021]

27 CFOC Standards Online Database. Aurora, CO; National Resource Center for Health and Safety in Child Care and Early Education; 2020. https://nrckids.org/CFOC/Database/5.6.0.1 [Retrieved 5/21/21]

ensure that a first aid kit is readily available. If you find yourself in the midst of a medical emergency alone, or with no or very limited first aid equipment, call 911 using a mobile device and/or activate your EAP. Listen to and follow the dispatcher's instructions.



Assess Breathing for No More than 10 Seconds

Look at the chest and face for signs of normal breathing. Normal breathing is effortless, quiet, and regular. Then, take action based on the child's responsiveness and breathing.

Responsive, Breathing

A responsive child is alert, awake, and aware. If the child appears responsive and consent has not been established in advance, obtain consent from a parent or legal guardian, if readily available (unless previously established). If a child is severely ill or injured and a parent or legal guardian is not readily available to give it, consent is implied. Introduce yourself and let the child know you are there to help. Use their name. Smile. Get down to their eye level. Speak in a calm, gentle voice. Use clear and simple language.

Assess for life-threatening conditions. If present, immediately provide appropriate first aid. If a child shows signs of shock, and there is no difficulty breathing, keep them lying down, face up.

Secondary Assessment

Consider performing a secondary assessment to gather more information while waiting for EMS. Keep it simple and appropriate for the child's age.

- **Ask the child to describe the current problem.**
  - Sometimes the problem is obvious, such as visible wound. Other times you may need to ask the child, or parent or legal guardian if available, to describe the problem. Listen carefully and check to make sure you understand them.
- **Look for medical identification jewelry.**
  - Medical identification jewelry can be a vital source of information in the event the child is confused, unable to speak, or becomes unresponsive. Look for a small emblem or tag worn on a bracelet or necklace or similar jewelry containing inscribed information, such as diabetes, epilepsy, food or drug allergies, and bleeding disorders.
- **Visually assess the child from head to toe.**
  - Use the **DOTS** acronym as a guide. Look for **D**eformities and **O**pen injuries. Ask about **T**enderness and **S**welling. If necessary and with consent, remove or cut away clothing to get a better look at an injured or painful body part. Speak with the child about what is happening in a way that they can understand. Provide appropriate first aid for any problems found.

Regularly reassess scene safety, responsiveness, breathing, and the effectiveness of first aid provided. Calm, comfort, and reassure the child. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.

Unresponsive, Breathing Normally

If the child is unresponsive and breathing normally, maintain an open airway. The airway is the passage by which air reaches a

child's lungs. When an unresponsive child is lying flat on their back, decreased muscle tone and the pull of gravity causes the base of the tongue to obstruct the upper airway.

Recovery Position

Without an open airway, the child cannot breathe. Their heart will stop within minutes. The "recovery position" uses gravity keep the tongue from blocking the airway and allows fluids to drain from the mouth. Place an uninjured, breathing, and unresponsive child on their side in the recovery position to help protect the airway.

- Place the arm nearest you up alongside the head. Bring the far arm across the chest and place the back of the hand against the cheek. Grasp the far leg to bend the knee and pull it up so the foot is flat on the ground.
- Grasping the shoulder and hip, roll the child toward you in a single motion, keeping the head, shoulders, and body from twisting.
- Make sure the head ends up resting on the extended arm and roll far enough for the face to be angled towards the ground. Make sure there is no pressure on the chest that might restrict breathing.



Assess for life-threatening conditions.

If present, immediately provide appropriate first aid. Give naloxone for suspected opioid overdose, if available.

Unresponsive, Not Breathing Normally or Only Gasping

If an unresponsive child is not breathing normally or not breathing at all, or is only gasping, immediately start CPR, beginning with chest compressions.



section two

CHILD CPR AED

In this training, a child is defined as 1 year of age until the onset of puberty. Puberty can be identified by breast development in females and the presence of armpit hair in males. For those with signs of puberty, provide adult CPR AED.



CHILD – CARDIAC ARREST & PEDIATRIC CHAIN OF SURVIVAL

In cardiac arrest, the child's heart stops beating. Fortunately, most children have healthy hearts and cardiac arrest in children is rare. When it does happen, it is most commonly a result of asphyxia, a lack of oxygen that occurs when breathing slows or stops. The lack of oxygen causes the heart to stop within minutes. This is also known as secondary cardiac arrest because the heart stops secondary to a lack of oxygen and not from a problem with the heart itself. Causes of secondary cardiac arrest include airway obstruction, lung infections or diseases, drowning, choking, and shock resulting from injuries such as motor vehicle accidents, burns, falls, and child abuse.

Prevention

Prevention is critical in reducing pediatric cardiac arrest from asphyxia. Prevention includes preventing drowning and choking as well as ensuring the use of essential safety equipment such as child passenger safety seats and bicycle helmets, along with proper adult supervision.

Sudden Cardiac Arrest

Sudden cardiac arrest occurs when the normal electrical impulses in the heart cause it to beat too quickly, inefficiently, or in an unsynchronized manner. When the lower chambers of the heart beat too quickly or quiver, the heart cannot pump blood. These abnormal heart rhythms are known as pulseless ventricular tachycardia and ventricular fibrillation. Blood flow to the body, along with the oxygen it carries, abruptly stops. Within minutes, brain cell death starts to occur from the lack of oxygen. Sudden cardiac arrest is also known as primary cardiac arrest because it is a problem with the heart itself.

While uncommon, sudden cardiac arrest can and does occur in children of all ages.

A victim of SCA may suddenly collapse. Occasionally, SCA victims will experience 10-20 seconds of seizure activity when the brain stops receiving oxygen. Normal breathing stops. Abnormal gasping may last for several minutes. If not treated immediately, SCA results in death.

CPR and Defibrillation

CPR is the immediate treatment for suspected SCA. CPR can restore limited oxygen to the brain and other vital organs through a combination of chest compressions, an open airway, and rescue breaths. However, CPR alone is not enough. The most effective way to end pulseless ventricular tachycardia and ventricular fibrillation is defibrillation, using an automated external defibrillator (AED), with electrode pads adhered to the chest. An electrical shock passed through the chest may restore the heart's normal contractions. Immediate, high-quality CPR and early defibrillation with an AED can more than double the likelihood for survival.



Pediatric Chain of Survival

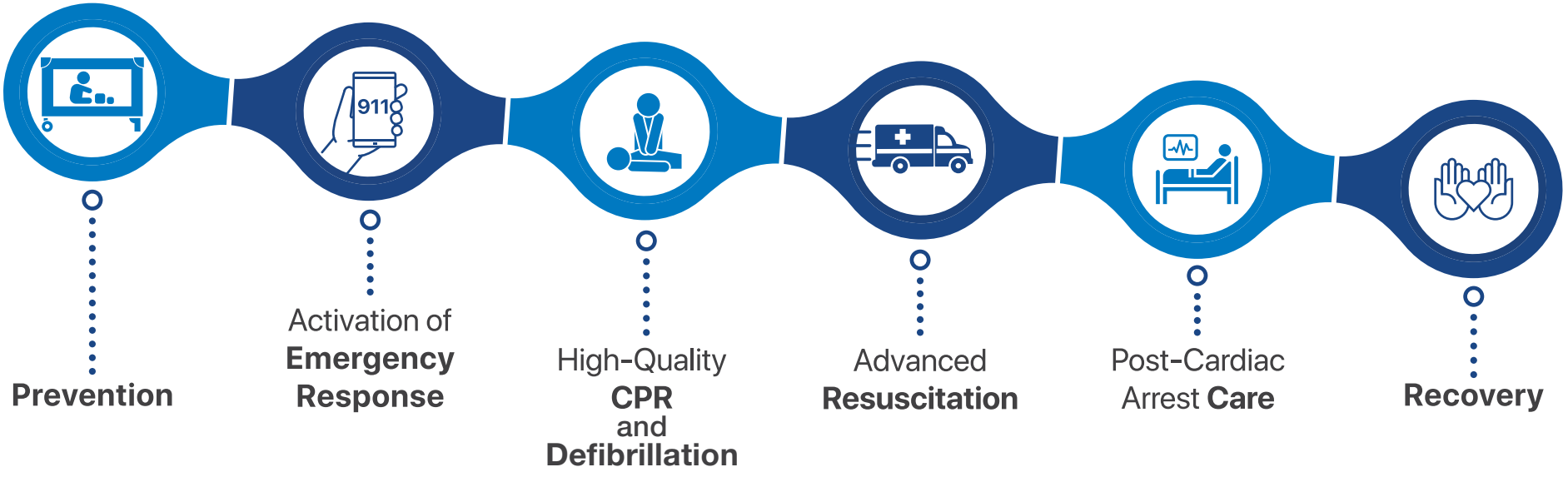
The pediatric chain of survival consists of a series of six interdependent links that describe the best approach to cardiac arrest care. The chain of survival consists of:

- Prevention of cardiac arrest,
- Prompt activation of EMS,
- Immediate high-quality CPR and defibrillation,
- Advanced resuscitation,
- Effective post-cardiac arrest care at a hospital, and
- Recovery.

The greatest chance for survival exists when all the links of the chain of survival are strong.

- Safety equipment, supervision, and other strategies can help to prevent pediatric cardiac arrest.
- Early activation of EMS or an emergency action plan gets help coming right away.
- Immediate high-quality CPR improves the victim's chance of survival by providing oxygen to the heart and brain.
- Effective advanced life support treatment, with a focus on return of spontaneous circulation (ROSC), and transport to a hospital for all persons with a chance of survival supports the most favorable outcome.
- Effective post-cardiac care, including monitoring and the use of medication, helps improve the likelihood of long-term survival.
- Recovery supports the person's physical and emotional needs that are ongoing after hospital discharge.

Each link in the chain is essential for the most positive outcome. If a single link is missing, the chances for survival are greatly reduced.



CHILD – ASSESSMENT & CHEST COMPRESSIONS

Assessment of the scene and the child is a critical skill that applies in any emergency. The steps of assessment are crucial in determining the provider's next actions. As a single pediatric CPR provider, follow the pediatric CPR AED procedure.

Assess Scene Safety

- First, assess scene safety. Upon arrival and before anything else, pause to make sure the scene is safe for you and the child.

Take Standard Precautions

- Don PPE, like gloves and eye protection.

Assess Responsiveness

- If the scene is safe, assess responsiveness. Tap the child and ask loudly, "Are you okay?"

Activate EMS and/or EAP

- If the child is unresponsive, call 911 to activate EMS using a mobile device and/or activate your EAP.

Send Someone to Get the First Aid Kit & AED

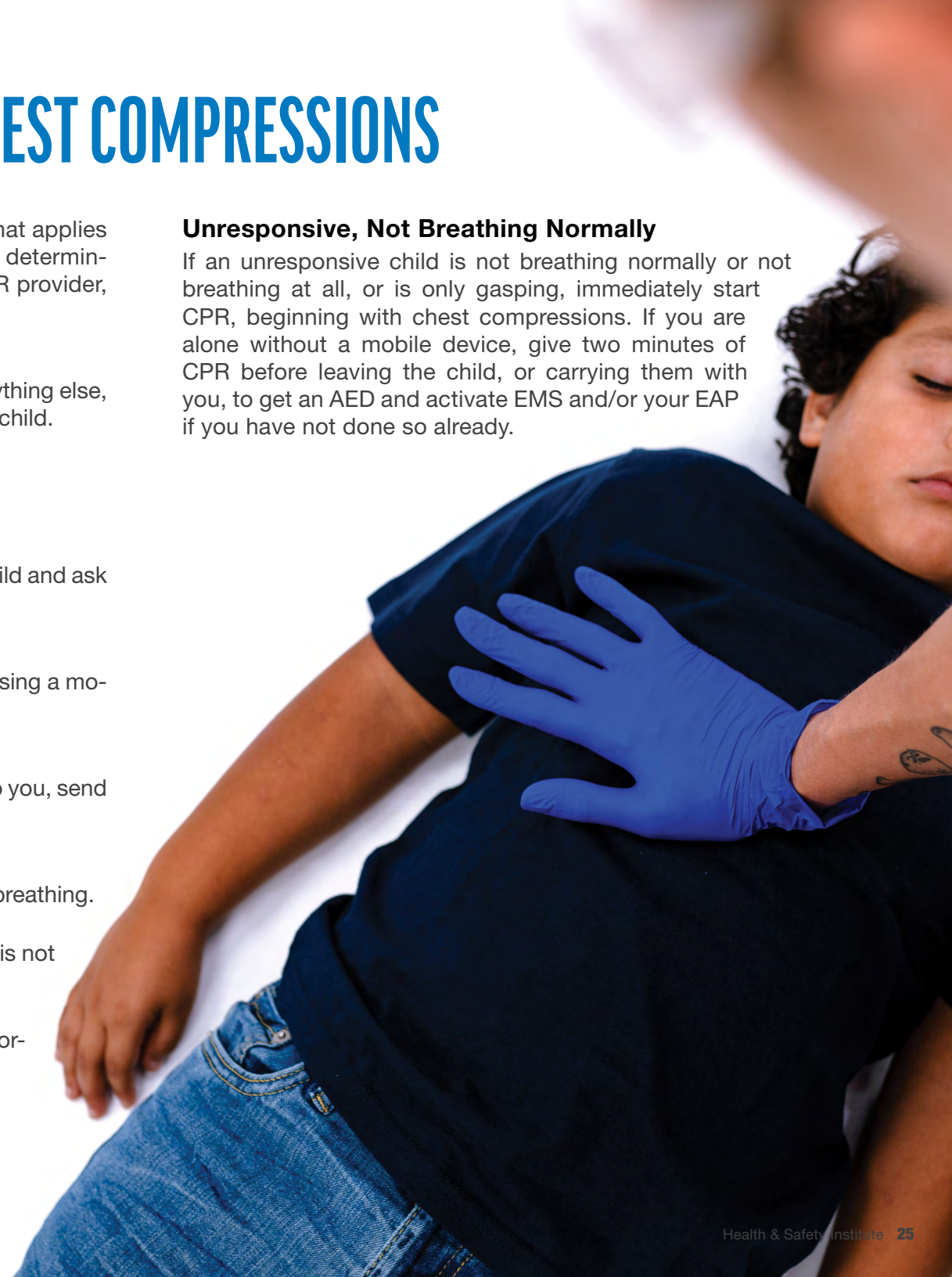
- After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED.

Assess Breathing

- Look at the child's chest and face for signs of normal breathing.
- Look for the chest to rise and fall.
- Weak, irregular gasping, snorting, snoring, or gurgling is not normal breathing.
- Take no longer than 10 seconds to assess breathing.
- Then, take action based the presence or absence of normal breathing.

Unresponsive, Not Breathing Normally

If an unresponsive child is not breathing normally or not breathing at all, or is only gasping, immediately start CPR, beginning with chest compressions. If you are alone without a mobile device, give two minutes of CPR before leaving the child, or carrying them with you, to get an AED and activate EMS and/or your EAP if you have not done so already.



Child Chest Compressions

High-quality chest compressions are the foundation of high-quality CPR for children. To deliver child chest compressions, position the child face up on a firm, flat surface. If the child is face down, carefully roll them over.

CPR Provider Position

Position yourself at the child's side, kneeling close to one side of the chest.

Place 1 or 2 hands on the center of the chest. For a small child, 1 hand may be enough. Position your shoulders directly above your hands and straighten your arms to lock your elbows.

Push Hard and Deep

Whether you use 1 or 2 hands, push hard, straight down, using your upper body weight to compress the chest at least 2 inches (5 centimeters).

Allow Complete Chest Recoil

At the end of each compression, lift all your weight off the child's chest, allowing it to completely recoil, or rebound, to its normal position without losing contact with the chest. Complete chest recoil allows the heart to refill. Avoid leaning on the chest between compressions.

Push Fast

Compress the chest at a rate of 100-120 compressions per minute. Minimize interruption in chest compressions. Perform 30 high-quality chest compressions. Count out loud.





Use a CPR Feedback Device

A CPR feedback device transmits information on compression rate, depth, and recoil. Providers can significantly improve chest compression quality by adjusting technique based on data from a feedback device. Using a CPR feedback device is shown to improve outcomes and is recommended during CPR training and in real-life resuscitation attempts.

CHILD – RESCUE BREATHING & USING A CPR MASK

Rescue breathing is artificial ventilation of the lungs. It provides oxygenation of the blood and removal of carbon dioxide. CPR providers can give rescue breathing using their own exhaled breath and a CPR mask. Room air contains about 21% oxygen. Exhaled air contains between 16% and 17% oxygen. This exhaled oxygen is enough to support life.

Importance of Child Rescue Breaths

Rescue breaths are extremely important for children because cardiac arrest typically results from asphyxia. Conventional CPR with rescue breathing should be performed by all trained CPR providers who are willing and able.

Take Standard Precautions

Take standard precautions when providing child rescue breaths. Use an adult/child CPR mask. Some CPR masks allow you to attach a high-efficiency particulate air (HEPA) filter to provider further protection during CPR. The HEPA filter fits between the valve and mask, in the path of the exhaled air. HEPA filters can trap airborne virus particles.

Open the Airway

To give rescue breaths, there must be an open airway. The airway is the only path for getting air into the lungs. The tongue is connected to the lower jaw. Lifting the jaw forward pulls the tongue away from the back of the throat, relieving the obstruction and opening the airway.

Head Tilt–Chin Lift

To open the airway with the head tilt–chin lift maneuver, position yourself at the person's side. Place one hand on their forehead. Place the fingertips of your other hand under the bony part of the lower jaw, near the chin. Apply firm, backward pressure on the forehead while lifting the chin upward. Avoid pressing into the soft tissue of the chin with your fingers, as this can also obstruct the airway. Leave the mouth slightly open.

Use an Adult/Child-Sized CPR Mask

To use an adult/child-sized CPR mask, position yourself at the person's side. Place the mask flat on the child's face with the top of the mask over the bridge of the nose. Use your thumb and forefinger to provide uniform pressure around the top of the mask. Use the thumb of your hand lifting the chin to control the bottom of the mask. Hook your fingertips of the hand controlling the bottom of the mask under the bony ridge of the jaw. Tilt the head and lift the chin to open the airway. Lift the child's face up into the mask to create an airtight seal. Give a rescue breath by blowing through the valve opening. Each breath is 1 second in length. **Give enough air to create a visible rise of the chest, but no more. Stop your rescue breath as soon as you see chest rise**.

> ***Too Many Breaths or a Large Volume Can Be Harmful.***
> *CPR providers should avoid giving too many breaths or a large volume during rescue breathing because it can be harmful. It can force air into the stomach, causing regurgitation of food, liquids, or vomit into the airway.*

Drowning

Drowning is the leading cause of unintentional death among children ages 1 to 4 years old.[28] Outcome after drowning is determined by the duration of submersion, the water temperature, and how promptly and effectively CPR is provided. If rescuers are trained in CPR, there is a 30%–40% chance of successful resuscitation.[29] The immediate cause of death in drowning is a lack of oxygen. As a result, the first and most important treatment is giving rescue breaths to a drowning victim. In the case of drowning, begin with rescue breaths. As soon as the unresponsive victim is removed from the water, open the airway and assess breathing. If there is no breathing, give 2 rescue breaths that make the chest rise (if this was not done previously in the water).[30]

28 U.S. Consumer Product Safety Commission. Available: https://www.poolsafely.gov/blog/news/new-cpsc-report-finds-steady-rise-in-fatal-child-drownings/ [Retrieved 7-12-21]

29 Franklin RC, Pearn JH, Peden AE. Drowning fatalities in childhood: the role of pre-existing medical conditions Archives of Disease in Childhood 2017;102:888-893. Available: https://pubmed.ncbi.nlm.nih.gov/28483756/ [Retrieved 7-15-21]

30 Part 12:11 Cardiac Arrest in Special Situations. Drowning. Vanden Hoek TL, et al. 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation. 2010 Nov 2;122(18 Suppl 3):S829-61. doi: 10.1161/CIRCULATIONAHA.110.971069. Erratum in: Circulation. 2011 Feb 15;123(6):e239. Erratum in: Circulation. 2011 Oct 11;124(15):e405. PMID: 20956228. [Retrieved 11/30/21]

CHILD – AUTOMATED EXTERNAL DEFIBRILLATION & USING AN AED

An automated external defibrillator (AED) is a portable computerized device that is simple to operate.

It can identify the abnormal heart rhythms associated with sudden cardiac arrest - pulseless ventricular tachycardia and ventricular fibrillation - and deliver an electrical shock to restore the heart's normal contractions. If the electrical shock is effective, there will be a return of spontaneous circulation. The heart will be able to pump blood. The child may also start breathing, moving, or reacting in other ways.

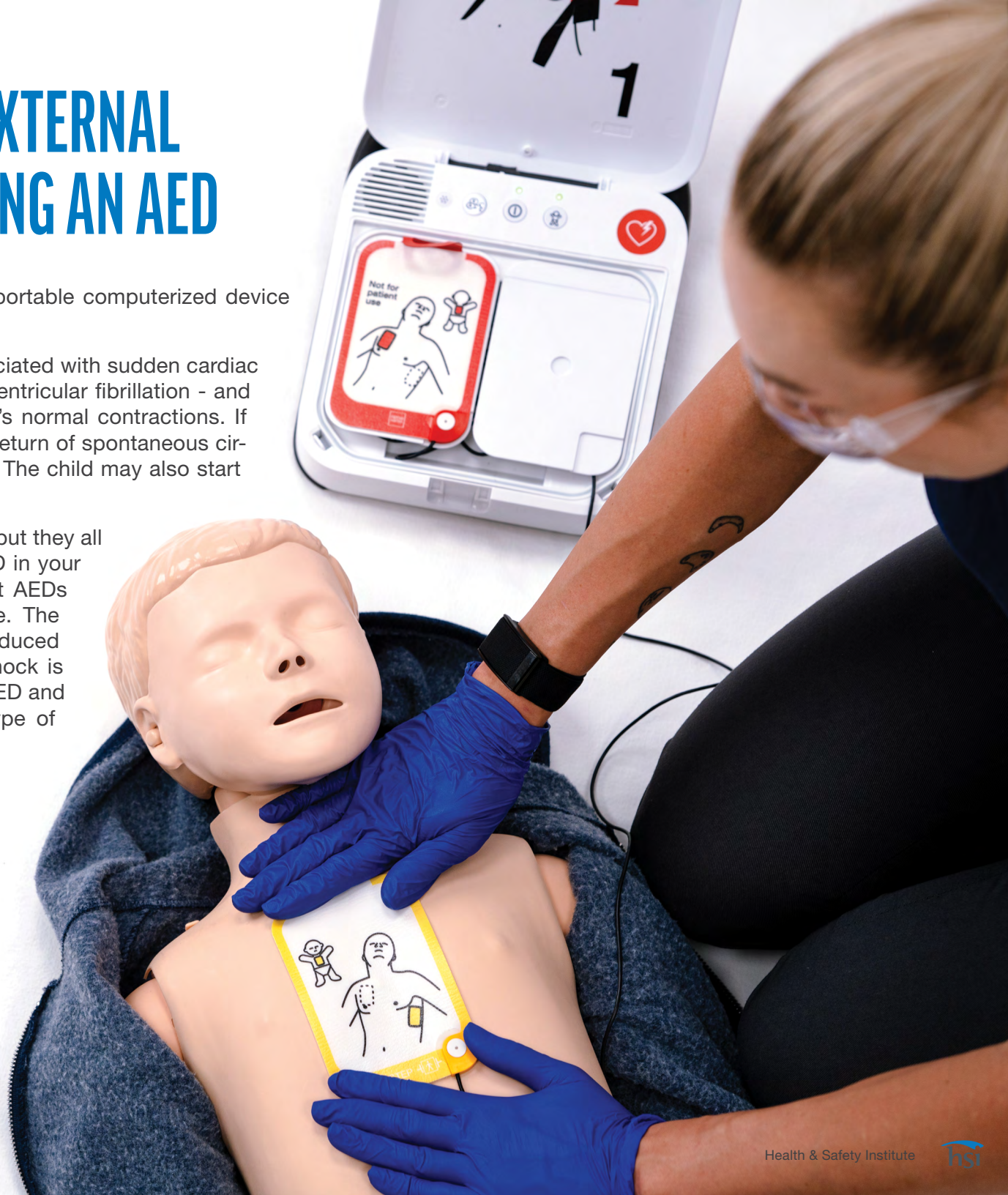
AED design varies by model and manufacturer, but they all operate in a similar manner. If you have an AED in your workplace, be familiar with its operation. Most AEDs are designed for both adult and pediatric use. The energy level of the shock for pediatric use is reduced from the standard adult energy setting. The shock is reduced by an electronic device built into the AED and activated using a button, "key," or another type of switching mechanism.

Choosing the AED Pads

Pediatric pads are recommended for children under 8 years of age. If the child pads are not available, use the adult pads. The standard adult shock will be higher, but a higher energy shock is better than no shock at all.

Children 8 Years of Age and Older

Do not apply pediatric pads to children 8 years of age and older because the energy level of the shock will be too low.



Power on the AED

- Turn on the AED and bare the child's chest. If there is a button, "key," or another type of mechanism for switching to child use, activate it.

Bare Chest

- Proper AED operation requires direct contact between the pads and the child's skin. Any clothing in the way must be removed. This includes swimsuits, and any other clothing covering the chest. If necessary, cut through clothing with the shears that are typically included with a CPR AED response kit.

Apply the AED Pads

- Peel the pads from the backing sheet one at a time and place each according to the pictures. Some pads require a front-and-back position. Others require a left-right position. Press the pads firmly in place. Pads must not touch or overlap each other. Avoid placing the pads over medication patches or implanted devices. Try to apply the pads within 30 seconds after the AED arrives.





Allow AED Analysis

- When the AED voice prompts you, clear the child and allow the AED to analyze the heart rhythm. Be certain that no one is touching the child.

Deliver a Shock

- If the AED advises a shock, it will prompt you to clear the person again. Loudly say, "Everybody clear," or something similar. For most AEDs, delivering a shock is done by pressing the shock button. Deliver a shock.
- Once a shock has been delivered, immediately resume CPR starting with chest compressions.



Follow the Voice Prompts

- After about 2 minutes of CPR, the AED will prompt you again to analyze the heart rhythm. Follow the voice prompts.

Continue CPR AED

- Continue CPR AED use until another CPR provider, someone with more advanced training, or EMS providers arrive and take over, or until the child starts breathing, moving, or reacting in other ways.



Reassess Regularly

- If the child begins responding, regularly reassess their responsiveness, airway, and breathing.

CHILD – ONE-PROVIDER CPR AED

One pediatric CPR provider can provide high-quality child CPR by putting together all the skills of assessment, compressions, airway, breathing, and AED use.

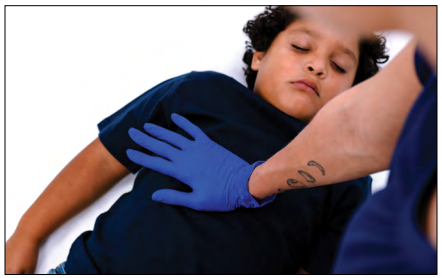
Perform Assessment



- First, assess scene safety, taking standard precautions.
- If the scene is safe, assess the child's responsiveness. Tap the child and ask loudly, "Are you okay?"
- If the child is unresponsive, call 911 to activate EMS using a mobile device and/or activate your EAP.
- After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED.
- Assess the child's breathing for no more than 10 seconds. If an unresponsive child is not breathing normally or not breathing at all, or is only gasping, immediately start CPR, beginning with chest compressions.



Perform High-Quality Chest Compressions



- Position the child on a firm, flat surface. Perform 30 high-quality chest compressions. Position 1 or 2 hands on the lower half of the breastbone. Use upper body weight to compress. Compress at least 2 inches (5 centimeters). Compress at a rate of 100–120 times per minute. Allow the chest to fully recoil at the top of each compression.

Give Rescue Breaths

- Use a CPR mask to give rescue breaths. Open the airway and give 2 rescue breaths. Ensure each breath is 1 second in length and creates visible rise of the chest.

Continue CPR AED

- Immediately resume high-quality chest compressions.
- Repeat CPR cycles of 30 compressions and 2 breaths for 2 minutes.
- If you are alone without a mobile device, give 2 minutes of CPR before leaving the child, or carrying them with you, to get an AED and activate EMS and/or your EAP- if you have not done so already.

Operate the AED

- As soon as an AED is available, power on the AED. Bare the chest. If there is a button, "key," or another type of mechanism for switching to child use, activate it.
- Use pediatric pads for children below 8 years of age. Correctly apply the AED pads according to the pictures. If the child pads are not available, use the adult pads.
- While the AED is analyzing, make sure no one is touching the person.



Health & Safety Institute hsi

- If directed by the AED, deliver a shock. Press the shock button.

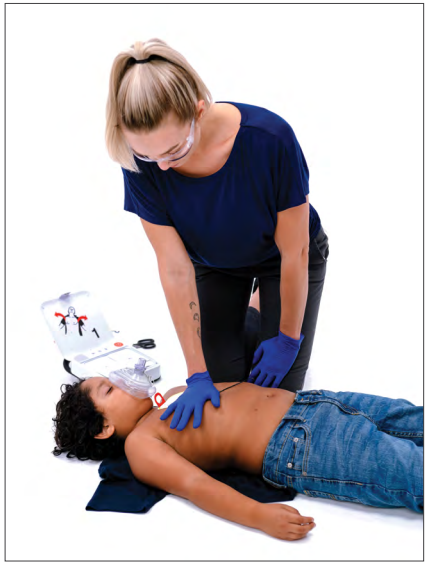
Resume High-Quality CPR

- Immediately resume CPR starting with chest compressions.
- After about 2 minutes of CPR, the AED will prompt you again to analyze the heart rhythm. Follow the voice prompts.

Continue CPR AED

- Continue CPR AED until another CPR provider, someone with more advanced training, or EMS providers arrive and take over, or until the child starts breathing, moving, or reacting in other ways.
- If another CPR provider is available, take turns providing compressions. Switch providers about every 2 minutes, or sooner if they get tired. Try to minimize interruptions to compressions to less than 10 seconds.





Safety & Health Tip

Commotio cordis is caused by a blow to the chest over the region of the heart by a blunt object (like a baseball, hockey puck, or fist) that does not penetrate the body and that usually results in ventricular fibrillation leading to sudden cardiac death if treatment by defibrillation is not immediately given.[31] Research has shown that some chest protectors may reduce the incidence of commotio cordis.[32]

31 "Commotio cordis." Merriam-Webster.com Medical Dictionary, Merriam-Webster, https://www.merriam-webster.com/medical/commotio%20cordis. Accessed 21 Sep. 2021.

32 Kumar K, Mandleywala SN, Gannon MP, Estes NA 3rd, Weinstock J, Link MS. Development of a Chest Wall Protector Effective in Preventing Sudden Cardiac Death by Chest Wall Impact (Commotio Cordis). Clin J Sport Med. 2017 Jan;27(1):26-30. doi: 10.1097/JSM.0000000000000297. PMID: 27014942; PMCID: PMC5181132.

CHILD – ADDITIONAL CPR AED CONSIDERATIONS

A pediatric CPR provider may face some circumstances that require additional considerations or tasks for effective care. Act quickly if anything affects AED use to keep this link in the chain strong.

In Water

Do not use an AED if the child is immersed in water. The child must be removed from water before using an AED.

Wet Setting

If the child is in a wet setting, such as lying on snow or ice, in rain, on a wet floor or deck, or in a small puddle, it is safe to use the AED. If the child's chest is wet, quickly dry it before applying pads.

On Metal

AEDs can be used safely on metal surfaces, such as gratings or stairwells. Make sure the pads do not directly touch any metal surface when the AED is powered on.

Jewelry

If the AED pads are not in contact with metal jewelry, the jewelry does not have to be removed.

Take Standard Precautions

Resuscitation puts CPR providers at an increased risk of exposure and infection from bloodborne and airborne pathogens. CPR providers should routinely take standard precautions during resuscitation, including using a CPR mask with a HEPA filter when available.

Mouth-to-Mouth Rescue Breathing

There may be a rare or extraordinary circumstance when a barrier device is not available, and a CPR provider is willing to provide mouth-to-mouth rescue breathing. To give mouth-to-mouth rescue breathing to a child:

- Open the airway with a head tilt-chin lift.
- Pinch the nose closed with your thumb and forefinger.
- Take a regular-sized breath and seal your lips around the child's mouth, creating an airtight seal.
- Give 1 breath over 1 second. Give enough air to make the chest visibly rise, but no more than that.

CHILD – SUSPECTED OPIOID-ASSOCIATED EMERGENCY (OEA)

Prescription opioid misuse has become a leading cause of unintentional injury and death among adolescents and young adults in the United States.[33] Seventy percent of drug overdose deaths involve a prescription or illicit opioid such as oxycodone, hydrocodone, morphine, fentanyl, or heroin. Recognizing an opioid overdose can be difficult. Signs of an overdose may include:

- Small, constricted "pinpoint pupils,"
- Changes in skin appearance and condition,
- Falling asleep or loss of consciousness,
- Slow, shallow breathing,
- Choking or gurgling sounds, and
- Limp body.

Opioids can cause death by slowing, and eventually stopping, breathing. A quick response to an opioid overdose, including administering naloxone, can prevent brain injury and death. Naloxone is a medication approved by the Food and Drug Administration (FDA), designed to rapidly reverse opioid overdose. Naloxone is available without a prescription in all U.S. states, the District of Columbia and Puerto Rico. Narcan® Nasal Spray is the most commonly prescribed opioid reversal medication. Narcan® Nasal Spray is approved for the emergency treatment of known or suspected opioid overdose in adults and children of all ages.[34]

Using Narcan® Nasal Spray

To use Narcan® Nasal Spray, peel back the package to remove the device. Hold the device with your thumb on the bottom of the red plunger and 2 fingers on the nozzle. Place and hold the tip of the nozzle in either nostril until your fingers touch the bottom of the person's nose. Press the red plunger firmly to release the dose into the nose.

33 Hudgins JD, Porter JJ, Monuteaux MC, Bourgeois FT. Prescription opioid use and misuse among adolescents and young adults in the United States: A national survey study. PLoS Med. 2019 Nov 5;16(11):e1002922. doi: 10.1371/journal.pmed.1002922

34 Department of Health and Human Services Public Health Service Food and Drug Administration, February 12, 2019. Available: https://www.fda.gov/media/123725/download [Retrieved 7/16/21]

Child – Procedure for Suspected OAE

If you suspect an opioid-associated emergency, first assess scene safety. Take standard precautions. Avoid contact with drug residue, containers, needles, and other paraphernalia. Assess responsiveness. Tap the child and ask loudly, "Are you okay?" If the child is unresponsive, activate EMS and/or your EAP.

After activating, and unless they are readily available to you, send someone to get the first aid kit, naloxone, and an AED. Assess the child's breathing for no more than 10 seconds.

- If the unresponsive child is not breathing normally or only gasping, immediately start CPR, beginning with chest compressions.
- Use the AED as soon as one becomes available. Give naloxone as soon as you can, but do not delay CPR and AED use to give it.
- If the unresponsive child is breathing normally, give naloxone if available. To help protect the airway, place the child in the recovery position.

If the child does not respond, another dose may be given in the same way. Narcan® Nasal Spray may be dosed every 2 to 3 minutes, if available.



CHILD – RELIEF OF CHOKING

Choking, also known as foreign-body airway obstruction, can occur when a solid object, such as a piece of food or a small object, becomes stuck in the upper airway. The child cannot breathe.

A forceful thrust beneath the ribs and up into the diaphragm can pressurize the air in the chest and pop out the obstruction. Chest compressions can also create enough pressure to expel a foreign-body airway obstruction.

Mild Airway Obstruction

To provide the appropriate care, you must be able to recognize the difference between a mild and a severe airway obstruction. With a mild obstruction, the child can speak and cough. They may wheeze between coughs. A mild obstruction is typically cleared naturally through forceful coughing. If the child can inhale and exhale, encourage them to continue coughing. Watch for signs of the airway obstruction becoming severe.

Severe Airway Obstruction

When a severe airway obstruction occurs, the child cannot get air in or out of the lungs. This is a life-threatening medical emergency. If the foreign body is not removed, the child will quickly become unresponsive and suffer a secondary cardiac arrest within minutes.

Signs of a severe airway obstruction include the inability to speak or cry, a weak cough, or no cough at all. The child may make a high-pitched noise when trying to inhale or make no sound at all. They may hold their hands to the throat.



Responsive Child

Ask, “Are you choking?” If the child nods yes, or is unable to speak or cough, act quickly. If you are not alone, have someone call 911 to activate EMS using a mobile device and/or activate your EAP.

Position Yourself

- Stand behind the child. If needed, kneel behind a smaller child.
- Reach around and locate the navel. Make a fist with the other hand and place it thumb-side against the abdomen, just above the navel and below the ribs. Grasp your fist with the other hand.

Give Abdominal Thrusts

- Quickly thrust inward and upward into the abdomen. Repeat. Each thrust needs to be given with the intent of dislodging and expelling the object.
- Continue until the child can breathe normally or becomes unresponsive.

If the object is expelled and there is a good air exchange, the child should be seen by a healthcare professional. Infrequent, but serious complications from abdominal thrusts can occur.

Large Child

If the child is very large and you cannot wrap your arms around them, use chest thrusts instead of abdominal thrusts.

- Position yourself directly behind the child.
- Reach under the armpits and place the thumb-side of your fist on the center of the chest.
- Grasp your fist with your other hand and thrust straight backward. Try to not put pressure on the ribs. Give each chest thrust forcefully with the intent of dislodging and expelling the object.
- Repeat the chest thrusts until the object is expelled and the child can breathe or becomes unresponsive.

If Child Becomes Unresponsive

If the child becomes unresponsive, carefully lower them to the ground. Call 911 to activate EMS using a mobile device and/or activate your EAP if you have not done so already. After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED. Begin CPR starting with compressions. Before opening the airway to provide rescue breaths, open the child's mouth wide. Only if you see an object, remove it with your fingers. **Do not stick your finger blindly in a child's throat and attempt to sweep out an object. This can cause injury or push the object further down the throat, worsening the obstruction.**

If You Are Alone Without a Mobile Device

If you are alone without a mobile device, give 2 minutes of CPR before leaving a child, or carrying them with you, to get an AED and activate EMS and/or your EAP- if you have not done so already. Continue until another CPR provider, someone with more advanced training, or EMS providers arrive and take over, or until the person starts breathing, moving, or reacting in other ways.



section three

INFANT CPR AED

In CPR, an infant is defined as younger than 1 year of age, excluding newly born infants.



INFANT – CARDIAC ARREST

In cardiac arrest, the infant's heart stops beating. Fortunately, most infants have healthy hearts and cardiac arrest in infants is rare. When it does happen, it is most commonly a result of asphyxia, a lack of oxygen that occurs when breathing slows or stops. The lack of oxygen causes the heart to stop within minutes. This is also known as secondary cardiac arrest because the heart stops secondary to a lack of oxygen and not from a problem with the heart itself. Causes of secondary cardiac arrest include airway obstruction, lung infections or diseases, drowning, choking, and shock resulting from injuries such as motor vehicle accidents, burns, falls, and child abuse.

Sudden cardiac arrest occurs when the normal electrical impulses in the heart cause it to beat too quickly, inefficiently, or in an unsynchronized manner. When the lower chambers of the heart beat too quickly or quiver, the heart cannot pump blood. These abnormal heart rhythms are known as pulseless ventricular tachycardia and ventricular fibrillation. Blood flow to the body, along with the oxygen it carries, abruptly stops. Within minutes, brain cell death starts to occur from the lack of oxygen. Sudden cardiac arrest is also known as primary cardiac arrest because it is a problem with the heart itself.

While uncommon, sudden cardiac arrest can and does occur in children of all ages.

CPR and Defibrillation

CPR is the immediate treatment for suspected SCA. CPR can restore limited oxygen to the brain and other vital organs through a combination of chest compressions, an open airway, and rescue breaths. However, CPR alone is not enough. The most effective way to end pulseless ventricular tachycardia and ventricular fibrillation is defibrillation, using an automated external defibrillator (AED) with electrode pads adhered to the chest. An electrical shock passed through the chest may restore the heart's normal contractions. Immediate, high-quality CPR and early defibrillation with an AED can more than double the likelihood for survival.



Pediatric Chain of Survival

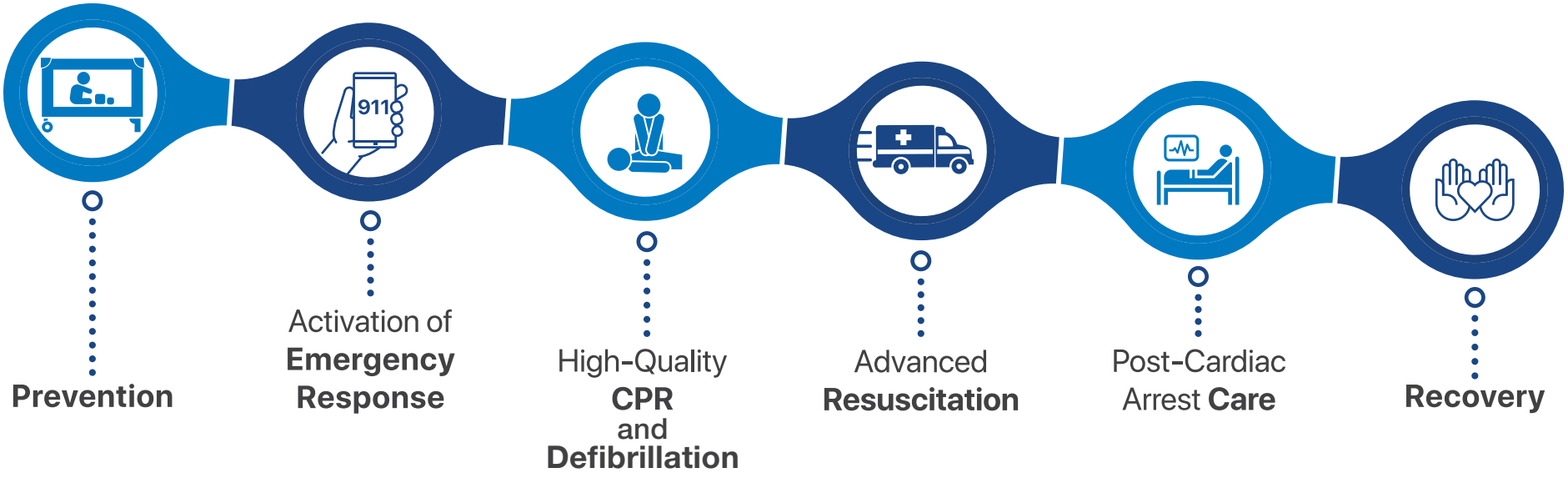
The pediatric chain of survival consists of a series of six interdependent links that describe the best approach to cardiac arrest care. The chain of survival consists of:

- Prevention of cardiac arrest,
- Prompt activation of EMS,
- Immediate high-quality CPR and defibrillation,
- Advanced resuscitation,
- Effective post-cardiac arrest care at a hospital, and
- Recovery.

The greatest chance for survival exists when all the links of the chain of survival are strong.

- Safety equipment, supervision, and other strategies can help to prevent pediatric cardiac arrest.
- Early activation of EMS or an emergency action plan gets help coming right away.
- Immediate high-quality CPR improves the victim's chance of survival by providing oxygen to the heart and brain.
- Effective advanced life support treatment, with a focus on return of spontaneous circulation (ROSC), and transport to a hospital for all persons with a chance of survival supports the most favorable outcome.
- Effective post-cardiac care, including monitoring and the use of medication, helps improve the likelihood of long-term survival.
- Recovery supports the person's physical and emotional needs that are ongoing after hospital discharge.

Each link in the chain is essential for the most positive outcome. If a single link is missing, the chances for survival are greatly reduced.



INFANT – ASSESSMENT & CHEST COMPRESSIONS

Assessment of the scene and the infant is a critical skill that applies in any emergency. The steps of assessment are crucial in determining the provider's next actions.



As a single pediatric CPR provider, follow the pediatric CPR AED procedure.

Assess Scene Safety, Take Standard Precautions

- First, assess scene safety. This includes taking standard precautions.

Assess Responsiveness

- If the scene is safe, assess responsiveness. Gently tap the infant and ask loudly, "Are you okay?"

Activate EMS and/or EAP

- If the infant is unresponsive, call 911 to activate EMS using a mobile device and/or activate your EAP.

Send Someone to Get the First Aid Kit & AED

- After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED.

Assess Breathing

- Take no longer than 10 seconds to assess breathing. Then, take action based the presence or absence of normal breathing.

Unresponsive, Not Breathing Normally

If the unresponsive infant is not breathing normally or only gasping, and you are alone, immediately start CPR, beginning with chest compressions. If you are alone without a mobile device, give 2 minutes of CPR. Then, bring the infant with you to get an AED and activate EMS and/or your EAP - if you have not done so already.



Use a CPR Feedback Device

A CPR feedback device transmits information on compression rate, depth, and recoil. Providers can significantly improve chest compression quality by adjusting technique based on data from a feedback device. Using a CPR feedback device is shown to improve outcomes and is recommended during CPR training and in real-life resuscitation attempts.

Infant Compressions

High-quality chest compressions are the foundation of high-quality infant CPR. To deliver infant chest compressions, position the infant face up on a firm, flat surface. If the infant is face down, carefully roll them over. For infant compressions, use one of three hand-position techniques: the 2-Finger, 2 Thumb-Encircling Hands, or the Heel of One Hand Technique.



2-Finger Technique

- Place two fingertips in the center of the infant's chest, just below the nipple line, on the lower half of the breastbone. Do not press the tip of the breastbone. Use both fingers to compress the chest.



2 Thumb-Encircling Hands Technique

- Position yourself at the infant's side. Place the pads of both thumbs side by side in the center of the infant's chest, on the lower half of the breastbone. Your thumbs may overlap on very small infants. With the fingers of both hands, encircle the infant's chest and support the back. Use both thumbs to compress the chest.



Heel of One Hand Technique

- Place the heel of one hand on the center of the chest, on the lower half of the breastbone. Position your shoulder directly above your hand and straighten your arm to lock your elbow. Use the heel of one hand to compress the chest. This technique may be useful for larger infants or when the CPR provider has difficulty compressing the appropriate depth using fingers or thumbs.

Whichever technique you use, push hard, straight down, to compress the chest approximately 1½ inches (4 centimeters). This depth should be at least one-third of the diameter of the infant's chest. At the end of each compression, allow complete chest recoil. Compress the chest at a rate of 100-120 compressions per minute. Minimize interruptions.

INFANT – RESCUE BREATHING & USING A CPR MASK

Rescue breathing is artificial ventilation of the lungs. It provides oxygenation of the blood and removal of carbon dioxide. CPR providers can give rescue breathing using their own exhaled breath and a CPR mask. Room air contains about 21% oxygen. Exhaled air contains between 16% and 17% oxygen. This exhaled oxygen is enough to support life.

Importance of Infant Rescue Breaths

Rescue breaths are extremely important for infants because cardiac arrest typically results from asphyxia. Conventional CPR with rescue breathing should be performed by all trained pediatric CPR providers who are willing and able.

Take Standard Precautions

Take standard precautions when providing infant rescue breaths. Use an infant-sized CPR mask. Some CPR masks allow you to attach a HEPA filter to provide further protection during CPR. The HEPA filter fits between the valve and mask, in the path of the exhaled air. HEPA filters can trap airborne virus particles.

Open the Airway

To give rescue breaths, there must be an open airway. The airway is the only path for getting air into the lungs. The tongue is connected to the lower jaw. Lifting the jaw forward pulls the tongue away from the back of the throat, relieving the obstruction and opening the airway.



Head Tilt–Chin Lift

To open the airway with the head tilt–chin lift maneuver, position yourself at the infant's side.

Place one hand on their forehead. Place the fingertips of your other hand under the bony part of the lower jaw, near the chin. Apply firm, backward pressure on the forehead while lifting the chin upward. Avoid pressing into the soft tissue of the chin with your fingers, as this can also obstruct the airway. Leave the mouth slightly open. **Keep an infant's head in a neutral "sniffing" position. Tilting the head beyond a neutral position may block the airway.**



Using a CPR mask

To use an infant-sized CPR mask, position yourself at the infant's side.

- Place the mask flat on the infant's face with the top of the mask over the bridge of the nose. Use your thumb and forefinger to provide uniform pressure around the top of the mask.
- Use the thumb of your hand lifting the chin to control the bottom of the mask. Hook your fingertips of the hand controlling the bottom of mask under the bony ridge of the jaw.
- Tilt the head and lift the chin to open the airway. Maintain a neutral "sniffing" position. Lift the infant's face up into mask to create an airtight seal.
- Give a rescue breath by blowing through the valve opening. Each breath is 1 second in length. Give enough air to create a visible rise of the chest, but no more. Stop your rescue breath as soon as you see chest rise.

> ***Too Many Breaths or a Large Volume Can Be Harmful.***
> *CPR providers should avoid giving too many breaths or a large volume during rescue breathing because it can be harmful. It can force air into the stomach, causing regurgitation of food, liquids, or vomit into the airway.*



Mouth-to-Mouth-and-Nose Technique

There may be a rare or extraordinary circumstance when a barrier device is not available, and a CPR provider is willing to provide artificial ventilation without a barrier. For infants, the preferred technique is mouth-to-mouth-and-nose rescue breathing.

To give mouth-to-mouth-and-nose rescue breathing to an infant,

- Open the airway with a head tilt-chin lift.
- Maintain a neutral "sniffing" position. Take a regular-sized breath and place your mouth over the infant's mouth and nose, creating an airtight seal.
- Give 1 breath over 1 second.
- Give enough air to make the chest visibly rise, but no more than that.
- If the chest does not rise, repeat the head tilt-chin lift make a better seal, and try again.
  - It may be necessary to move the infant's head through a range of positions to provide effective rescue breathing.
- If you have difficulty making an effective seal over the mouth and nose, try using the mouth-to-mouth technique.

INFANT – AUTOMATED EXTERNAL DEFIBRILLATION & USING AN AED

An automated external defibrillator (AED) is a portable computerized device that is simple to operate. It can identify the abnormal heart rhythms associated with sudden cardiac arrest - pulseless ventricular tachycardia and ventricular fibrillation - and deliver an electrical shock to restore the heart's normal contractions. If the electrical shock is effective, there will be a return of spontaneous circulation. The heart will be able to pump blood. The infant may also start breathing, moving, or reacting in other ways.

AED Design

AED design varies by model and manufacturer, but they all operate in a similar manner. If you have an AED in your workplace, be familiar with its operation. Most AEDs are designed for both adult and pediatric use. The energy level of the shock for pediatric use is reduced from the standard adult energy setting. The shock is reduced by an electronic device built into the AED and activated using a button, "key," or another type of switching mechanism.

AED Operation

Choosing the AED Pads

Pediatric pads are recommended for children under 8 years of age. If the child pads are not available, use the adult pads. The standard adult shock will be higher, but a higher energy shock is better than no shock at all.

Power on the AED

Turn on the AED and bare the infant's chest. If there is a button, "key," or another type of mechanism for switching to pediatric use, activate it.

Apply the AED Pads

Peel the pads from the backing sheet one at a time and place each according to the pictures. The front and back position is common for infants. Press the pads firmly in place. Do not allow them to touch each other.

Allow AED Analysis

When the AED voice prompts you, make sure no one is touching the infant. This allows the AED to analyze the heart rhythm.

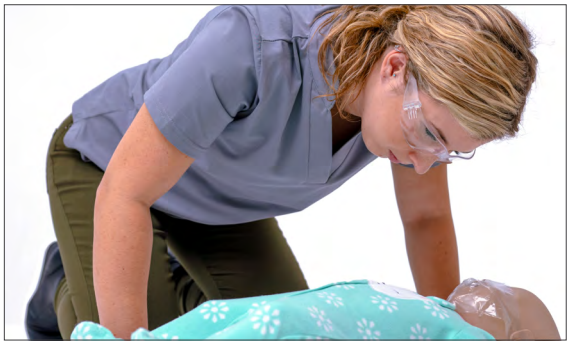
Deliver a Shock

If the AED advises a shock, it will prompt you to clear the infant again. Loudly say, "Everybody clear," or something similar. For most AEDs, delivering a shock is done by pressing the shock button. Deliver a shock. Once a shock has been delivered, immediately resume CPR starting with chest compressions.



INFANT – ONE CPR PROVIDER CPR AED

One CPR provider can provide high-quality CPR by putting together all the skills of assessment, compressions, airway, breathing, and AED use.



Perform an Assessment

- Assess scene safety, taking standard precautions.
- If the scene is safe, assess the infant's responsiveness. Tap the infant and ask loudly, "Are you okay?"
- If the infant is unresponsive, call 911 to activate EMS using a mobile device and/or activate your EAP.
- After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED.
- Take no longer than 10 seconds to assess breathing.
- If the unresponsive infant is not breathing normally or only gasping, and you are alone, immediately start CPR, beginning with chest compressions.







Perform High-Quality Chest Compressions

- Position the infant on a firm, flat surface. Using one of the hand-position techniques, perform 30 high-quality chest compressions.
- Compress the chest at least 1 ½ inches (4 centimeters). Compress at a rate of 100-120 times per minute. Allow the chest to fully recoil at the top of each compression.

Give Rescue Breaths

- Use an infant-sized CPR mask to give rescue breaths. Open the airway and give 2 rescue breaths. Ensure each breath is 1 second in length and creates visible rise of the chest. Immediately resume high-quality chest compressions.



Operate the AED

- As soon as an AED is available, power on the AED. Bare the chest. If there is a button, “key,” or another type of mechanism for switching to pediatric use, activate it.
- Correctly apply the pediatric pads according to the pictures. If the pediatric pads are not available, use the adult pads. Follow the AED’s voice prompts.

Continue CPR AED

- After about 2 minutes of CPR, the AED will prompt you again to analyze the heart rhythm. Follow the voice prompts.
- Continue CPR AED until another CPR provider, someone with more advanced training, or EMS providers arrive and take over, or until the infant starts breathing, moving, or reacting in other ways.
- If another CPR provider arrives, takes turns giving compressions. Switch providers about every two minutes, sooner if they get tired. Try to minimize interruptions to compressions to less than 10 seconds.



INFANT – ADDITIONAL CPR AED CONSIDERATIONS

A CPR provider may face some circumstances that require additional considerations or tasks for effective care.

Special Considerations for the AED

Act quickly if anything affects AED use to keep this link in the chain strong.

In Water

Do not use an AED if the infant is immersed in water. The infant must be removed from water before using an AED.

Wet Setting

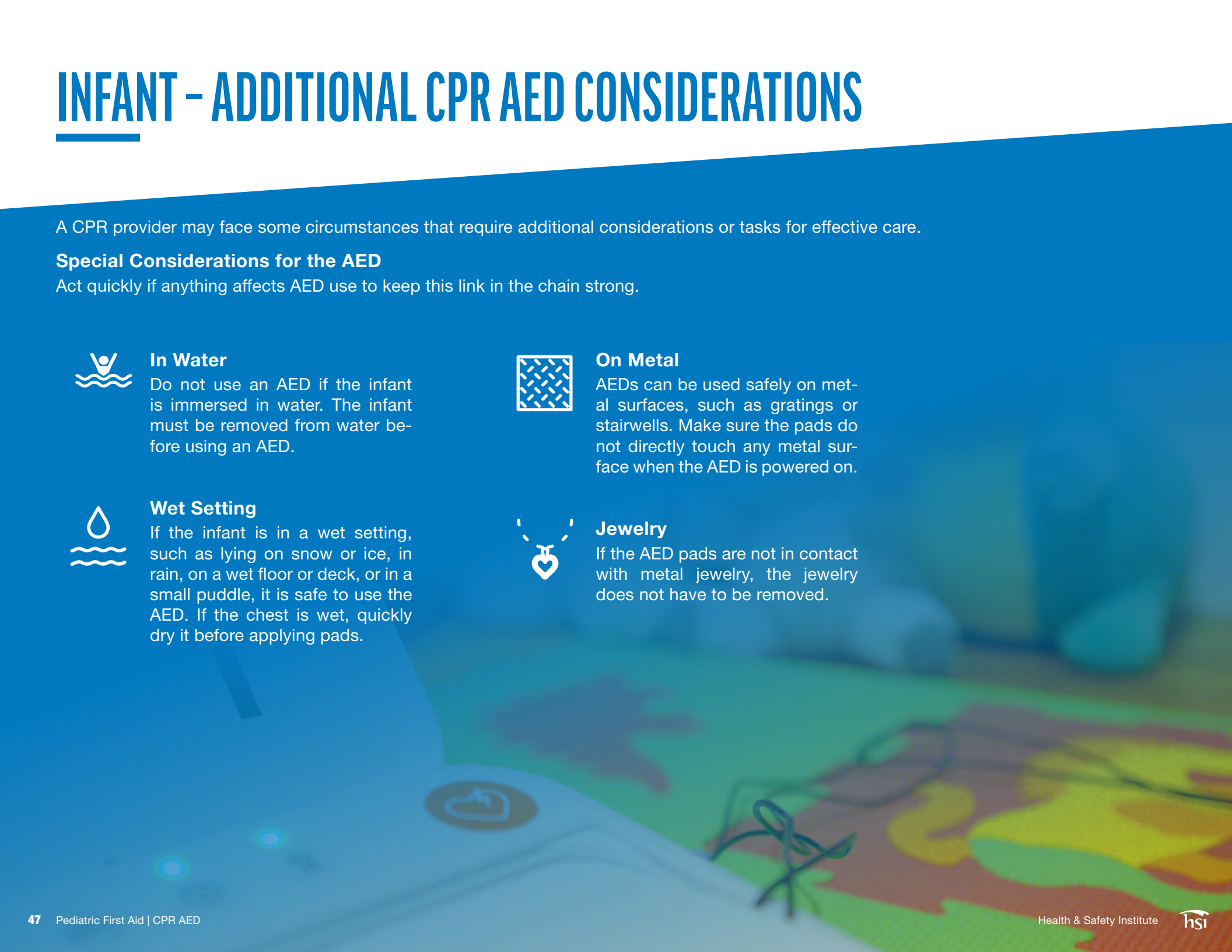
If the infant is in a wet setting, such as lying on snow or ice, in rain, on a wet floor or deck, or in a small puddle, it is safe to use the AED. If the chest is wet, quickly dry it before applying pads.

On Metal

AEDs can be used safely on metal surfaces, such as gratings or stairwells. Make sure the pads do not directly touch any metal surface when the AED is powered on.

Jewelry

If the AED pads are not in contact with metal jewelry, the jewelry does not have to be removed.



INFANT – SUSPECTED OPIOID-ASSOCIATED EMERGENCY (OEA)

Prescription opioid misuse has become a leading cause of unintentional injury and death among adolescents and young adults in the United States.[35] Seventy percent of drug overdose deaths involve a prescription or illicit opioid such as oxycodone, hydrocodone, morphine, fentanyl, or heroin. Accidental opioid ingestions occur in infants and very young children, mirroring the opioid epidemic in adolescents and adults.[36] Recognizing an opioid overdose can be difficult. Signs of an overdose may include:

- Small, constricted "pinpoint pupils,"
- Changes in skin appearance and condition,
- Falling asleep or loss of consciousness,
- Slow, shallow breathing,
- Choking or gurgling sounds, and
- Limp body.

Opioids can cause death by slowing, and eventually stopping, breathing. A quick response to an opioid overdose, including administering naloxone, can prevent brain injury and death. Naloxone is a medication approved by the Food and Drug Administration (FDA) designed to rapidly reverse opioid overdose. Naloxone is available without a prescription in all U.S. states, the District of Columbia and Puerto Rico. Narcan® Nasal Spray is the most commonly prescribed opioid reversal medication. Narcan® Nasal Spray is approved for the emergency treatment of known or suspected opioid overdose in children of all ages.[37]

Using Narcan® Nasal Spray



To use Narcan® Nasal Spray, peel back the package to remove the device. Hold the device with your thumb on the bottom of the red plunger and 2 fingers on the nozzle. Place and hold the tip of the nozzle in either nostril until your fingers touch the bottom of the person's nose. Press the plunger firmly to release the dose into the nose.

Procedure for Suspected OAE

If you suspect an opioid-associated emergency, assess scene safety. Take standard precautions. **Avoid contact with drug residue, containers, needles, and other paraphernalia**. Assess responsiveness. Tap the infant and ask loudly, "Are you okay?" If the infant is unresponsive, activate EMS and/or your EAP.

After activating, and unless they are readily available to you, send someone to get the first aid kit, naloxone, and an AED. Assess the infant's breathing for no more than 10 seconds. If the infant is not breathing normally or only gasping, start high-quality CPR. Use the AED as soon as one becomes available. Give naloxone as soon as you can, but do not delay CPR and AED use to give it.

If an unresponsive infant is breathing normally, give naloxone if available. To help protect the airway, place the infant in the recovery position. If the infant does not respond, another dose may be given in the same way. Narcan® Nasal Spray may be dosed every 2 to 3 minutes, if available.

35 Hudgins JD, Porter JJ, Monuteaux MC, Bourgeois FT. Prescription opioid use and misuse among adolescents and young adults in the United States: A national survey study. PLoS Med. 2019 Nov 5;16(11):e1002922. doi: 10.1371/journal.pmed.1002922

36 Crane, EH. Emergency department visits involving the accidental ingestion of opioid pain relievers by children aged 1 to 5. Available: https://www.samhsa.gov/data/sites/default/files/report_3398/ShortReport-3398.html [Retrieved 1/17/2022]

37 Department of Health and Human Services Public Health Service Food and Drug Administration, February 12, 2019. Available: https://www.fda.gov/media/123725/download [Retrieved 7/16/21]

INFANT – RELIEF OF CHOKING



If an infant appears to be choking but is responsive, watch for signs of the obstruction becoming severe.

Mild Airway Obstruction

If there is a good air exchange with a mild airway obstruction – the infant is coughing forcefully, has a strong cry, and can inhale and exhale - stand ready to help if things get worse.

Severe Airway Obstruction

With a severe airway obstruction, the infant may cough weakly, be unable to cry, or unable to make any sound at all. There may be a high-pitched noise when the infant tries to inhale.

Responsive Infant

If the infant is responsive and you are not alone, have someone call 911 to activate EMS using a mobile device and/or activate your EAP.

Position Yourself and the Infant

- Kneel or sit with the infant in your lap. Hold the infant facedown over your forearm with legs straddled and with the head lower than the chest. Support the head by holding the jaw. Rest your forearm on your lap or thigh to support the infant.

Give 5 Back Slaps

- Using the heel of the other hand, give up to 5 back slaps between the shoulder blades. Give each back slap forcefully with the intent of dislodging and expelling the object.

Give 5 Chest Thrusts

- Sandwich the infant between your forearms and turn the infant over, using the palm of one hand to support the face and the palm of the other hand to support the back of the head.
- Place 2 fingertips on the breastbone just below the nipple line and give up to 5 chest thrusts. Give each chest thrust forcefully with the intent of dislodging and expelling the object. Repeat the sequence of back slaps and chest thrusts until the object is expelled and the infant can breathe or becomes unresponsive.

If Infant Becomes Unresponsive

If the infant becomes unresponsive, carefully lower them to the ground. Call 911 to activate EMS using a mobile device and/or activate your EAP if you have not done so already. Send someone to get the first aid kit and an AED. After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED. Begin CPR starting with compressions. Before opening the airway to provide rescue breaths, open the mouth wide. Only if you see an object, carefully remove it with your fingers. Do not stick your finger blindly in an infant's throat and attempt to sweep out an object. This can cause injury or push the object further down the throat, worsening the obstruction.

If You Are Alone Without a Mobile Device

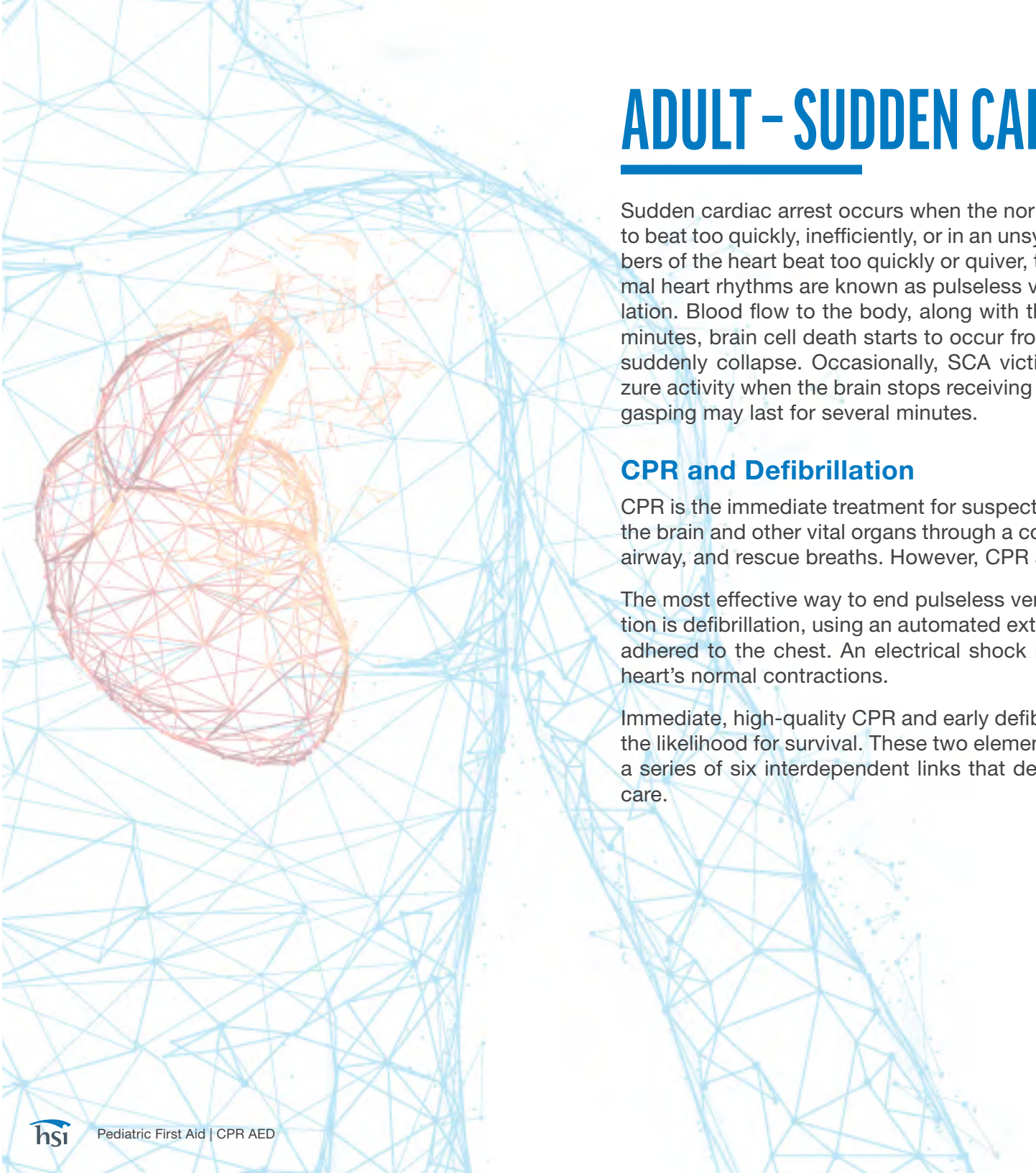
If you are alone without a mobile device, give 2 minutes of CPR before leaving the infant, or carrying them with you, to get an AED and activate EMS and/or your EAP- if you have not done so already. Continue until another CPR provider, someone with more advanced training, or EMS providers arrive and take over, or until the infant starts breathing, moving, or reacting in other ways

section four

ADULT CPR AED

Cardiac arrest is among the leading causes of death in the United States and worldwide. Cardiac arrest is the loss of the heart's ability to pump blood through the body due to an inadequate or absent heartbeat. The most dramatic occurrence, sudden cardiac arrest, or SCA, can happen with little or no warning.





ADULT – SUDDEN CARDIAC ARREST (SCA)

Sudden cardiac arrest occurs when the normal electrical impulses in the heart cause it to beat too quickly, inefficiently, or in an unsynchronized manner. When the lower chambers of the heart beat too quickly or quiver, the heart cannot pump blood. These abnormal heart rhythms are known as pulseless ventricular tachycardia and ventricular fibrillation. Blood flow to the body, along with the oxygen it carries, abruptly stops. Within minutes, brain cell death starts to occur from the lack of oxygen. A victim of SCA may suddenly collapse. Occasionally, SCA victims will experience 10-20 seconds of seizure activity when the brain stops receiving oxygen. Normal breathing stops. Abnormal gasping may last for several minutes.

CPR and Defibrillation

CPR is the immediate treatment for suspected SCA. CPR can restore limited oxygen to the brain and other vital organs through a combination of chest compressions, an open airway, and rescue breaths. However, CPR alone is not enough.

The most effective way to end pulseless ventricular tachycardia and ventricular fibrillation is defibrillation, using an automated external defibrillator (AED) with electrode pads adhered to the chest. An electrical shock passed through the chest may restore the heart's normal contractions.

Immediate, high-quality CPR and early defibrillation with an AED can more than double the likelihood for survival. These two elements are parts of the adult "chain of survival," a series of six interdependent links that describe the best approach to cardiac arrest care.

ADULT – CHAIN OF SURVIVAL

Each link in the chain is essential for the most positive outcome. If a single link is missing, the chances for survival are greatly reduced. The chain of survival consists of:

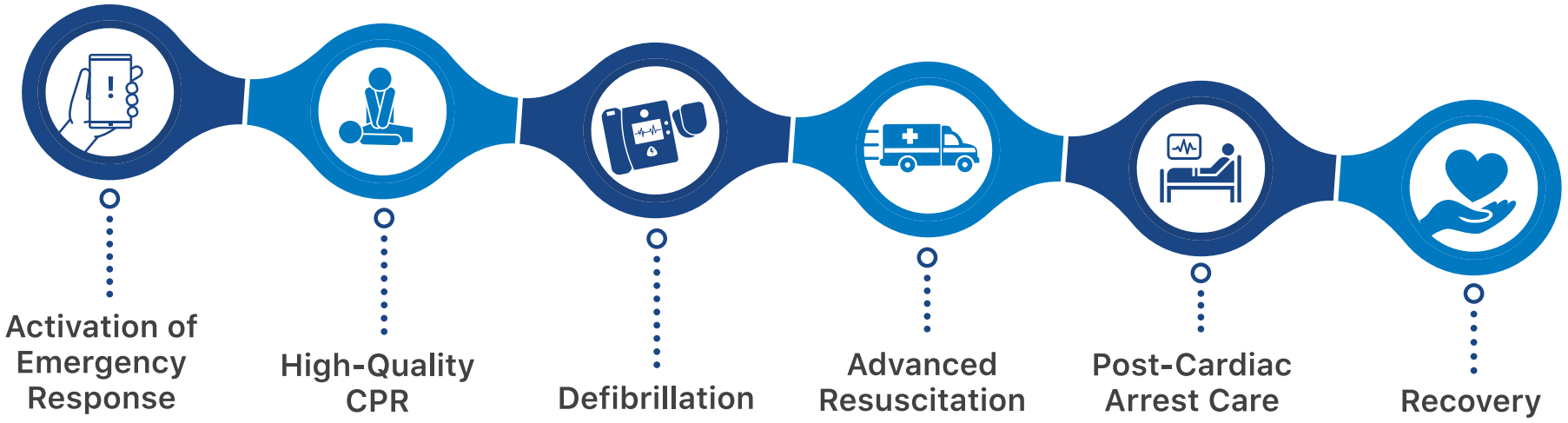
- Early recognition of cardiac arrest and prompt activation of EMS,
- Immediate high-quality CPR beginning with chest compressions,
- Early defibrillation with an AED (when indicated),
- Effective advanced life support treatment,
- Effective post-cardiac arrest care at a hospital, and
- Recovery.

The greatest chance for survival exists when all the links of the chain of survival are strong. Early recognition of SCA and activation of EMS or an emergency action plan gets help coming right away. Immediate high-quality CPR improves the victim's chance of survival by providing oxygen to the heart and brain. Attaching an AED as soon as it becomes available speeds up time to defibrillation, if indicated.

Effective advanced life support treatment, with a focus on return of spontaneous circulation, or ROSC, and transport to a hospital for all persons with a chance of survival supports the most favorable outcome. Effective post-cardiac care, including monitoring and the use of medication, helps prevent the return of cardiac arrest and improves the likelihood of long-term survival. Recovery supports the person's physical and emotional needs that are ongoing after hospital discharge.

Safety & Health Tip

Following a heart-healthy lifestyle can help you lower your risk for heart disease, SCA, and other heart problems. A heart-healthy lifestyle includes eating a heart-healthy diet, aiming for a healthy weight, managing stress, engaging in physical activity, and quitting smoking.[38]



38 The National Heart, Lung, and Blood Institute. Sudden Cardiac Arrest. Available: https://www.nhlbi.nih.gov/health-topics/sudden-cardiac-arrest [Retrieved 8/13/21]

ADULT – ASSESSMENT & CHEST COMPRESSIONS

Assessment of the scene and the person is a critical skill that applies in any emergency. The steps of assessment are crucial in determining the provider's next actions. As a single CPR provider, follow the adult CPR AED procedure.



Assess Scene Safety

- Before anything else, pause to make sure the scene is safe for you and the victim. If the scene is not safe, do not enter it until hazards have been minimized or eliminated. This includes taking standard precautions.



Assess Responsiveness

- If the scene is safe, assess responsiveness. Tap the person and ask loudly, "Are you okay?"



Activate EMS and/or EAP

- If the person is unresponsive, call 911 to activate EMS using a mobile device and/or activate your EAP.



Send Someone to Get the First Aid Kit and an AED

- After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED.



Assess Breathing

- Look at the person's chest and face for signs of normal breathing.
  - Normal breathing is effortless, quiet, and regular. Look for the chest to rise and fall.
  - Weak, irregular gasping, snorting, snoring, or gurgling sounds are known as agonal breaths. This is not normal breathing. It is a sign of cardiac arrest.



Unresponsive, Not Breathing Normally

- If an unresponsive person is not breathing normally or only gasping, immediately start high-quality CPR, beginning with chest compressions.



Adult Chest Compressions

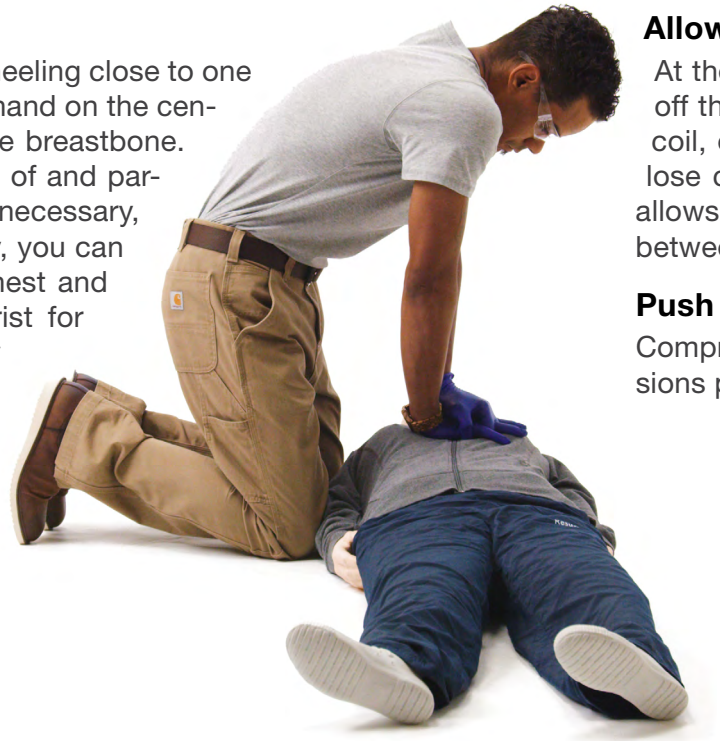
High-quality CPR is the primary influence on survival from cardiac arrest. High-quality chest compressions are the foundation of high-quality CPR. External compression of the chest increases pressure inside the chest and directly compresses the heart, forcing blood to move from the chest to the lungs, heart, brain, and the rest of the body. When chest compressions stop, blood flow decreases significantly. When compressions start again, it takes several compressions to restore blood flow. The more times chest compressions are interrupted and the longer the interruption, the less the blood flow to the brain, heart, and other organs. Minimal interruption improves blood flow. CPR should be performed where victim is found if it is safe to do so. To deliver adult chest compressions, position the person face up on a firm flat surface. If the person is face down, carefully roll them over.

CPR Provider Position

Position yourself at the person's side, kneeling close to one side of the chest. Place the heel of one hand on the center of the chest, on the lower half of the breastbone. Place the heel of the other hand on top of and parallel to the first. Interlock your fingers, if necessary, to keep them off the chest. Alternatively, you can place one hand on the center of the chest and use your other hand to grasp your wrist for support. Position your shoulders directly above your hands and straighten your arms to lock your elbows.

Push Hard and Deep

Push hard and deep, straight down, using your upper body weight to compress the chest at least 2 inches (5 centimeters).



Allow Complete Chest Recoil

At the end of each compression, lift all your weight off the person's chest, allowing it to completely recoil, or rebound, to its normal position, but do not lose contact with the chest. Complete chest recoil allows the heart to refill. Avoid leaning on the chest between compressions.

Push Fast

Compress the chest at a rate of 100-120 compressions per minute.



Use a CPR Feedback Device

A CPR feedback device transmits information on compression rate, depth, and recoil. Providers can significantly improve chest compression quality by adjusting technique based on data from a feedback device. Using a CPR feedback device is shown to improve outcomes and is recommended during CPR training and in real-life resuscitation attempts.

ADULT – RESCUE BREATHING & USING A CPR MASK

Rescue breathing is artificial ventilation of the lungs. It provides oxygenation of the blood and removal of carbon dioxide. It is an important component for successful resuscitation. Conventional CPR with rescue breathing should be performed by all trained CPR providers who are willing and able. To give rescue breaths, there must be an open airway. The airway is the only path for getting air into the lungs. The tongue is connected to the lower jaw. Lifting the jaw forward pulls the tongue away from the back of the throat, relieving the obstruction and opening the airway.

Head Tilt–Chin Lift

To open the airway with the head tilt–chin lift maneuver, position yourself at the person's side. Place one hand on their forehead. Place the fingertips of your other hand under the bony part of the lower jaw, near the chin. Apply firm, backward pressure on the forehead while lifting the chin upward. Avoid pressing into the soft tissue of the chin with your fingers, as this can also obstruct the airway. Leave the mouth slightly open.



Rescue breathing

CPR providers can give rescue breathing using their own exhaled breath and a CPR mask. Room air contains about 21% oxygen. Exhaled air contains between 16% and 17% oxygen. This exhaled oxygen is enough to support life. Some CPR masks allow you to attach a high-efficiency particulate air (HEPA) filter to provide further protection during CPR. The HEPA filter fits between the valve and mask, in the path of the exhaled air. HEPA filters can trap airborne virus particles.

Using a CPR Mask

To use a CPR mask, position yourself at the person's side. Place the mask flat on the person's face with the top of the mask over the bridge of the nose. Use your thumb and forefinger to provide uniform pressure around the top of the mask. Use the thumb of your other hand lifting the chin to control the bottom of the mask. Hook your fingertips of the hand controlling the bottom of the mask under the bony ridge of the jaw.

Tilt the head and lift the chin to open the airway. Lift the person's face up into the mask to create an airtight seal. Give a rescue breath by blowing through the valve opening. Each breath is 1 second in length. **Give enough air to create a visible rise of the chest, but no more. Stop your rescue breath as soon as you see chest rise.** Remove your mouth and let the person exhale.

Importance of Adult Rescue Breaths, Secondary Cardiac Arrest

Rescue breaths are critically important in CPR, as they provide life-sustaining oxygen and ventilation directly to the person's lungs. In addition to caring for SCA, CPR providers may provide care for victims of secondary cardiac arrest. Secondary cardiac arrest is different from sudden cardiac arrest because it results from a problem originating outside of the heart. For example, when the person stops breathing from a drug or alcohol overdose.

Too Many Breaths or a Large Volume Can Be Harmful

CPR providers should avoid giving too many breaths or a large volume during rescue breathing because it can be harmful. It can force air into the stomach, causing regurgitation of food, liquids, or vomit into the airway. Give enough air to make the chest rise, but no more than that. Stop your rescue breath as soon as you see chest rise.

Drowning

The immediate cause of death in drowning is a lack of oxygen. As a result, the first and most important treatment is giving rescue breaths to a drowning victim. In the case of drowning, begin with rescue breaths. As soon as the unresponsive victim is removed from the water, open the airway and assess breathing. If there is no breathing, give 2 rescue breaths that make the chest rise (if this was not done previously in the water).[39]

Safety & Health Tip

Alcohol is the leading known contributing factor in fatal boating accidents. Where the cause of death was known, 75 percent of fatal boating accident victims drowned, and 86 percent were not wearing a life jacket. Wear a life jacket. Boat sober.[40]



39 Part 12:11 Cardiac Arrest in Special Situations. Drowning. Vanden Hoek TL, et al. 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation. 2010 Nov 2;122(18 Suppl 3):S829-61. doi: 10.1161/CIRCULATIONAHA.110.971069. Erratum in: Circulation. 2011 Feb 15;123(6):e239. Erratum in: Circulation. 2011 Oct 11;124(15):e405. PMID: 20956228. [Retrieved 11/30/21]

40 U.S. Coast Guard releases 2020 Boating Safety Statistics Report. Maritime Commons. Available: https://mariners.coastguard.blog/2021/06/30/u-s-coast-guard-releases-2020-boating-safety-statistics-report/ [Retrieved 9/13/21]

ADULT – AUTOMATED EXTERNAL DEFIBRILLATION & USING AN AED

An automated external defibrillator (AED) is a portable computerized device that is simple to operate. It can identify pulseless ventricular tachycardia and ventricular fibrillation and deliver an electrical shock to restore the heart's normal contractions. If the electrical shock is effective, there will be a return of spontaneous circulation. The heart will be able to pump blood. The person may also start breathing, moving, or reacting in other ways.

AED Operation

AED design varies by model and manufacturer, but they all operate in a similar manner. If you have an AED in your workplace, be familiar with its operation.

Power on the AED

- Opening the lid will turn on the power for some AEDs. With others, simply press the power button. This starts voice prompts and readies the device for use.

Bare the Chest

- Proper AED operation requires direct contact between the pads and the person's skin. Any clothing in the way must be removed. This includes swimsuits, bras, and any other clothing covering a person's chest. If necessary, cut through clothing with the shears that are typically included with a CPR AED response kit.

Apply the AED Pads

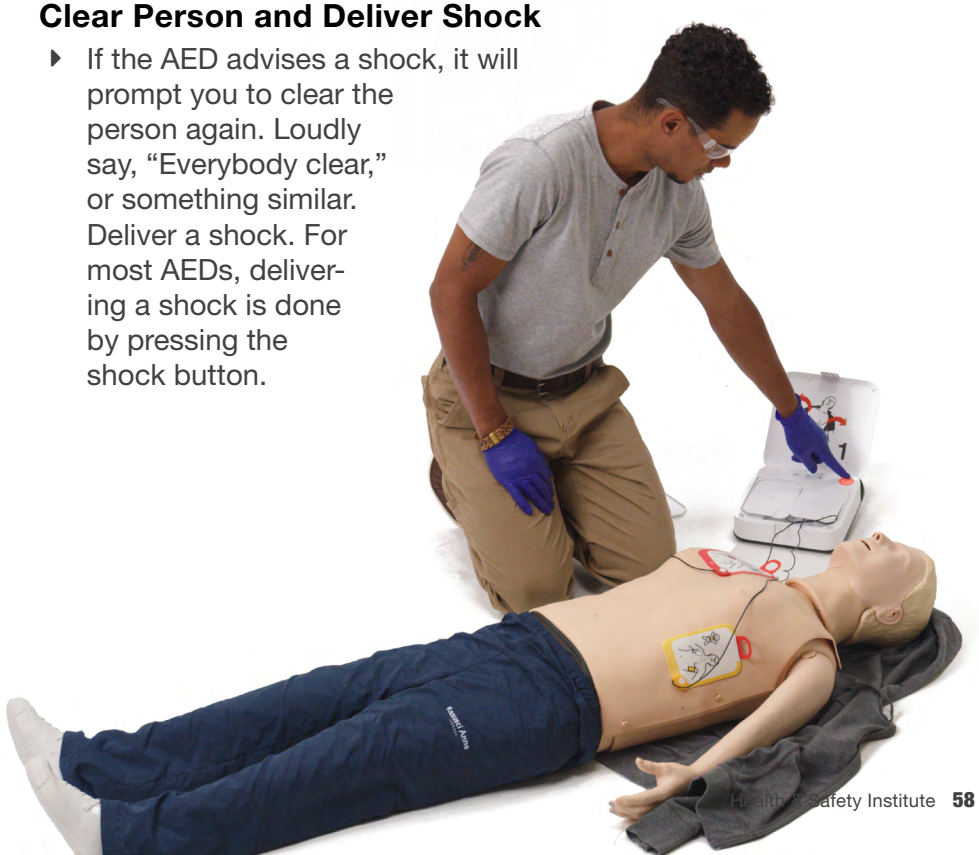
- **Use adult AED pads for persons 8 years of age or older. Locate and pull out the defibrillation pads.** The pads have pictures on them to show proper placement. Peel the pads from the backing sheet one at a time and place each according to the pictures. Press the pads firmly in place. Pads must not touch or overlap each other. Avoid placing the pads over breast tissue in females. Avoid placing the pads over medication patches or implanted devices. Try to apply the pads within 30 seconds after the AED arrives.

Allow AED Analysis

- When the AED voice prompts you, clear the person and allow the AED to analyze the heart rhythm. Be certain that no one is touching the person.

Clear Person and Deliver Shock

- If the AED advises a shock, it will prompt you to clear the person again. Loudly say, "Everybody clear," or something similar. Deliver a shock. For most AEDs, delivering a shock is done by pressing the shock button.



Resume CPR & Follow AED Voice Prompts

- Once a shock has been delivered, immediately resume CPR starting with chest compressions.
- After about 2 minutes of CPR, the AED will prompt you again to analyze the heart rhythm. Follow the voice prompts.

Continue CPR AED

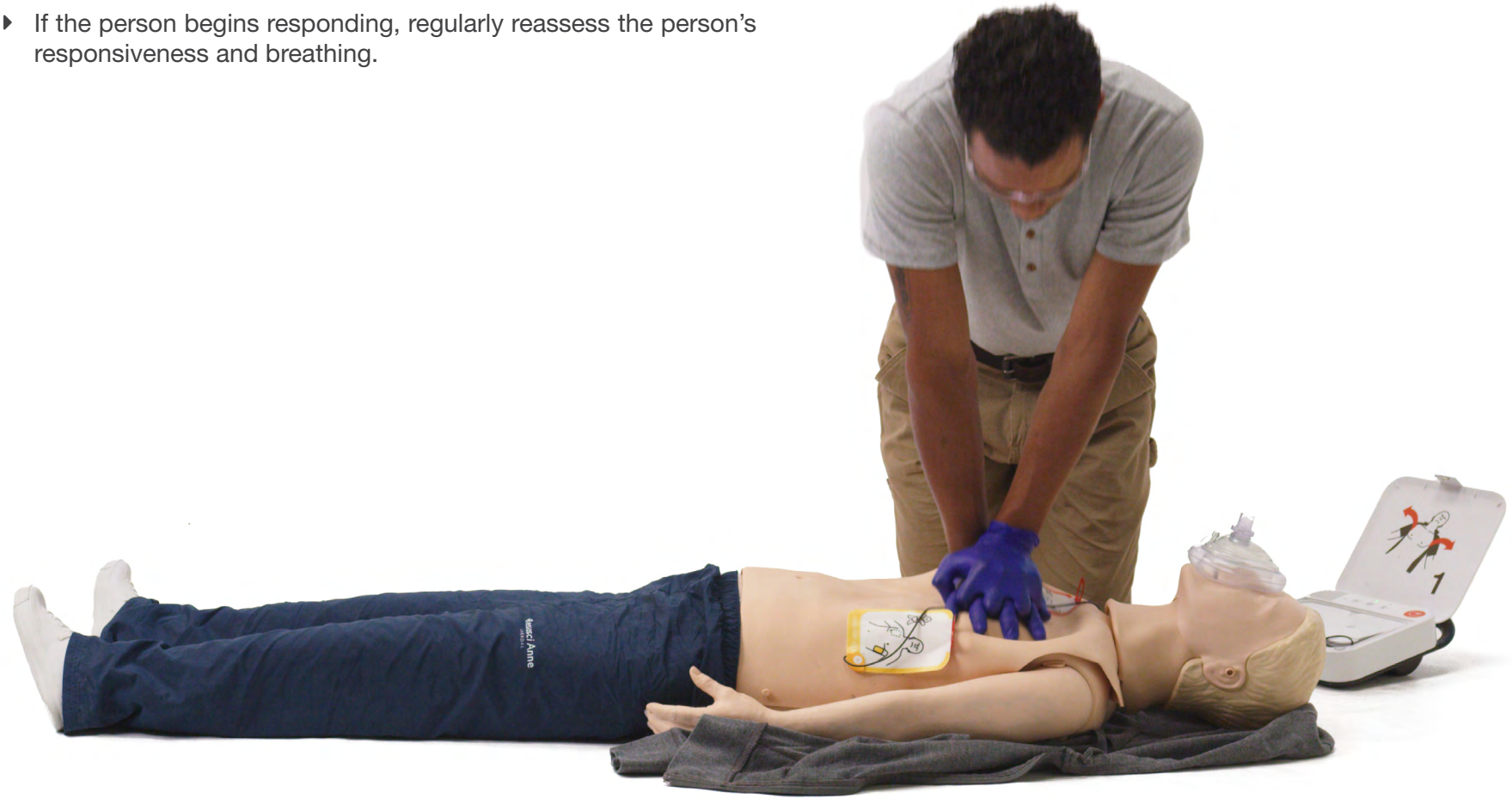
- Continue CPR AED use until another CPR provider, someone with more advanced training, or EMS providers arrive and take over, or until the person starts breathing, moving, or reacting in other ways.

Reassess

- If the person begins responding, regularly reassess the person's responsiveness and breathing.

Safety & Health Tip

The United States Food and Drug Administration (FDA) encourages individuals and organizations to ensure their AED is FDA-approved (and if it is not, to make plans to transition to an FDA-approved AED). The FDA maintains a list of FDA-approved AEDs. Search for "automated external defibrillators" at fda.gov.



ADULT – ONE-PROVIDER CPR AED

If an unresponsive person is not breathing normally or only gasping, one CPR provider can provide high-quality adult CPR by putting together all the skills of assessment, compressions, airway, breathing, and AED use.



Perform an Assessment

- First, assess scene safety, taking standard precautions. If the scene is safe, assess the person's responsiveness. Tap the victim and ask loudly, "Are you okay?"
- If the person is unresponsive, activate EMS and/or your EAP.
- After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED.
- Assess the person's breathing for no more than 10 seconds. If the person is not breathing normally or only gasping, start high-quality CPR.



Perform High-Quality Chest Compressions

- Position the person on a firm, flat surface. Perform 30 high-quality chest compressions. Position two hands on the lower half of the breastbone. Use upper body weight to compress. Compress at least 2 inches (5 centimeters). Compress at a rate of 100–120 times per minute. Allow the chest to fully recoil at the top of each compression.



Give Rescue Breaths

- Use a CPR mask to give rescue breaths. Open the airway and give 2 rescue breaths. Ensure each breath is 1 second in length and creates visible rise of the chest.

Continue CPR

- Immediately resume high-quality chest compressions. Repeat CPR cycles of 30 compressions and 2 breaths for two minutes.



Operate the AED

- As soon as the AED is available, power on the AED. Bare the chest.
- Correctly apply the AED pads according to the pictures.
- Clear the person so the AED can analyze the heart rhythm. While the AED is analyzing, make sure no one is touching the person.
- If directed by the AED to deliver a shock, clear the person again and press the shock button.

Continue CPR AED

- Immediately resume CPR starting with chest compressions.
- After about 2 minutes of CPR, the AED will prompt you again to analyze the heart rhythm. Follow the voice prompts.
- Continue CPR AED until another CPR provider, someone with more advanced training, or EMS providers arrive and take over, or until the person starts breathing, moving, or reacting in other ways.
- If another CPR provider is available, takes turns providing chest compressions. Switch providers about every two minutes, or sooner if they get tired. Try to minimize interruptions to compressions to less than 10 seconds.

Safety & Health Tip

If you find yourself unexpectedly confronted by an adult in cardiac arrest, you have limited or no PPE, and you are unwilling to provide rescue breathing out of fear the person may have an infectious disease, you can still help the person by providing compression-only CPR.



ADULT – ADDITIONAL CPR AED CONSIDERATIONS

A CPR provider may face some circumstances that require additional considerations or tasks for effective care. Act quickly if anything affects AED use to keep this link in the chain strong.



Chest Hair

Thick chest hair may prevent the AED pads from adhering to the skin. If chest hair is preventing pad-to-skin contact, use the razor that is typically included with a CPR AED response kit to quickly shave the spots where the pads will be placed. If you do not have a razor, but a second pair of pads is available, use the first set of pads to remove the hair from the skin. Apply the first set of pads firmly over the chest hair, then pull the pads off quickly. Then apply the second set of pads.



In Water

Do not use an AED if the person is immersed in water. The person must be removed from water before using an AED.



Wet Setting

If the person is in a wet setting, such as lying on snow or ice, in rain, on a wet floor or deck, or in a small puddle, it is safe to use the AED. If the person's chest is wet, quickly dry the chest before applying pads.



On Metal

AEDs can be used safely on metal surfaces, such as gratings or stairwells. Make sure the pads do not directly touch any metal surface when the AED is powered on.



Implanted Devices

Persons at high risk for cardiac arrest may have a surgically implanted defibrillator or pacemaker. Most often, a noticeable lump is visible in the left upper chest, though sometimes the implant is in the upper right chest or abdomen. Avoid placing the AED pad directly over the implant, as the device may interfere with shock delivery.



Medication Patches

Do not place AED electrode pads directly on top of a medication patch. A patch could block delivery of the shock from the electrode pad to the heart and cause small burns to the skin. If it doesn't delay shock delivery, peel off the patch with a gloved hand and quickly wipe the area before attaching the electrode pad.



Metal Jewelry

If the AED pads are not in contact with metal jewelry, the jewelry does not have to be removed.



Pregnant Person in Cardiac Arrest

Do not delay chest compressions or defibrillation for a pregnant person. Follow the normal steps for operating the AED. The shock from the AED will not harm the baby. If the person starts breathing, moving, or reacting in other ways, place the person on their left side to improve blood flow.





Take Standard Precautions

Resuscitation puts CPR providers at an increased risk of occupational exposure and infection from bloodborne and airborne pathogens. CPR providers should routinely take standard precautions during resuscitation, including using a CPR mask with a HEPA filter when available.

Drowning

The immediate cause of death in drowning is a lack of oxygen. As a result, the first and most important treatment is giving rescue breaths to a drowning victim. In the case of drowning, begin with rescue breaths. Use a CPR mask. Open the airway and give 2 rescue breaths. Ensure each breath is 1 second in length and creates visible rise of the chest. Then, immediately begin high-quality chest compressions.

Mouth-to-Mouth Rescue Breathing

There may be a rare or extraordinary circumstance when a barrier device is not available, and a CPR provider is willing to provide mouth-to-mouth rescue breathing. Mouth-to-mouth rescue breathing is a form of artificial ventilation that can provide oxygen to a respiratory or cardiac arrest victim.

To give mouth-to-mouth rescue breathing to an adult, open the airway with a head tilt-chin lift. Pinch the nose closed with your thumb and forefinger. Take a regular-sized breath and seal your lips around the victim's mouth, creating an airtight seal. Give 1 breath over 1 second. Give enough air to make the chest visibly rise, but no more than that.

ADULT – SUSPECTED OPIOID-ASSOCIATED EMERGENCY (OEA)

Drug overdose deaths continue to increase in the United States. Seventy percent of drug overdose deaths involve a prescription or illicit opioid such as oxycodone, hydrocodone, morphine, fentanyl, or heroin. Opioids can cause death by slowing, and eventually stopping, breathing. Recognizing an opioid overdose can be difficult. Signs of an overdose may include:

- Small, constricted "pinpoint pupils,"
- Changes in skin appearance and condition,
- Falling asleep or loss of consciousness,
- Slow, shallow breathing,
- Choking or gurgling sounds, and
- Limp body.

A quick response to an opioid overdose, including administering naloxone, can prevent brain injury and death. Naloxone is a medication approved by the Food and Drug Administration (FDA) designed to rapidly reverse opioid overdose. Naloxone is available without a prescription in all U.S. states, the District of Columbia, and Puerto Rico.

Using Narcan® Nasal Spray[41]

Narcan® Nasal Spray is the most prescribed opioid reversal medication. To use Narcan® Nasal Spray, peel back the package to remove the device. Hold the device with your thumb on the bottom of the plunger and 2 fingers on the nozzle. Place and hold the tip of the nozzle in either nostril until your fingers touch the bottom of the person's nose. Press the plunger firmly to release the dose into the nose.



41 Key steps to administering Narcan® Nasal Spray. Available: https://www.narcan.com/patients/how-to-use-narcan/ [Retrieved 6/22/21]



Procedure for Suspected OAE

If you suspect an opioid-associated emergency, assess scene safety. Take standard precautions. Avoid contact with drug residue, containers, needles, and other paraphernalia. Assess responsiveness. Tap the victim and ask loudly, "Are you okay?" If the person is unresponsive, activate EMS and/or your EAP. After activating, and unless they are readily available to you, send someone to get the first aid kit, naloxone, and an AED. Assess the person's breathing for no more than 10 seconds.

If the unresponsive person is not breathing normally or only gasping, immediately start CPR, beginning with chest compressions. Use the AED as soon as one becomes available. Give naloxone as soon as you can, but do not delay CPR and AED use to give it.

If an unresponsive person is breathing normally, give naloxone if available. To help protect the airway, place the person in the recovery position. Regularly reassess scene safety, responsiveness, and breathing. Stay with the person until someone with more advanced training takes over or EMS arrives.

If the person does not respond, another dose may be given in the same way. Narcan® Nasal Spray may be dosed every 2 to 3 minutes, if available.

Safety & Health Tip

The U.S. Department of Health and Human Services (HHS) Substance Abuse and Mental Health Services Administration (SAMHSA) National Helpline, 1-800-662-HELP (4357), is a confidential, free, 24-hours-a-day/365-days-a-year information service. Available in English and Spanish, this helpline is for individuals and family members facing mental and/or substance use disorders. This service provides referrals to local treatment facilities, support groups, and community-based organizations.

Although naloxone is available without a prescription in all U.S. states, individual state laws and regulations may prescribe specific practices, rules, and standards for naloxone administration. CPR and first aid providers must be familiar with their state licensing regulations or occupational requirements regarding the use and administration of naloxone. A summary of state laws regarding naloxone access is available from the Legislative Analysis and Public Analysis Association (LAPPA). Search for it at legislativeanalysis.org/.

ADULT – RELIEF OF CHOKING

Choking, also known as foreign-body airway obstruction, can occur when a solid object, such as a piece of food or a small object, becomes stuck in the upper airway. The person cannot breathe. A forceful thrust beneath the ribs and up into the diaphragm can pressurize the air in the chest and pop out the obstruction. Chest compressions can also create enough pressure to expel a foreign-body airway obstruction.

Mild Airway Obstruction

To provide the appropriate care, you must be able to recognize the difference between a mild and a severe airway obstruction. With a mild obstruction, the person can speak and cough. They may wheeze between coughs. A mild obstruction is typically cleared naturally by the person through forceful coughing. If the person can inhale and exhale, encourage the person to continue coughing. Watch for signs of the airway obstruction becoming severe.

Severe Airway Obstruction

When a severe airway obstruction occurs, the person cannot get air in or out of the lungs. This is a life-threatening medical emergency. If the foreign body is not removed, the person will quickly become unresponsive and suffer a secondary cardiac arrest within minutes.

Responsive Person

Signs of a severe airway obstruction include the inability to speak, a weak cough, or no cough at all. The person may make a high-pitched noise when trying to inhale or no sound at all. They may hold their hands to the throat. Ask, “Are you choking?” If the person nods yes, or is unable to speak or cough, act quickly. If you are not alone, have someone call 911 to activate EMS using a mobile device and/or activate your EAP.

Position Yourself

Stand behind the person. Reach around and locate the navel. Make a fist with the other hand and place it thumb-side against the abdomen, just above the navel and below the ribs. Grasp your fist with the other hand.

Give Thrusts

Quickly thrust inward and upward into the abdomen. Repeat. Each thrust needs to be given with the intent of dislodging and expelling the object.

Continue until the person can breathe normally or becomes unresponsive. If the object is expelled and there is a good air exchange, encourage the person to be seen by a healthcare professional. Infrequent, but serious complications from abdominal thrusts can occur.





Pregnant or Large Adult

If the person is pregnant or very large and you cannot wrap your arms around them, use chest thrusts instead of abdominal thrusts.

- Position yourself directly behind the person. Reach under the armpits and place the thumb-side of your fist on the center of the chest. Grasp your fist with your other hand and thrust straight backward. Try to not put pressure on the ribs.
- Give each chest thrust forcefully with the intent of dislodging and expelling the object. Repeat the chest thrusts until the object is expelled and the person can breathe or becomes unresponsive.

If the Person Becomes Unresponsive



If the person becomes unresponsive, carefully lower them to the ground. Follow the CPR AED procedure. Assess scene safety and take standard precautions. Assess responsiveness. Call 911 to activate EMS using a mobile device and/or activate your EAP if you haven't done so already. After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED. Assess breathing for no more than 10 seconds. If the unresponsive person is not breathing normally or only gasping, remove any bulky clothing from the person's chest and immediately start high-quality CPR, beginning with chest compressions. Before opening the airway to provide rescue breaths, open the person's mouth wide. Only if you see an object, remove it with your fingers. Continue until another CPR provider, someone with more advanced training, or EMS providers arrive and take over, or until the person starts breathing, moving, or reacting in other ways

Safety & Health Tip

Not chewing food well before swallowing; talking or laughing while eating; alcohol consumption; advancing age; and poorly fitting dental work are all risk factors for adult choking.

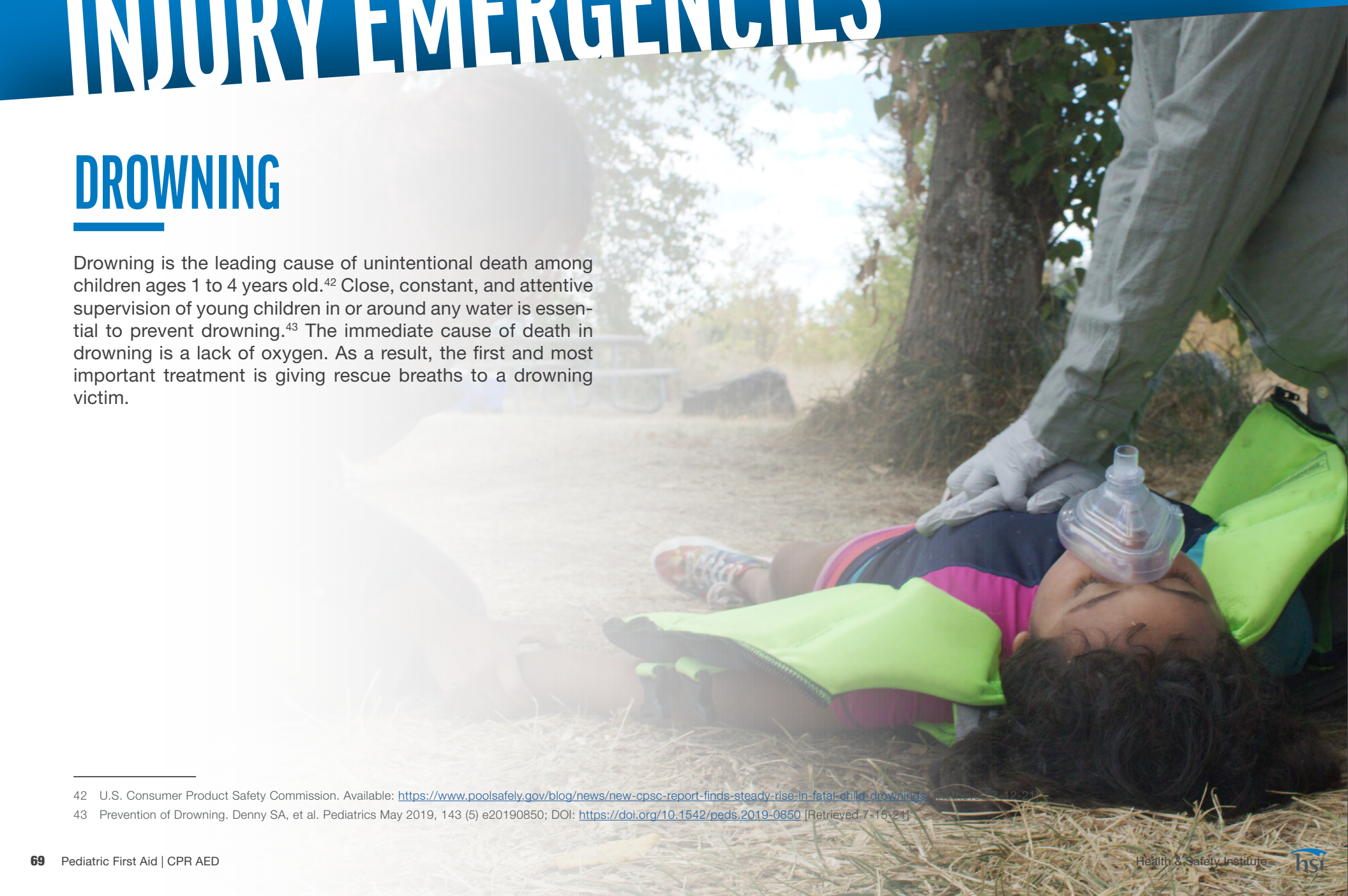
section five

PEDIATRIC FIRST AID

INJURY EMERGENCIES

DROWNING

Drowning is the leading cause of unintentional death among children ages 1 to 4 years old.[42] Close, constant, and attentive supervision of young children in or around any water is essential to prevent drowning.[43] The immediate cause of death in drowning is a lack of oxygen. As a result, the first and most important treatment is giving rescue breaths to a drowning victim.



42 U.S. Consumer Product Safety Commission. Available: https://www.poolsafely.gov/blog/news/new-cpsc-report-finds-steady-rise-in-fatal-child-drownings/ [Retrieved 7-12-21]

43 Prevention of Drowning. Denny SA, et al. Pediatrics May 2019, 143 (5) e20190850; DOI: https://doi.org/10.1542/peds.2019-0850 [Retrieved 7-15-21]

Follow the Pediatric First Aid, CPR AED Procedure

Assess Scene Safety

- First, assess scene safety. Take standard precautions. Rescuing a drowning victim involves significant dangers. It is not uncommon for bystanders to drown while attempting a rescue.[44] Do not attempt a swimming rescue yourself unless you are trained in water rescue and can do so without endangering yourself.

Assess Responsiveness

- Once the child is on dry land and the scene is safe, assess responsiveness. Tap the child and ask loudly, “Are you okay?”

Activate EMS and/or EAP

- If the child is unresponsive, call 911 to activate EMS using a mobile device and/or activate your EAP, if you have not done so already.

Send Someone to Get the First Aid Kit & AED

- After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED.

Assess Breathing

- Assess breathing. Look at the child’s chest and face for signs of normal breathing. Look for the chest to rise and fall.

Unresponsive, Not Breathing Normally.

If an unresponsive child is not breathing normally or not breathing at all, or is only gasping, immediately start CPR. In the case of drowning, begin with rescue breaths.[45]

Give Rescue Breaths

- Use a CPR mask. Open the airway and give 2 rescue breaths. Ensure each breath is 1 second in length and creates visible rise of the chest.

Perform High-Quality Chest Compressions

- After 2 rescue breaths, perform 30 high-quality chest compressions. Repeat CPR cycles of 30 compressions and 2 breaths for two minutes. Use the AED as soon as one becomes available.

It is highly likely the child will vomit when CPR is performed. If this occurs, quickly roll them on to their side and use your finger to clear the mouth. Continue CPR AED until another CPR provider, someone with more advanced training, or EMS providers arrive and take over, or until the child starts breathing, moving, or reacting in other ways. If the child begins responding, regularly reassess responsiveness, airway, and breathing.



44 Lawes JC, Rijksen EJT, Brander RW, Franklin RC, Daw S (2020) Dying to help: Fatal bystander rescues in Australian coastal environments. PLoS ONE 15(9): e0238317. https://doi.org/10.1371/journal.pone.0238317 [Retrieved 7-15-21]

45 Vanden Hoek TL, et al. Part 12: cardiac arrest in special situations: 2010 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. Circulation. 2010;122(suppl 3):S829 –S861.

SEVERE, LIFE-THREATENING EXTERNAL BLEEDING

Trauma is the Greek word for "wound."[46] Trauma is one of the world's leading causes of death and disability. Around 40% of deaths from trauma are due to severe blood loss or shock.[47] Severe external life-threatening bleeding from trauma can occur in many situations, including work-related injuries, vehicle crashes, natural disasters, and acts of violence such as stabbings, active shooter incidents, and bombings.

Severe, life-threatening bleeding is likely if a large blood vessel is damaged. Arterial bleeding pulses out of a wound with each heartbeat, while venous bleeding flows steadily. In either case, consider bleeding to be severe and life-threatening if blood is gushing, spurting, or flowing continuously.

Follow the Pediatric First Aid Procedure

Assess scene safety.

- If the scene is unsafe, do not approach it. If the scene is safe, take standard precautions. There are infectious microorganisms present in blood that can cause disease including hepatitis b virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV), but the average risk of infection from exposure to blood borne illnesses is very low.[48]

Assess responsiveness.

- If the person is responsive, breathing, and bleeding is severe, call 911 to activate EMS using a mobile device and/or activate your EAP.

Send someone to get the first aid kit & AED.

- After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED. All first aid kits should include trauma pads and sterile gauze pads to stop bleeding. In workplaces that have a high risk of serious injuries, first aid kits are required to include a tourniquet.[49]

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46 "Trauma." Merriam-Webster.com Dictionary, Merriam-Webster, https://www.merriam-webster.com/dictionary/trauma. Accessed 2 Jun. 2021.

47 Curry N, Hopewell S, Dorée C, Hyde C, Brohi K, Stanworth S. The acute management of trauma hemorrhage: a systematic review of randomized controlled trials. Crit Care. 2011;15(2):R92. doi:10.1186/cc10096

48 Exposure to Blood, What Healthcare Personnel Need to Know. Available: https://www.cdc.gov/hai/pdfs/bbp/exp_to_blood.pdf [Retrieved 6-3-21]

49 https://www.osha.gov/laws-regs/standardinterpretations/2019-06-19



Health & Safety Institute hsi

Assess breathing for no more than 10 seconds.

- If the child is responsive and breathing, obtain consent from a parent or legal guardian, if readily available (unless previously established). Introduce yourself and let the child know you are there to help. Assess for life-threatening conditions. If present, immediately provide appropriate first aid.
- A commercially manufactured, ready-made tourniquet should be used to treat severe, life-threatening bleeding in children approximately 2 years of age and older.[50,51] A tourniquet is a tight, wide band placed around an arm or a leg and tightened to compress blood vessels and to stop bleeding. Many lives could be saved with early use of a tourniquet for severe, external life-threatening bleeding.[52] In some public places, a bleeding control kit that includes a commercially manufactured, ready-made tourniquet may be available next to AEDs. If a bleeding control first aid kit is available nearby, send someone to get it.



Stop the Bleeding

When a tourniquet is available, use it as soon as possible after the injury to stop severe, life-threatening bleeding. Follow the manufacturer's instructions. The basic steps are: place, turn, secure, and document.

Place

- Place the tourniquet at least 2-3 inches above the wound, between the torso and the wound. It may be applied over bare skin or clothing. Do not place the tourniquet over the wound or over a joint.
- Pull the free end of the tourniquet strap through the buckle. Pull the strap tight around the limb and fasten it.





Turn

- Turn the windlass, rod, or knob and keep turning it until the bleeding stops. This is likely to be painful for the injured person.

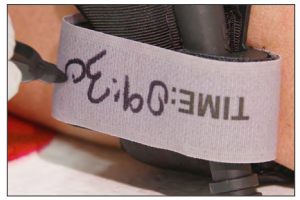


Secure

- Secure the windlass or rod to the tourniquet so that it does not untwist.

Document

- Document the time that the tourniquet was applied. Some tourniquets have a white space on the strap where you can write the time. If not, record the time on a conspicuous location on the injured person. Do not loosen or remove the tourniquet.



If bleeding is not controlled with the first tourniquet, and a second one is available, it can be applied side by side with the first.



50 American Red Cross Scientific Advisory Council Pediatric Tourniquet Use Scientific Review. June 2019. Available: https://www.redcross.org/content/dam/redcross/docs/Pediatric%20Tourniquet%20Use%E2%80%94ADVISORY.pdf [Retrieved 7/9/2021]

51 Charlton N P, Goolsby C A, Zideman D A, et al. (April 13, 2021) Appropriate Tourniquet Types in the Pediatric Population: A Systematic Review. Cureus 13(4): e14474. doi:10.7759/cureus.14474 [Retrieved 7/9/2021]

52 Bonk C, Weston BW, Davis C, Barron A, McCarty O, Hargarten S. Saving Lives with Tourniquets: A Review of Penetrating Injury Medical Examiner Cases. Prehosp Emerg Care. 2020 Jul-Aug;24(4):494-499. doi: 10.1080/10903127.2019.1676344. Epub 2019 Dec 3. PMID: 31580174.

Direct Manual Pressure & Bandaging

When a manufactured tourniquet is not immediately available, the child is less than 2 years old, or when the bleeding is somewhere other than an arm or leg, use direct manual pressure, preferably with a hemostatic dressing. A hemostatic dressing is a sterile gauze dressing impregnated with an ingredient that causes rapid coagulation of blood. Hemostatic dressings more rapidly control bleeding than use of direct pressure alone.[53] If a hemostatic dressing is not available, use sterile trauma dressings, compressed gauze, or a stack of 10 sterile 4" x 4" gauze sponges.[54] If sterile dressings are not available, use any clean material available such as clothing, a towel, or other absorbent materials.

Direct manual pressure on the bleeding vessel is critical to stop bleeding.

- Use the heel of one hand with the other hand stacked on top of the first or use the pads of 3 fingers of each hand stacked on top of each other.
- Push down hard onto the wound. Use continuous pressure.
- If blood soaks through the gauze or other material, press harder. Keep pressing hard until the bleeding stops.
- Don't remove pressure to add more gauze and don't remove blood-soaked materials.
- Once the bleeding stops, wrap an elastic or self-adhesive roller bandage firmly over the gauze or other material to help maintain pressure.

For severe life-threatening bleeding from the neck, shoulder, or groin, the first aid provider can pack, or stuff, the wound with hemostatic gauze, plain gauze, or if that is not available, a clean cloth.[55] Pack the gauze into the wound until no more goes in. Then, apply direct manual pressure. Push down hard on the wound. Keep pushing hard until the bleeding stops.





53 Pellegrino JL, Charlton NP, Carlson JN, Flores GE, Goolsby CA, Hoover AV, Kule A, Magid DJ, Orkin AM, Singletary EM, Slater TM, Swain JM. 2020 American Heart Association and American Red Cross Focused Update for First Aid. Circulation. 2020 Oct 27;142(17):e287-e303. doi: 10.1161/CIR.0000000000000900. [Retrieved 6.4.21]

54 Charlton, N. et al. Pressure Methods for Primary Hemorrhage Control: A Randomized Crossover Trial Available: https://oaks.kent.edu/ijfae/vol2/iss1/pressure-methods-primary-hemorrhage-control-randomized-cross-over-trial [Retrieved 6.4.21]

55 Stop the Bleed. Available : https://www.bleedingcontrol.org/~/media/bleedingcontrol/files/stop%20the%20bleed%20booklet.ashx [Retrieved 6/22/21]

Improvised Tourniquet

If a manufactured tourniquet is not available and direct manual pressure with or without the use of a hemostatic dressing fails to stop life-threatening bleeding on an arm or leg, consider using an improvised tourniquet if you are trained in its use.

An improvised tourniquet can be created using common materials such as a triangular bandage or clothing and a rigid stick-like object.

To improvise a tourniquet using a triangular bandage:

- Start by folding the bandage lengthwise so that it is approximately 2 inches wide.
- Place the center of the bandage a few inches above the wound site and not directly over a joint.
- Wrap the bandage firmly around the limb, bringing both ends back to the top.
- Tie half a knot over the top of the bandage.
- Place a rigid stick-like object on top of the half-knot and tie a full knot over it.
- Twist the stick and keep twisting until the bleeding stops.
- Secure the stick so it does not untwist.



Safety & Health Tip

Child care centers should have a written policy prohibiting firearms, ammunition, and ammunition supplies. If firearms and other weapons are present, they should have child protective devices, be unloaded or disarmed, be kept under lock and key, and be inaccessible to children. Parents/guardians should be notified that firearms and other weapons are on the premises.[56]

56 American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education. CFOC Standards Online Database. Aurora, CO, National Resource Center for Health and Safety in Child Care and Early Education, 2020. https://nrckids.org/CFOC/Database/9.2.3.16 [Accessed 11/2/21]

SHOCK



Shock is a life-threatening condition that occurs when the body is not getting enough blood flow and oxygen to the body to function properly. Losing about one-fifth or more of the normal amount of blood in the body causes shock. Shock can get worse very rapidly. As many as 1 in 5 people who suffer shock will die from it.[57] The greater and more rapid the blood loss, the more severe the symptoms of shock. An infant or child's body has a remarkable ability to compensate for blood loss so the child may appear stable for some time, and then suddenly become much worse.

Follow the Pediatric First Aid, CPR AED Procedure

Early signs of shock in infants and young children include changes in responsiveness such as abnormal drowsiness and cool limbs.[58] Older children may complain of nausea and fatigue. The child may appear uneasy, restless, worried, or confused. They may be extremely thirsty. You may notice changes in the appearance and condition of the child's skin. Pale, gray/ashen, sweaty, cool skin, and/or blue-tinged nail beds and lips are a result of not enough circulating red blood cells. If a child shows signs of shock, and there is no difficulty breathing, keep them lying down, face up. Cover them to help maintain body temperature. If it is wet or cold, place a water-resistant cover beneath them if available. Give them nothing to drink, even if they complain that they are very thirsty. Regularly reassess scene safety, responsiveness, breathing and the effectiveness of first aid care provided. Calm, comfort, and reassure the child. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.

57 Available: https://medlineplus.gov/ency/article/000039.htm [Retrieved 06-07-21]

58 Shock in Pediatrics Clinical Presentation. Available: https://emedicine.medscape.com/article/1833578-clinical#b3 [Retrieved 7/9/2021]

MINOR WOUNDS



Wounds are injuries that break the skin. They include abrasions, lacerations, and puncture wounds. Abrasions can occur when a bare skin surface is rubbed or scraped across a rough surface and the outer layers of the skin are damaged. Lacerations occur when a sharp object cuts, slices, or tears into the skin. A laceration is often irregular and jagged. If the laceration is large, it may need stitches to close the wound and stop the bleeding. Puncture wounds penetrate the skin and underlying tissue. Because of the difficulty of cleaning a puncture wound, the possibility of infection is high.

A puncture wound may have a part of the object that caused the wound still in it, such as a splinter. If a wound is bleeding heavily, saturating the gauze or dressing, treat it as severe external life-threatening bleeding.

Minor Wound Care

Prompt first aid can help heal small wounds and prevent infection. Take standard precautions. Minor wounds that break the skin should be thoroughly flushed with a large volume of warm or room temperature water with or without soap until there is no foreign matter in the wound. To control bleeding, apply continuous direct manual pressure with a sterile dressing or any clean available material for at least five minutes. The bleeding should stop or slow to an ooze or trickle.

Splinter Removal

Splinters need to be removed to keep the wound from becoming infected. Most splinters are easily removed. Using a pair of tweezers, grab the protruding end of the splinter and pull it out along the direction it entered. If a splinter appears deeply embedded or you have only been able to remove a piece of it, do not attempt further first aid care. The wound should be seen by a healthcare professional.

Use an Occlusive Dressing

If there are no known allergies to antibiotic ointment or cream, wounds heal better with less infection if they are covered with an antibiotic and a clean, occlusive dressing to seal off the wound and surrounding tissue from air or contaminants.[59] **In educational institutions and early childhood education programs, do not apply prescription or non-prescription antibiotic ointments or other topical medications without written orders from a prescribing health professional and written permission from a parent or guardian.**[60]

Bleeding from the Mouth

For bleeding from the mouth, apply direct manual pressure to a bleeding site with sterile gauze until bleeding stops. If sterile gauze is not available, use the cleanest material available such as clothing, a towel, or other absorbent materials. Have the child lie on their side or sit up if injuries are not suspected to prevent blood from going into their airway or stomach.

If bleeding does not stop, maintain direct manual pressure and call 911 to activate EMS using a mobile device and/or activate your EAP.

59 Markenson D, et al . Part 17: first aid: 2010 American Heart Association and American Red Cross Guidelines for First Aid. Circulation. 2010;122(suppl 3):S934 –S946.

60 CFOC Standards Online Database. Aurora, CO; National Resource Center for Health and Safety in Child Care and Early Education; 2020. https://nrckids.org/CFOC/Database/3.6.3.1 [Retrieved 7/9/2021]



TOOTH INJURIES

Young children have primary, or “baby,” teeth that are naturally replaced with permanent teeth beginning at about six years of age. Primary teeth are less of a concern when knocked out. A knocked-out permanent tooth does not necessarily mean it is lost for good. Proper first aid can save the tooth. Look for the tooth or have someone look for the tooth before leaving.

Handle the tooth carefully when you pick it up. Do not touch the root of the tooth, only the chewing surface, called the crown. If the tooth is dirty, gently rinse, but do not scrub it. Use only water, not soap or other chemicals. Do not dry the tooth and do not wrap it in a tissue or cloth. *Keep the tooth moist at all times.*

Gently place a child’s permanent tooth back into the socket in the correct position. Press down on the tooth with your thumb until the crown is level with the adjacent tooth. Have the child bite down on a wad of gauze or cloth to stabilize the tooth until arrival at the dentist. Do not reinsert a primary tooth.[61]

If a knocked-out permanent tooth cannot be immediately repositioned, prevent the tooth from drying out. Place the tooth in Hanks’ Balanced Salt Solution or in an oral rehydration salt solution. If these are not available, enclose the tooth in plastic food wrap. If plastic wrap is not available, consider storing the tooth in cow’s milk or the injured child’s saliva. Get the child to the nearest dentist or endodontist. The faster you act, the better the chance of saving the tooth. Act quickly, within 30 minutes.

Safety & Health Tip

Mouth guard use has been shown to reduce the risk of sport-related dental injuries.[62]

61 First Aid for a Knocked-Out Permanent Tooth. American Academy of Pediatrics. Available: https://www.healthychildren.org/English/health-issues/injuries-emergencies/Pages/First-Aid-for-a-Knocked-Out-Permanent-Tooth.aspx [Retrieved 7/9/2021]

62 The American Dental Association. Available: https://www.ada.org/en/member-center/oral-health-topics/mouthguards [Retrieved 8-31-21]

BLEEDING FROM THE NOSE

Nosebleeds can occur when small blood vessels inside the nostrils are ruptured. Most nosebleeds occur because of minor irritations or colds. Most nosebleeds are not serious and are rarely life threatening.

To care for a child with a nosebleed, have them sit up straight with their head tilted forward, chin down. When a person with a nosebleed leans back or lies down, blood drains down their throat and can cause vomiting. Pinch the soft portion of the nose with your thumb and index finger so the nostrils are closed. Hold it for about ten minutes.

If the bleeding does not stop after 20 minutes, call 911 to activate EMS using a mobile device and/or activate your EAP.



IMPALED OBJECTS

An impaled object is an object such as a knife, nail, or rod that penetrates a body part and remains embedded.

Follow the Pediatric First Aid, CPR AED Procedure

Do not remove an impaled object. If it has damaged any large blood vessels, it can act like a plug, helping to prevent serious, life-threatening bleeding. If necessary, remove or cut away clothing to get a better look at the injury. Place sterile bulky dressings over the wound and around the object to stabilize it in place. Control bleeding with direct manual pressure, preferably with a hemostatic dressing. Push down on the wound around the base of the object. Use continuous pressure until the bleeding stops. Do not apply pressure to the object itself. Once the bleeding stops, wrap an elastic or self-adhesive roller bandage firmly over the gauze or other material to help maintain pressure and stabilize the object.





EYE INJURIES

The impalement of an unprotected eye is most likely to be caused by a small object propelled at a high rate of speed.

Follow the Pediatric First Aid, CPR AED Procedure

A pediatric first aid provider can help to stabilize the object and prevent additional injury. Do not allow the person to rub the eye. Stabilize a large object with clean pads. Place a protective cover over the object, such as a paper cup or cone. With smaller objects, loosely cover the injured eye with an eye pad or sterile gauze dressing. Calm, comfort, and reassure to help reduce anxiety. Stay with the child until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.



Safety & Health Tip

Lawn mower injuries are devastating and largely avoidable. According to the American Academy of Pediatrics (AAP) more than 9,000 children go to the emergency room for lawn mower-related injuries every year in the U.S. For safety guidelines visit the AAP Lawn Mower Safety webpage at healthychildren.org/english/safety-prevention/at-home/pages/Lawnmower-Safety.aspx [Retrieved 12/07/2021].

AMPUTATION

Follow the Pediatric First Aid, CPR AED Procedure

Bleeding may be minimal or severe depending on the location and nature of the injury. If life-threatening bleeding is present from the remaining part of an arm or leg, and the person is over 2 years of age, control it using a manufactured tourniquet.

Control minimal bleeding with continuous direct manual pressure for at least 5 minutes. Use a sterile dressing or any clean available material.

Amputated body parts can often be surgically reattached. Save any severed body parts and make sure they stay with the child.

- If possible, rinse the amputated part with clean water to remove any dirty material that may contaminate the wound.[63]
- Wrap the severed part in a sterile gauze sponge or clean cloth. Place the part in a tightly sealed plastic bag.
- Place the bag in a container filled with ice or ice water. Do not put the body part directly in water or on ice without using a plastic bag.
- Label the container with the child's name, the date and time. Give the container to EMS providers for transport with the person to the hospital.

Calm, comfort, and reassure the child. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.

63 Traumatic amputation. https://medlineplus.gov/ency/article/000006.htm

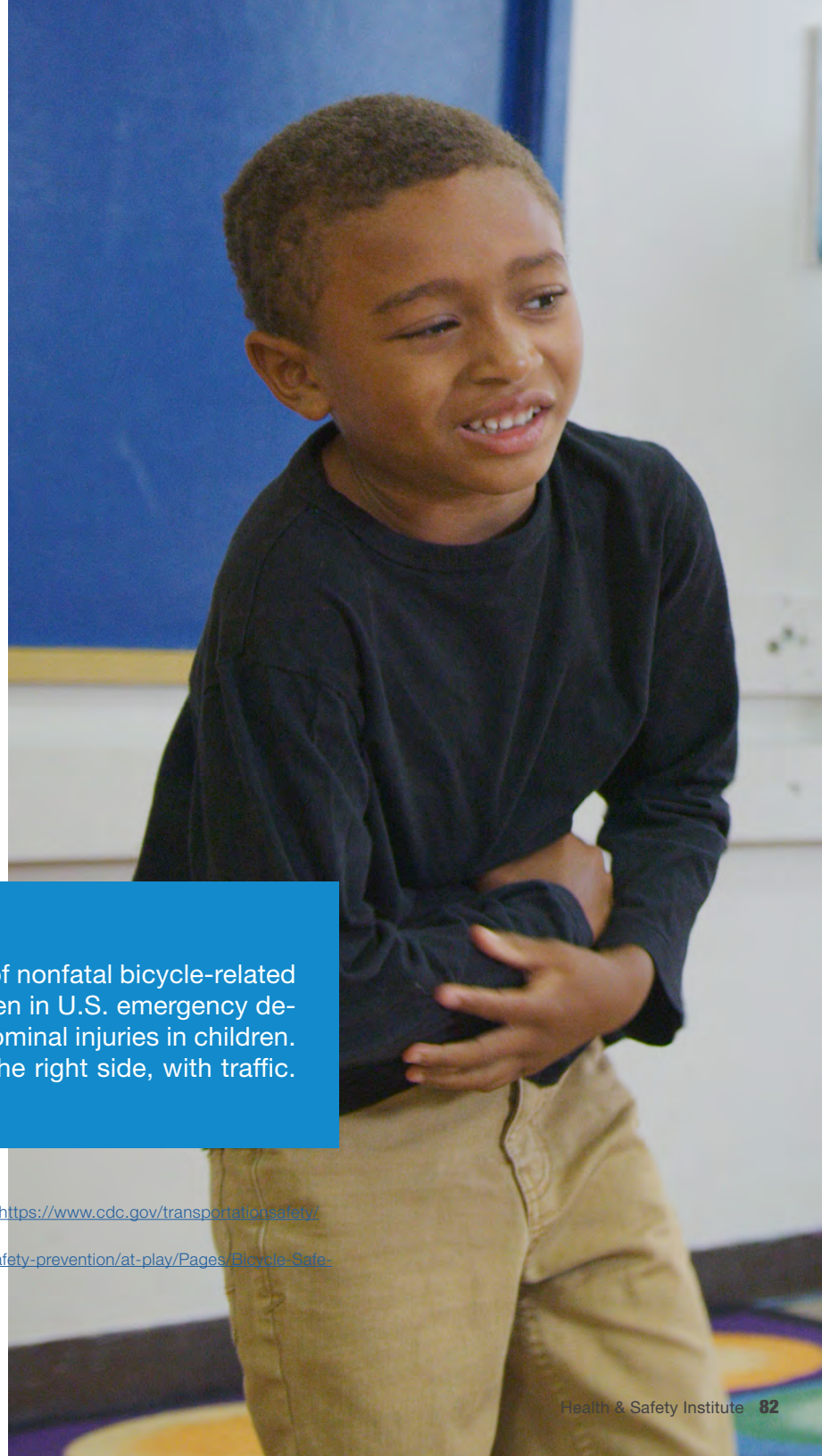
INTERNAL BLEEDING

External bleeding is easy to recognize. Internal bleeding can be more difficult.

Suspect internal bleeding if a child was struck with significant force. For example, a child could have internal bleeding if struck by a moving vehicle, equipment, or by a falling or flying object. A fall from a height or being struck forcibly in the abdomen or chest can also cause internal bleeding. If a child was stabbed or shot, coughs up or vomits blood, or has signs of shock without serious external bleeding, a pediatric first aid provider should take action for internal bleeding.

Follow the Pediatric First Aid, CPR AED Procedure

Regularly reassess scene safety, responsiveness, breathing, and the effectiveness of first aid care provided. Calm, comfort, and reassure the child. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.



Safety & Health Tip

Children (5-14 years) and adolescents (15-19 years) have the highest rates of nonfatal bicycle-related injuries, accounting for more than one-third of all bicycle-related injuries seen in U.S. emergency departments.[64] Handlebar injuries are one of the most common causes of abdominal injuries in children. Teach children to follow these basic safety rules: Wear a helmet. Ride on the right side, with traffic. Use appropriate hand signals. Respect traffic signals.[65]

64 Bicycle Safety. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Available: https://www.cdc.gov/transportationsafety/bicycle/index.html [Retrieved 11/3/2021]

65 Bicycle Safety: Myths and Facts. American Academy of Pediatrics. Available: https://www.healthychildren.org/English/safety-prevention/at-play/Pages/Bicycle-Safety-Myths-And-Facts.aspx [Retrieved 11/3/2021]



OPEN CHEST WOUND

A penetrating injury through the chest wall, such as those caused by a knife or gunshot, can trap air between the lung and chest wall, building up pressure and causing a collapsed lung.

Follow the Pediatric First Aid, CPR AED Procedure

If necessary, remove or cut away clothing to get a better look at the chest wound. You may hear a gurgling sound from wound as the child breathes in. You may see bubbling blood around the wound. The child may show signs of shock and get worse quickly.

Some bleeding control kits include materials for vented chest seals to treat penetrating chest wounds. Unless you have training in the use of vented chest seals, it is okay to leave an open chest wound exposed, without a dressing or seal.[66] Check to see if there is an exit injury on the other side of the chest.

Use direct manual pressure, preferably with a hemostatic dressing, to control bleeding. Regularly reassess scene safety, responsiveness, breathing and the effectiveness of first aid care provided. Calm, comfort, and reassure the child. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.

66 Singletary EM, et al.Part 15: first aid: 2015 American Heart Association and American Red Cross Guidelines Update for First Aid. Circulation. 2015;132(suppl 2):S574–S589.

OPEN ABDOMINAL INJURY

Some penetrating injuries to the abdomen may result in evisceration, a protrusion of the abdominal organs outside the body.

Follow the Pediatric First Aid, CPR AED Procedure

Protect any protruding organs with sterile gauze moistened with sterile saline so the dressing does not stick to the organs. If sterile dressings are not available, use any clean material available such as clothing, a towel, or other materials moistened with clean water.

Several major blood vessels are in the abdomen. Suspect internal bleeding and watch for signs of shock.

Allow the child to lie down in a position of greatest comfort to them. Usually on their back or one side, with both knees drawn up. Do not allow the person to eat or drink. Regularly reassess scene safety, responsiveness, breathing, and the effectiveness of first aid care provided. Calm, comfort, and reassure the child. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.



HEAD, NECK, OR SPINAL INJURY

Most spinal injuries in children occur in the neck as result of motor vehicle crashes and sports injuries, in particular gymnastics, diving, horseback riding, football, and wrestling.[67] Children with a spinal cord injury may have symptoms such as numbness and muscle weakness in the arms and legs. They may also complain of cutting, piercing, or stabbing pain down the spine or in the arms or legs. If the child can walk, move, and feel their arms and legs, it does not rule out the possibility of a spinal injury.

Follow the Pediatric First Aid, CPR AED Procedure

To avoid potential further injury, have the child remain as still as possible in the position in which they were found while you await the arrival of EMS providers. If the scene becomes unsafe, drag the child away from danger by the long axis of the body while keeping the spinal column as straight as possible.

If leaving the child in the position found is causing their airway to be blocked by vomit or other fluids, or if you need to leave an unresponsive child person alone to get help, place the child in a recovery position to protect the airway. If the child becomes unresponsive and is not breathing normally or only gasping, start CPR.

67 Spinal Cord Injury in Children. Available: https://www.merckmanuals.com/professional/injuries-poisoning/spinal-trauma/spinal-cord-injury-in-children [Retrieved 7-9-21]



Safety & Health Tip

Facilities with gymnastics equipment should have appropriate floor padding to reduce the force of landing. Mats should be placed and secured under equipment. Safety harnesses should be used when learning a new, complex skill. Spotting is essential during all practice sessions.[68]

68 Sports Injury Prevention. Gymnastic Injuries. Pediatric Orthopaedic Society of North America. Available: https://orthokids.org/en-US/Sports-Injury-Prevention/Gymnastics-Injuries [Retrieved 11/4/2021]

CONCUSSION

A concussion is a brain injury that general results in less immediate or obvious signs.

Most concussions are temporary and resolve naturally, but it is possible for one to progress into a life-threatening condition.

Suspect a concussion after a blow, bump, or jolt to the head or by any fall or hit that jars the brain. Common symptoms of a concussion include headache, dizziness, balance problems, nausea and vomiting, difficulty remembering or focusing, and sensitivity to light or noise. No child who has sustained a possible concussion should be allowed to participate in any physical activity before being cleared by a qualified medical professional.[69]

Safety & Health Tip

According to the American Academy of Pediatrics (AAP), concussions are a relatively common injury in soccer, and the rates of concussion among youth soccer players seem to be increasing. For more information, visit "Soccer-Related Injuries in Kids Are Rising – What Can Parents Do?" available at https://www.healthychildren.org/English/healthy-living/sports/Pages/Soccer.aspx [Retrieved 11/4/2021]



69 A Parent's Guide to Concussions. Nationwide Children's Hospital Sports Medicine. Available https://www.nationwidechildrens.org/specialties/concussion-clinic/concussion-toolkit/a-parents-guide-to-concussions [Retrieved 7-9-21]

SHAKEN BABY SYNDROME

Shaken baby syndrome, also known as abusive head trauma, is a completely preventable, serious form of abuse.[70] Shaken baby syndrome occurs most often when an exhausted parent or caregiver severely shakes a baby or toddler due to frustration or anger — often because the child will not stop crying.

Violently shaking a child can cause bruising, bleeding, and swelling in the child's fragile, undeveloped brain as it moves back and forth inside the skull. Even brief shaking of an infant can cause irreversible brain damage. Nothing justifies shaking a child.

Signs of Shaken Baby Syndrome[71]

Signs of shaken baby syndrome may include altered mental status; drowsiness and irritability; seizures; decreased appetite; vomiting; difficult, slow, shallow or no breathing; and cardiac arrest. The prospect of recovery from shaken baby syndrome varies with the severity of injury but is generally poor.

Follow the Pediatric First Aid, CPR AED Procedure

If the child is unresponsive and breathing normally, maintain an open airway.

If an unresponsive child is not breathing normally, not breathing at all, or is only gasping, immediately start CPR, beginning with chest compressions.

Continue CPR AED use until another CPR provider, someone with more advanced training, or EMS providers arrive and take over, or until the person starts breathing, moving, or reacting in other ways.

70 https://www.cdc.gov/violenceprevention/pdf/SBSMediaGuide.pdf

71 Shaken Baby Syndrome. American Association of Neurological Surgeons. Available: [Retrieved 7-14-21] https://www.aans.org/Patients/Neurosurgical-Conditions-and-Treatments/Shaken-Baby-Syndrome



Safety & Health Tip

The federal Child Abuse Prevention and Treatment Act (CAPTA) requires each state to have provisions or procedures for requiring certain individuals to report known or suspected instances of child abuse and neglect. For more information see: The Child Welfare Information Gateway. Mandatory Reporters of Child Abuse and Neglect at childwelfare.gov/topics/systemwide/laws-policies/statutes/manda/ [Retrieved 11/4/2021]



BONE, JOINT, & MUSCLE INJURIES

Bones, muscles, and joints give the body shape, allow movement, and protect vital internal organs.

There are four different types of injuries affecting bones, muscles, and joints.

- Strains are stretching or tearing injuries to muscles or tendons.
- Sprains are tearing injuries to ligaments that hold joints together.
- Dislocations are the separation of bone ends at a joint.
- Fractures are breaks in bones.

Strains, sprains, dislocations, and isolated fractures can be extremely painful but are not usually life-threatening. However, fractures of the pelvic or thigh bones may result in serious internal blood loss and shock.

Follow the Pediatric First Aid, CPR AED Procedure

Encourage the child to not move or use the injured limb. Check to see if there is an open wound. With consent, gently cut or tear away clothing to expose the injury site. Control any bleeding using a clean dressing and firm, continuous, direct manual pressure on the bleeding site. Do not push a bone back under the skin. Cover it with a sterile dressing.

Use padding in the gaps around it to provide a stable and comfortable spot for the limb to rest. If needed, place your hands above and below the injured area to help keep the limb still. It is best to not straighten an injured limb that is unnaturally angled. Leave it in the position found.

Cold application decreases bleeding, swelling, pain, and disability. Cooling is best accomplished with a plastic bag filled with a mixture of ice and water, which is better than ice alone. To prevent cold injury, limit each application of cold to no more than 20 minutes. Place a barrier, such as a thin towel, between the plastic bag and the skin. If a limb becomes blue or extremely pale, circulation may be cut off. If this occurs and you have not yet done so, activate EMS and/or your EAP.

Splinting

Splinting an injured limb can reduce pain and prevent further injury, especially when moving an injured person. In general, it is best to rely on EMS providers to splint, as they have more training, experience, and equipment.

Malleable Splints



In more populated, complex, or high-risk workplaces, first aid kits are required to include a malleable splint. This splint is a compact, lightweight, highly versatile device designed for immobilizing bone and soft tissue injuries in emergency settings. When needed, it can easily be molded and shaped to create a rigid and stable splint.

- Shape the splint to match the contours of the limb by using the opposite, uninjured limb.
- Once rigid and shaped, the splint can be held in place with tape, self-adhesive roller or elastic bandages, or plastic cling film.
- If the hand is involved, place a roller gauze or elastic bandage in their injured hand to allow the fingers to curl around it. This keeps the hand in a natural position of function and is more comfortable.

Caution should be use with elastic bandages and cling film because it is easy to apply them too tightly.

After splinting, check frequently for discoloration, coolness, or numbness in the hand or foot. If necessary, loosen the splint to improve blood flow.

Improvised Splints



Splints can be improvised with commonly available items.

1. Something rigid to provide external stability, such as another part of the body, a compressed pillow, cardboard, folded magazine, or wood slat.
2. Something soft to fill and support the contoured gaps around joints and bony ridges, such as pads, towels, coats, pillows, or blankets.
3. Something to bind the limb, rigid material, and padding together such as roller bandage, folded cloth bandages, strips of clothing, tape, belts, or rope.

Place padding on the rigid material where tapered surfaces of the limb, like around joints, will rest.

Place the rigid material alongside or underneath the injured limb, making sure it extends beyond the joints above and below. Bind the rigid material firmly to the limb. Do not bind the limb over the injury site. Wrap both sides of a joint to immobilize the joint. Allow the hand or foot to assume a natural position. Secure the material tightly enough to provide stabilization, but not tight enough to restrict blood circulation.

When a joint cannot be immobilized with the rigid material, you can stabilize it against another body part, such as using a sling and swathe wrap to secure the elbow to the torso.

BURNS

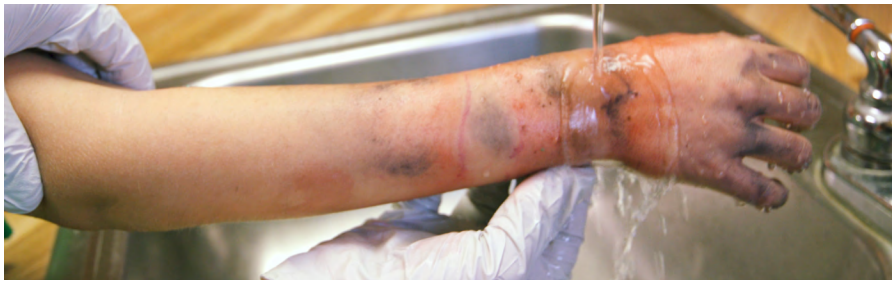
A burn is an injury to skin, and possibly underlying tissues, caused by an exposure to extreme heat, chemicals, or electrical contact. Common causes of thermal burns include direct contact with hot liquids, flames, steam, or hot objects. Burns can also be caused by radiant heat from a hot environment or extended exposure to the sun. The severity of a burn is related to its depth and size. Deeper burns resulting in blistering or broken skin are more serious. Larger burns, even those with a shallow depth, are also more serious.

Minor Thermal Burns

Cool thermal burns with cold, but not ice-cold, tap water as soon as possible and for at least ten minutes. Don't apply ice directly to a burn. If you don't have cold water, use a cool or cold, but not freezing, clean compress. Continue cooling at least until the pain is relieved. Cooling reduces pain, swelling, and depth of injury. After cooling, loosely cover the burn with a dry, non-stick sterile or clean dressing. Leave blisters intact as it improves healing and reduces pain. Avoid natural burn remedies such as honey or potato peels. Never apply butter, ointment, lotion, or antiseptic to a serious burn.



Severe Thermal Burns



Burn location contributes to severity. Burns involving the face, neck, hands, genitals, joints, and feet can result in complications related to movement and other basic functions. Difficulty breathing as a result of inhaling hot air indicates a serious injury within the airway.

Follow the Pediatric First Aid, CPR AED Procedure

If the child's clothing is on fire, put it out. Tell the child to stop, drop, and roll; smother the burning material with a wet blanket; or douse the clothing with water. Carefully remove any jewelry and clothing that is not stuck to the skin, then immediately cool the burns with cool running water for at least 20 minutes. This first aid treatment is associated with improved outcomes in large burn injuries.[72]

A presoaked burn dressing can be used to cool a small thermal burn when clean, cool running water is not available. These sterile dressings are soaked in a specially formulated cooling gel designed to cool a burn, relieve pain, and prevent contamination. Loosely cover burn blisters with a sterile dressing but leave blisters intact because this improves healing and reduces pain.[73]

If the child shows signs of shock, and there is no difficulty breathing, keep them lying down, face up. Cover them to help maintain body temperature. Regularly reassess scene safety, responsiveness, breathing and the effectiveness of first aid care provided. Calm, comfort, and reassure the child. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.

Electrical Burns



Medical emergencies involving electricity can occur when there is direct contact with an energized object, such as an electrical wire or outlet or when a child is struck by lightning.

Follow the Pediatric First Aid, CPR AED Procedure

Assess scene safety. **Turn off any electrical current before touching the person. If you cannot stop the flow of electricity, do not enter the area around the child or attempt to care for them**. Keep others away. Once the power is off, take standard precautions. Assess responsiveness. Call 911 to activate EMS using a mobile device and/or activate your EAP. After activating, and unless they are readily available to you, send someone to get the first aid kit and an AED. Assess breathing for no more than 10 seconds. An electric shock can cause cardiac arrest. If the child is unresponsive and not breathing normally or only gasping, start CPR.

When a body part comes into contact with an exposed electrical source, electricity can travel from the point of contact to a second point of contact that is grounded. Common points of contact include the hands and the feet. Assess for external burns at any suspected points of contact. Cool the burn as you would with a thermal burn. If child shows signs of shock, and there is no difficulty breathing, keep them lying down, face up. Cover them to help maintain body temperature. Regularly reassess scene safety, responsiveness, breathing and the effectiveness of first aid care provided. Calm, comfort, and reassure the child. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.

72 Harish V, Li Z, Maitz PKM. First aid is associated with improved outcomes in large body surface area burns. Burns. 2019 Dec;45(8):1743-1748. doi: 10.1016/j.burns.2019.05.006. Epub 2019 Oct 10. PMID: 31606315. [Retrieved 6-9-21]

73 Markenson D, et al. Part 17: first aid: 2010 American Heart Association and American Red Cross Guidelines for First Aid. Circulation. 2010;122(suppl 3):S934 –S946.

Chemical Burns

Follow the Pediatric First Aid, CPR AED Procedure

Brush off any dry chemical powder first. Adding water to dry chemical powders can make them corrosive and capable of burning or destroying skin.



Corrosive liquid chemicals such as concentrated sulfuric acid immediately damage skin tissue on contact. Act quickly. Remove contaminated clothing to minimize continued exposure and immediately flood the affected area with large amounts of water. Flush for at least 15 minutes. Some chemicals take longer than others to be flushed away. If still painful, keep flushing. Contact Poison Control at 1-800-222-1222 for treatment information while awaiting EMS arrival.

Corrosive chemicals splashed into an eye can quickly damage eye tissue. Immediately flood the eye with large amounts of water. Carefully hold the eye open and flush outward from the nose side of the affected eye to prevent contamination of an unaffected eye. Flush continuously for at least 15 minutes, or until EMS providers take over. If the child is wearing contact lenses and they are not removed by the flushing, have the child try to remove them as flushing continues. If running water is not available, normal saline or another commercial eye irrigating solution can be used.

Safety & Health Tip

Chemical eye injuries among young children are preventable. When not in active use, all chemicals used inside or outside should be stored in a safe and secure manner in a locked room or cabinet, fitted with a child-resistive opening device, inaccessible to children, and separate from stored medications and food.[74]

74 American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education. CFOC Standards Online Database. Aurora, CO; National Resource Center for Health and Safety in Child Care and Early Education; 2020. https://nrckids.org/CFOC/Database/5.2.9.1 [Retrieved 11/01/21]

MEDICAL EMERGENCIES

ALTERED MENTAL STATUS

A child who has a normal level of consciousness is alert and aware of what is happening. An alteration in mental status refers a change in awareness, such as confusion, loss of alertness, disorientation, or bizarre, inappropriate, or combative behavior, without a loss of consciousness. Ask relatives or bystanders if the child is acting normally for themselves. An altered mental status in a child with a chronic illness can develop slowly over days or even months. In an injured child, it may occur fairly quickly, especially from blood loss.[75] An altered mental status is caused by a wide range of diseases, illnesses, and injuries such as diabetes, epilepsy, alcohol and drug overdoses, poisoning and shock.

An altered mental status is an important warning sign of a potentially life-threatening condition.

If a child has an altered mental status, or you are unsure, follow the procedure for pediatric first aid, CPR and AED.

Follow the Pediatric First Aid, CPR AED Procedure

If a child with an altered mental status becomes unresponsive, place them on their side in the recovery position to help protect the airway. If they stop breathing or are only gasping, start CPR.



75 Henry, K. Altered Mental Status. Society for Academic Emergency Medicine. Available: https://www.saem.org/about-saem/academies-interest-groups-affiliates2/cdem/for-students/online-education/peds-em-curriculum/approach-to/altered-mental-status [Retrieved 7-12-21]

POISONING



A poison is any substance that can enter the body and cause sickness or death. A poison can be swallowed, inhaled, injected, or absorbed through the skin. For children under 6 years of age, cosmetics and personal care products are the most common substances ingested, followed by cleaning substances and pain medications. The majority of poisonings are unintentional.[76]

Peak poisoning frequency occurs in 1- and 2-year-old's but poisonings in teens and adults are far more serious. Pain medications, particularly opioids, lead the list of the most common substances involved in pediatric poisoning.

Suspected Opioid-Associated Emergency (OEA)

Opioids are a category of highly addictive narcotic substances that include prescription pain medicine such as oxycodone, hydrocodone, morphine, fentanyl and illicit opioids like heroin. Many opioids are taken in pill form, but they can also be taken as lozenges or lollipops, by injection or through an IV, or by a skin patch or a suppository. Children are especially at risk of an accidental overdose if they take medicine not intended for them. Opioids and other prescription medicine should be completely inaccessible to children. Recognizing an opioid overdose can be difficult. Signs of an overdose may include:

- Small, constricted "pinpoint pupils,"
- Changes in skin appearance and condition,
- Falling asleep or loss of consciousness,
- Slow, shallow breathing,
- Choking or gurgling sounds, and
- Limp body.

Opioids can cause death by slowing, and eventually stopping, a child's breathing. A quick response to an opioid overdose, including administering naloxone, can prevent brain injury and death. Naloxone is a medication approved by the Food and Drug Administration (FDA) designed to rapidly reverse opioid overdose. Naloxone is available without a prescription in all US states, the District of Columbia and Puerto Rico. Narcan® Nasal Spray is approved for the emergency treatment of known or suspected opioid overdose in adults and children of all ages.[77]

76 US Poison Statistics National Data 2019. Available: https://www.poison.org/poison-statistics-national [Retrieved 6-10-21]

77 Department of Health and Human Services Public Health Service Food and Drug Administration, February 12, 2019. Available: https://www.fda.gov/media/123725/download [Retrieved 7/16/21]

Using Narcan® Nasal Spray

Narcan® Nasal Spray is the most commonly prescribed opioid reversal medication. To use Narcan® Nasal Spray, peel back the package to remove the device. Hold the device with your thumb on the bottom of the plunger and 2 fingers on the nozzle. Place and hold the tip of the nozzle in either nostril until your fingers touch the bottom of the person's nose. Press the plunger firmly to release the dose into the nose.

Follow the Pediatric First Aid, CPR AED Procedure

If you suspect a child has overdosed on a prescription or illicit opioid, follow the pediatric first aid, CPR AED procedure. Assess scene safety. If the scene is safe, take standard precautions. **Avoid contact with drug residue, containers, needles, and other paraphernalia.** Assess responsiveness. Tap the victim and ask loudly, "Are you okay?" If the person is unresponsive, call 911 to activate EMS using a mobile device and/or activate your EAP. After activating, and unless they are readily available to you, send someone to get the first aid kit, naloxone, and an AED. Assess the child's breathing for no more than 10 seconds.

If the unresponsive child is not breathing normally or only gasping, immediately start CPR, beginning with chest compressions. Give naloxone as soon as you can, but do not delay CPR to give it.

If the unresponsive child is breathing normally, give naloxone if available. To help protect the airway, place the child in the recovery position. If the child does not respond, another dose may be given in the same way. Narcan® Nasal Spray may be dosed every 2 to 3 minutes, if available.

Although naloxone is available without a prescription in all U.S. states, individual state laws and regulations may prescribe specific practices, rules, and standards for naloxone administration. Pediatric CPR and first aid providers must be familiar with their state licensing regulations or occupational requirements regarding the use and administration of naloxone. A summary of state laws regarding naloxone access is available from the Legislative Analysis and Public Analysis Association (LAPPA). Search for it at legislativeanalysis.org/.

Swallowed Poisons



If you suspect a child has ingested something poisonous, act quickly. If the product swallowed is burning, irritating, or caustic, and the child is responsive, not having seizures, and is able to swallow, have them drink a small amount of water or milk immediately.[78] Then get help from Poison Control.

In the United States, calling the national Poison Help line at

1-800-222-1222

automatically transfers you to a regional poison control center. You will speak with a specially trained nurse, pharmacist, or doctor.

Poison control centers can quickly provide information regarding the immediate treatment to exposure of any substance. It's free and confidential.

If a poisoned child collapses, has a seizure, has trouble breathing or is unresponsive, follow the pediatric first aid, CPR AED procedure. Call 911 to activate EMS using a mobile device and/or activate your EAP. Assess breathing for no more than 10 seconds. Provide the appropriate first aid.

78 First Aid for Poisonings. Available: https://www.poison.org/first-aid-for-poisonings [Retrieved 6-10-21]

Inhaled Poisons



Inhaled poisoning occurs when a gas or chemical is breathed into the body. Symptoms depend on which gas or chemical is inhaled, how deeply, and for how long. Symptoms of an inhaled poison may include irritation of the eyes or nose, cough, blood in the sputum, and shortness of breath. Inhaled gases may cause breathing difficulty because they are poisonous to the body's cells, or because they displace oxygen in the blood and cause suffocation, like carbon monoxide.

A common household exposure to a poisonous chemical gas occurs when a person mixes household ammonia with cleansers containing bleach.

Follow the Pediatric First Aid, CPR AED Procedure

If the scene appears unsafe, do not approach it. If there is an immediate danger to the victim, and you can take action without placing yourself at unreasonable risk, get the victim to fresh air immediately. Place an uninjured, unresponsive child on their side in the recovery position to help protect the airway. If an unresponsive child is not breathing normally or only gasping, immediately start CPR.

Safety & Health Tip

When not in active use, all toxic substances used inside or outside should be stored in a safe and secure manner in a locked room or cabinet, fitted with a child-resistive device, inaccessible to children, and separate from stored medications and food.[79] Always keep cleaning products in original containers.[80]

79 American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education. CFOC Standards Online Database. Aurora, CO; National Resource Center for Health and Safety in Child Care and Early Education; 2020. https://nrckids.org/CFOC/Database/5.2.9.1 [Retrieved 11/9/21]

80 Uh Oh...That Wasn't Orange Juice! National Capital Poison Center. Available: https://www.poison.org/articles/container-transfers [Retrieved 11/9/21]

DIFFICULTY BREATHING

In children, difficulty breathing is almost always a medical emergency. There are many different causes, including viral or bacterial respiratory tract infections, chronic health conditions such as asthma and allergies and sudden onset emergencies, such as choking. An increase in the breathing rate may be the first sign that a responsive child is having a serious breathing problem that requires urgent care.

Other signs include looking frightened and an obvious increase in the effort it takes for the child to breathe; their skin may be sucking in around and between ribs or above the breastbone. There may be exaggerated belly movement with coughing, wheezing, whistling, or grunting sounds. There may be changes in the skin appearance and condition, such as sweaty, cool skin, and grayish, whitish or blue-tinged lips, tongue, and nail beds. The child may be drowsy and difficult to keep awake.

Follow the Pediatric First Aid, CPR AED Procedure

Allow the child to find the most comfortable position in which to breathe, typically sitting up. Help them loosen any restrictive clothing.

Regularly reassess scene safety, responsiveness, and breathing. The situation can quickly become life-threatening if the child becomes exhausted from struggling to breathe. Be prepared to provide CPR if the child becomes unresponsive and stops breathing or is only occasionally gasping or making snorting, snoring, or gurgling sounds.



ASTHMA

Asthma is a medical condition in which certain things can trigger a physical reaction in the lungs and make it difficult for a child to breathe. Asthma triggers include allergens such as pollen and molds; irritants such as smoke, fumes, and dust; medications, such as aspirin or acetaminophen; extreme weather conditions; and exercise or stress.

When symptoms get worse, it is called an asthma attack. In an asthma attack, the small airways in the lungs narrow due to swelling and the production of mucus. Airflow into and out of the lungs is restricted.

The child may wheeze, cough, or feel tightness in their chest. The symptoms can range from mild to severe. Children with asthma typically use a metered-dose inhaler with a spacer and a small face mask or mouthpiece to deliver a quick-relief medication to help control asthma symptoms. Occasionally, due to the age of the child and degree of difficulty breathing, they may need help assembling and using the inhaler and spacer.

Using an Inhaler With a Spacer[81]

Allow the child to find the most comfortable position in which to breathe, typically sitting up and leaning forward. Help the child assemble and use the inhaler with a spacer and mask or mouthpiece.

The spacer helps to deliver more medication to the lungs. The spacer with a mask or mouthpiece connects to the inhaler. Typically, facemasks are used for young children and mouthpieces for an older child.

Take the cap off the inhaler and spacer. Look inside the mouthpiece of the inhaler and mask or mouthpiece to make sure they are clear. Shake the inhaler for 10 seconds. Attach the spacer to the inhaler.

- If using a spacer with a facemask on a young child, place the mask tightly over the child's nose and mouth. Push down on the inhaler once. Have the child take 6 to 8 slow deep breaths.
- If using a spacer with a mouthpiece, have the child breathe out and then close their mouth around the mouthpiece of the spacer. Push down on the inhaler once and have them take a slow, deep breath right away. Have them hold their breath for a count of 10.

The child should rinse their mouth out with water after using inhaled medicine.

Call 911 to activate EMS using a mobile device and/or activate your EAP if the child:

- Does not have their inhaler,
- Gets no better or gets worse after using their inhaler,
- Has difficulty speaking, or
- Becomes unresponsive.

Be prepared to provide CPR if the child becomes unresponsive and stops breathing or is only occasionally gasping or makes snorting, snoring, or gurgling sounds.



81 How to Use an Inhaler with a Spacer and Mask. Nationwide Children's Hospital Available: https://www.nationwidechildrens.org/family-resources-education/health-wellness-and-safety-resources/resources-for-parents-and-kids/how-to-use-an-epipen/epinephrine-myths-and-facts/how-to-use-an-inhaler-with-a-spacer-and-mask. [Retrieved 7-12-21]

SEVERE ALLERGIC REACTION

A severe allergic reaction, known as anaphylaxis, is an extreme response of the body's immune system to something it is sensitive to. Common things that can initiate a severe reaction include bee stings, peanuts, latex, seafood, and penicillin.

When anaphylaxis occurs, the airway can become constricted due to swelling of the throat, making it difficult to breathe. Wheezing may be heard. Swelling of the lips, eyelids, and face may occur. Itchy raised lumps, or hives, can appear on the face and chest. The child may complain of nausea and abdominal cramping. Their voice may sound hoarse. A severe allergic reaction can develop rapidly. In general, the faster the reaction occurs, the more severe it is. Without treatment, death can occur within minutes.

Follow the Pediatric First Aid, CPR AED Procedure

A child with a history of allergic reactions may carry an epinephrine auto-injector that has been prescribed to them. Auto-injectors use a spring-loaded needle to rapidly administer a measured, single dose of epinephrine. Epinephrine can quickly reverse the effects of the reaction and may be lifesaving. If the child is unable to self-administer an injection, the pediatric first aid provider may be able to do it for them.

Federal law allows elementary and secondary schools in the United States to train personnel to administer epinephrine to a student suffering a life-threatening anaphylactic emergency, and to maintain a supply of epinephrine auto-injectors easily accessible to trained people. In addition to school personnel, several states have laws and regulations that allow trained laypersons to obtain and administer epinephrine for a person suffering a life-threatening anaphylactic emergency when a licensed healthcare provider is not immediately available. This may include camp counselors or employees, youth organization staff or volunteers, forest workers, and other trained providers.

These laws also provide Good Samaritan civil liability protection for a trained provider and the institution providing the emergency assistance.

Pediatric first aid providers must be familiar with their state licensing regulations and occupational requirements regarding the use and administration of epinephrine auto-injectors. Perform an online search for "[state] statute, administrative rules, epinephrine auto-injector" where [state] is the state in which you live or work.



Health & Safety Institute hsi

Using an Epinephrine Auto-injector[82]

The EpiPen® auto-injector is a commonly used epinephrine delivery device. Available in both adult and child dosages, it is designed to work through clothing.





Prepare

- Remove the EpiPen® Auto-injector from the carrier tube and check the auto-injector to make sure the blue safety release is not raised. If the blue safety release is not raised, the auto-injector is okay to use.
- Grasp the auto-injector in your fist with the orange tip, the needle end, pointing downward. With your other hand, remove the blue safety release by pulling straight up without bending or twisting it.
- To avoid an accidental injection, never put your thumb, fingers, or hand over the orange tip.

Administer

- Place the orange tip against the middle of the outer thigh at a right angle to the thigh. Swing and push the auto-injector firmly until it 'clicks.' The click signals that the injection has started.
- Hold firmly in place for 3 seconds. Count slowly 1 – 2 - 3. The injection is now complete.
- Remove the auto-injector from the thigh. The orange tip will extend to cover the needle. If the needle is still visible, do not attempt to reuse it.
- Massage the injection area for 10 seconds.

Activate EMS and/or your EAP if you haven't done so already. Consider giving a second dose with a new epinephrine auto-injector if one is available, symptoms persist, and EMS is still 5-10 minutes away.

Regularly reassess scene safety, responsiveness, breathing and the effectiveness of first aid care provided. Calm, comfort, and reassure the child. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered. Give the used auto-injector to EMS providers for proper disposal or follow your employer's bloodborne pathogens exposure control plan.

82 EPIPEN- epinephrine injection. Available : https://dailymed.nlm.nih.gov/dailymed/fda/fdaDrugXsl.cfm?type=display&setid=7560c201-9246-487c-a13b-6295db04274a#section-15 [Retrieved 1/17/22]

SEIZURE

Generalized seizures are triggered by excessive electrical activity within the brain. Symptoms may include sustained rhythmical jerking movements and muscles becoming weak or limp, tense or rigid. There may be brief muscle twitching, or the body may flex and extend repeatedly.[83] While there are many conditions that can cause a seizure to occur, the care provided is always the same.

Follow the Pediatric First Aid, CPR AED Procedure

- Assess scene safety.
  - If the scene appears unsafe, do not approach it. Take standard precautions.
- Assess responsiveness.
  - If the victim appears unconscious, tap them and ask loudly, "Are you okay?"
- Send someone to get the first aid kit & AED.
  - Unless they are readily available to you, send someone to get the first aid kit and an AED.
- Assess breathing for no more than 10 seconds.

If an unresponsive child having a seizure is breathing normally, place them on their side in the recovery position to help protect the airway. Loosen tight clothes around neck and put something small and soft under the head. **Do not put any objects in the child's mouth, including your fingers.** It is physically impossible for a child to swallow their tongue. Protect the child from injury during the seizure. Move objects away that they may bump in to. Do not restrain them. Time the length of seizure. Remain calm. Most seizures last only a short time and stop without any special treatment. Place the child in the recovery position and stay with them until they are awake and alert after the seizure.



Call 911 to activate EMS using a mobile device and/or activate your EAP if the child:

- Has a seizure lasting longer than 5 minutes,
- Is not breathing normally or is only gasping,
- Has difficulty breathing,
- Is injured, pregnant, or sick,
- Has repeated seizures, or
- Has never had a seizure.

If an unresponsive child having a seizure is not breathing normally or only gasping, immediately start CPR once the seizure has stopped.

Safety & Health Tip

The chance of epilepsy is high with severe brain injuries. To help prevent traumatic brain injuries, ride safely. Use safety belts, child passenger seats, airbags, bicycle helmets, and motorcycle helmets to reduce motor vehicle and traffic injuries.[84]

83 Types of Seizures. Available: https://www.epilepsy.com/learn/types-seizures [Retrieved 1/17/22]

84 Preventing Epilepsy. Available: https://www.cdc.gov/epilepsy/preventing-epilepsy.htm [Retrieved 11.09.21]

DIABETES & HYPOGLYCEMIA

Diabetes is a disease in which the body cannot effectively use sugar for energy. Hypoglycemia, or low blood sugar, is a diabetic condition that can rapidly develop and become life-threatening.

Signs of dangerously low blood sugar include hunger, shakiness, dizziness, confusion, difficulty speaking, and feeling anxious or weak.

Follow the Pediatric First Aid, CPR AED Procedure.

- Assess scene safety. Take standard precautions.
- Assess responsiveness.
- Send someone to get the first aid kit & AED.
- Assess breathing for no more than 10 seconds.

If the child is responsive and breathing, obtain consent from a parent or legal guardian, if readily available (unless previously established). If they can swallow without difficulty, encourage them to swallow about 20 grams of oral glucose. Oral glucose is preferred and comes in different forms, including a dissolved solution, gel, spray, chewable tablets, or a wet paste. If not available, use something with dietary sugar instead, such as orange juice or jellybeans. For children with suspected low blood sugar who have a normal level of consciousness but are unwilling or unable to swallow oral glucose, apply a slurry of granulated sugar and water under their tongue.[85]

Insulin is not considered an emergency medication. **It is never appropriate to administer insulin to a diabetic child in an emergency setting.** Regularly reassess scene safety, responsiveness, breathing, and the effectiveness of first aid care provided.



Call 911 to activate EMS using a mobile device and/or activate your EAP if:

- The symptoms do not resolve within 10 minutes,
- The child gets worse,
- The child is not able to swallow, or
- The child becomes unresponsive.



85 Pellegrino JL, et al. 2020 American Heart Association and American Red Cross Focused Update for First Aid. Circulation. 2020 Oct 27;142(17):e287-e303.

PRESYNCOPE & SYNCOPE

Presyncope, or near fainting, is the medical term for the feeling of fainting but without an actual loss of consciousness. Presyncope can last from a few seconds to minutes. It is typically caused by an unexpected drop in blood pressure and blood flow to the brain. Common causes include a body's reaction to anxiety, fear, pain, or stress.



Syncope is the medical term for fainting, the temporary loss of consciousness due to the sudden decline of blood flow to the brain. Standing in place too long, or rapid changes in position, such as getting up quickly from a seated position, can also result in feeling faint. More serious causes that may not resolve quickly include medications or an underlying medical condition. A child may complain of suddenly being lightheaded and weak. They may describe feeling warm or having blurry vision. You may notice changes in skin appearance and condition. Recognition of the signs and symptoms of presyncope combined with rapid first aid treatment may prevent syncope from occurring.



If a trained pediatric first aid provider recognizes the signs or symptoms of presyncope, **the priority is to help prevent injury to the child from falling.** Quickly help them get into a safe position, such as squatting, sitting, or lying down. Once in a safe position,



encourage the child to perform physical counterpressure maneuvers, or PCMs. PCMs are movements of a muscle or group of muscles that increase blood pressure. PCMs can relieve the symptoms of presyncope and prevent syncope.

Lower body PCMs are preferable to upper body ones because they are more effective at increasing blood pressure. The use of both lower and upper body PCMs at the same time can be beneficial. PCMs are reliable, safe, and effective. If you suspect presyncope, instruct the child in these movements. The use of PCMs should rapidly resolve signs and symptoms of presyncope. PCMs can also be used for self-care if you feel faint.

Safety & Health Tip

Most children and teens who faint recover quickly, typically within one minute, and without any lasting harm.[86]

86 Dizziness and Fainting in Children and Teens. American Academy of Pediatrics. Available: https://www.healthychildren.org/English/health-issues/conditions/head-neck-nervous-system/Pages/Dizziness-and-Fainting-Spells.aspx [Retrieved 11.11.21]

Call 911 to activate EMS using a mobile device and/or activate your EAP if the child's symptoms:

- Do not improve within 1 to 2 minutes,
- Worsen, or
- Reoccur.

PCMS should not be used if more serious warning signs and symptoms are present such as confusion, accompanying injury, bleeding, signs of stroke, or breathing difficulty.

When responding to a child who fainted, follow the pediatric first aid, CPR AED procedure.

- If an unresponsive child is breathing normally, place them on their side in the recovery position to help protect the airway. After fainting, a person should quickly regain consciousness.
- If the person is responsive and breathing normally, and there is no evidence of pain or injury, have them lie flat on their back. Consider raising their feet about 6 to 12 inches.
- Consider performing a secondary assessment while awaiting EMS.

Regularly reassess scene safety, responsiveness, breathing and the effectiveness of first aid care provided. Stay with the person until someone with more advanced training takes over or EMS arrives.

ENVIRONMENTAL EMERGENCIES

HEAT EMERGENCIES

Heat emergencies in children can occur in two ways: by overexertion in high heat and humidity, also called exertional dehydration, or by being left or trapped in a hot environment, such as a hot vehicle.

Children who are obese, have special needs, or take certain medications may be more susceptible to heat-related illnesses.

Heat Cramps

Heat cramps are the earliest sign of heat illness. Heat cramps may also be a symptom of heat exhaustion.[87] Heat cramps are hard, tense, and painful muscle spasms of the hands, calves, feet, thighs, or arms. Early and appropriate first aid includes rest, moving to a cooler location, removing excess clothing (including PPE), and drinking a carbohydrate-electrolyte drink, such as Gatorade® or Pedialyte®, or water if that is not available. Stretching, icing, and massaging the muscles often provides relief of pain.

Exertional Dehydration

Exertional dehydration occurs when a child loses more fluids than they take in and the body does not have enough fluids to work properly. The signs and symptoms of exertional dehydration include feeling very thirsty, dry mouth, dark-colored urine, dizziness, headache, and weakness.[88] If you suspect a responsive child is dehydrated due to a hot environment, encourage the child to rehydrate by drinking a carbohydrate-electrolyte

87 Extreme Heat. Available: https://www.cdc.gov/disasters/extremeheat/faq.html [Retrieved 1/17/22]

88 Heat Illness Prevention. American Orthopaedic Society for Sports Medicine. Available: https://www.stopsportsinjuries.org/STOP/STOP/Prevent_Injuries/Heat_Illness_prevention.aspx [Retrieved 7/13/21]

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drink, or water if that is not available. Dehydration can be mild, or it can be severe enough to be life-threatening. If the child has an altered mental status or loss of consciousness, follow the pediatric first aid, CPR AED procedure. Immediately provide appropriate first aid.

Heat Exhaustion

Heat exhaustion can occur as a combined result of a rising internal temperature and dehydration. Symptoms include nausea, dizziness, muscle cramps, presyncope, headache, fatigue, and heavy sweating. Heat exhaustion is a serious condition because without early recognition and treatment, it can quickly progress to heat stroke, a life-threatening condition. Have the child stop any activity and move to a cooler place, preferably an air-conditioned environment. Loosen or remove excess clothing. Have the child lie down. Spray water on or apply cool, wet cloths to the head and torso. Use a fan to increase the cooling effect. If the child can follow simple commands and swallow without trouble, encourage them to drink a carbohydrate-electrolyte drink, or water if that is not available. In most cases, the child's condition will gradually get better. If the child does not improve or seems to get worse, Follow the follow the pediatric first aid, CPR AED procedure. Immediately provide appropriate first aid.

Heat Stroke

Heatstroke is a life-threatening medical emergency with a fatality rate of up to 70% depending on severity and age of the child.[89] Never leave a child in a vehicle unattended — even if the windows are partially open or the engine is running, and the air conditioning is on.

Heat stroke includes all the signs and symptoms of heat exhaustion plus loss of consciousness, flushed, hot, dry or damp skin, confusion, syncope, and seizures. If you see a child in distress due to heat and alone in a locked car, get them out as quickly as possible.

Follow the Pediatric First Aid, CPR AED Procedure

If a child with suspected heat stroke is unresponsive, not breathing normally or only gasping, immediately start CPR. **If a child with suspected heat stroke is unresponsive and breathing normally, the most important action to take is to begin immediate cooling with the resources available**. It is critically important to bring the child's body temperature down as quickly as possible to reduce the risk of organ injury or death. [90]

When possible, begin immediate cooling by immersing the child up to the chin in cool to cold water.

If that is not possible or doing so would be unsafe, use other forms of immediate cooling. Apply cold packs to the neck, groin, and armpits. Spray or pour cold water on the child and fan them, or cover them with a cold, wet sheet and continue fanning. Provide continuous cooling until the child is alert and responsive or until someone with more advanced training or EMS providers arrive and take over.

Safety & Health Tip

Children should have access to clean, sanitary water at all times, including prolonged periods of physical activity, and be encouraged to drink water during periods of prolonged physical activity. On hot days, infants receiving human milk in a bottle can be given additional human milk in a bottle but should not be given water, especially in the first 6 months of life. Infants receiving formula and water can be given additional formula in a bottle.[91]

89 Bytomski JR, Squire DL. Heat illness in children. Curr Sports Med Rep. 2003 Dec;2(6):320-4. doi: 10.1249/00149619-200312000-00007. PMID: 14583161.

90 Pellegrino JL, et al. 2020 American Heart Association and American Red Cross Focused Update for First Aid. Circulation. 2020 Oct 27;142(17)

91 American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education. CFOC Standards Online Database. Aurora, CO; National Resource Center for Health and Safety in Child Care and Early Education; 2020. Available: https://nrckids.org/CFOC/Database/3.1.3.2 [Retrieved 11/11/21]

COLD EMERGENCIES

A cold or cool, wet environment can result in a lowering of internal body temperature. Hypothermia and frostbite are the most dangerous cold-related conditions.

Frostnip

Frostnip is the freezing of superficial skin layers. The skin feels numb and looks white. Rewarm the area as soon as possible using skin-to-skin contact.

Frostbite



Frostbite occurs when deep tissues freeze. Body parts that are commonly exposed to extreme cold, such as the fingers, toes, earlobes, cheeks, and nose, are the most likely skin to be affected. Contact with metal accelerates freezing and is particularly dangerous. Early signs of severe frostbite include burning, numbness, and tingling skin that appears white and frozen. Blisters may form. Do not rub frostbitten skin or apply snow or ice to it. Do not disturb blisters. If you suspect frostbite, get the child to a warmer place.

Remove any wet clothing from the affected area and dry the skin. Remove any constrictive jewelry. Do not rewarm the frozen body part if there is any chance it may freeze again. The thaw-refreeze cycle is very harmful. It is safer to keep the affected part frozen. Place dry gauze pads between frostbitten fingers and toes. If gauze dressings are not available, use any clean material available such as clothing, a towel, or other materials to keep the body part still and protected.

If you are more than 2 hours from professional medical care, rapid rewarming is recommended. Immerse the frostbitten area in warm water for 20-30 minutes. The water should be 98.6 to 102.2° Fahrenheit or 37 to 39° Celsius.[92] If a thermometer is not available, test the water temperature by placing your hand in the water for at least 30 seconds to confirm that the temperature is tolerable.

Other heat sources such as chemical warmers, fire, or heated rocks should not be used due to risk of further injury from thermal burns. Check continuously and keep the warm water at the recommended temperature. Severe pain, substantial swelling, blistering, and tissue color changes should be expected.

When rewarming is complete, use bulky, dry gauze dressings wrapped loosely on the thawed parts to protect the area and allow for swelling. Elevate the affected body part if possible. Do not let the child use the affected body part after it is thawed. Have the person evaluated by a medical professional as soon as possible.

Hypothermia

Hypothermia[93] is an abnormally low core body temperature defined as 95 degrees Fahrenheit or 35 Celsius or less. Hypothermia frequently accompanies frostbite and can be fatal. Signs of hypothermia include shivering, an inability to function well, a decrease in consciousness, or an altered mental status. If there is any doubt, assume that the child is hypothermic.

92 Wilderness Medical Society Clinical Practice Guidelines for the Prevention and Treatment of Frostbite: 2019 Update. Available: https://www.wemjournal.org/article/S1080-6032(19)30097-3/fulltext [Retrieved 1/17/22]

93 Dow J. et al. Wilderness Medical Society Clinical Practice Guidelines for the Out-of-Hospital Evaluation and Treatment of Accidental Hypothermia: 2019 Update. Wilderness Environ Med. 2019 Dec;30(4S):S47-S69. doi: 10.1016/j.wem.2019.10.002. 9.



Follow the Pediatric First Aid, CPR AED Procedure

If a child with suspected hypothermia is unresponsive, not breathing normally or only gasping, start CPR. Cardiac arrest victims of hypothermia have survived with normal brain function after lengthy CPR efforts. However, do not start CPR if the child has obvious fatal injuries or if the chest is too stiff to compress.

If the child is breathing and responsive, keep a hypothermic child lying flat. Do not allow them to stand or walk. Handle them gently. Significant movement of the arms and legs can increase the flow of cool blood to the heart and increase the risk of cardiac arrest.

Protect the child from further cooling. Use blankets, quilts, sleeping bags, or any available insulating materials. Cover the head and neck to retain body heat. Gently move the child to a warmer place. Remove wet clothes, preferably by cutting them off to minimize movement. Dry the child gently and cover them with dry insulating materials.

If you are far from professional medical care, begin actively rewarming the person. Place warm (not hot) water bottles in the child's armpits. Apply a large electric heat pad or blankets to the chest and back. Avoid applying external heat to the arms and legs. Visually inspect the child's heated skin every 20-30 minutes for excessive reddening or other signs of impending thermal burns. If signs of burns appear, stop active rewarming in the affected area.

Calm, comfort, and reassure the child. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.

Safety & Health Tip

Both hypothermia and frostbite can be prevented by properly dressing a child. Dressing in several layers will trap air between layers and provide better insulation than a single thick layer of clothing.[94] Cold winter weather is just as dangerous as hot weather for a child left in a vehicle. Never leave children alone in vehicles.

94 American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education. CFOC Standards Online Database. Aurora, CO; National Resource Center for Health and Safety in Child Care and Early Education; 2020. Available: https://nrckids.org/CFOC/Database/3.1.3.2 [Retrieved 11/11/21]

BITES & STINGS

Stinging Insects

Many insects such as bees, wasps, and fire ants may sting when agitated or in defense of their nests or territories. While wasps and fire ants can sting repeatedly, the stinger of a honeybee detaches from its body, remains embedded in the skin, and continues to inject venom. If a stinger is present in the skin, remove it as quickly as possible. There is no need to find and use a dull-edged scraping device, such as a credit card. [95] Local pain, redness, swelling, and itching generally occur at the sting site.

Care for bites and stings by washing the site with soap and water. As a precaution for swelling, always remove jewelry from the affected area. Cover the area with an adhesive bandage or a pad.

Place a bag of ice and water wrapped in a towel over the area for up to 20 minutes to help reduce swelling and pain.

It is possible for a life-threatening allergic reaction to develop. Wheezing may be heard. Swelling of the lips, eyelids, and face may occur. Itchy red raised lumps, or hives, can appear on the face and chest.

Follow the Pediatric First Aid, CPR AED Procedure

A child with a history of allergic reactions to insect stings may carry an epinephrine auto-injector prescribed to them. If a child is unable to self-administer an injection, the first aid provider may be able to do it for them. Follow the steps for using an epinephrine auto-injector covered in the severe allergic reaction topic.



95 Lee JA, Singletary E, Charlton N. Methods of Honey Bee Stinger Removal: A Systematic Review of the Literature. Cureus. 2020 May 12;12(5):e8078. doi: 10.7759/cureus.8078.

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Venomous Snakebite[96,97]

Only a few types of venomous snakes are found in North America: rattlesnakes, copperheads, cottonmouths, and coral snakes. Cottonmouths, copperheads, and rattlesnakes are known as pit vipers. Pit vipers strike once and leave a characteristic bite with a single or double fang mark. A coral snake bite differs from that of a pit viper. Instead of a single strike, coral snakes chew with fixed fangs. Unlike pit vipers, coral snakes are reclusive and retreat from humans.

Bites usually result from intentional handling. Very few snake bites are fatal.[98] The main consequence of a venomous snake bite is damage to tissue at the injury site. Serious damage and death are preventable with antivenom, which is the definitive treatment for venomous snakebites. Children may suffer more severe effects and can experience the effects more quickly than adults due to their smaller body size.[99]

Signs and symptoms of a pit viper bite include bite-site puncture marks; significant and spreading bite-site redness, swelling, and tenderness; bite-site pain, numbness, and bruising; fear and anxiety; and nausea and vomiting.

For a coral snake bite, pain and swelling at the bite site may be minimal or absent. Serious effects are often delayed, up to 13 hours. When they do appear, symptoms can include nausea, vomiting, abnormal sensations, slurred speech, double vision, muscle twitching, weakness, and paralysis.

Coral snakes possess a neurotoxic venom that causes respiratory failure and paralysis if not treated.

Follow the Pediatric First Aid, CPR AED Procedure

The priority after a snakebite is to avoid another bite, either to the victim or to the first aid provider. Stay away from the snake. Do not try to kill or capture it. If possible, take a digital photograph of the snake from a safe distance for later identification.

Calm the child. Let them know that fatalities are extremely rare and serious aftereffects are preventable. Anticipate swelling. Remove jewelry or constrictive clothing near the bite. Mark the leading edge of swelling on the skin and write the time alongside it. Flush the skin surface with warm or room temperature water with or without soap. Control bleeding with direct manual pressure. If there are no known allergies, apply antibiotic ointment or cream and a clean, occlusive dressing. Keep the affected area at the level of the heart to reduce swelling and the spread of venom. The following measures are of no benefit or potentially harmful.

Do not:

- apply a tourniquet,
- suck out the venom by mouth or mechanical means,
- cut or “bleed” the bite site,
- or apply ice or cold to the bite site bandage.

Keep the child quiet and still. Stay with them until someone with more advanced training takes over, the parent or legal guardian arrives, or EMS arrives. Pass on any information gathered.



96 Kanaan NC et al. Wilderness Medical Society Practice Guidelines for the Treatment of Pitviper Envenomations in the United States and Canada. Wilderness Environ Med. 2015 Dec;26(4):472-87. doi: 10.1016/j.wem.2015.05.007.

97 Coral Snake Bite Treatment. Available : https://www.poison.org/articles/coral-snake-bite-treatment-203 [Retrieved 6/18/21

98 Gummin, D. et al. 2019 Annual Report of the American Association of Poison Control Centers’ National Poison Data System (NPDS): 37th Annual Report, Clinical Toxicology, 58:12, 1360-1541, DOI: 10.1080/15563650.2020.1834219

99 Snakebite envenoming. World Health Organization. Available: tinyurl.com/y2akjyfz [Retrieved 7/13/2021]

Venomous Spider Bites and Scorpion Stings



Spiders typically inhabit out of the way places such as wood piles or outbuildings. Most spider bites are harmless and require no specific treatment. There are certain spiders that can be dangerous to humans. In the United States, these include the black widow and the brown recluse. Bites from these spiders are rare.[100] The main consequence of a venomous spider bite is damage to tissue at the injury site. Initially, venomous spider bites are often difficult to identify. Small puncture marks and bleeding may be seen. Tenderness, swelling, pain, itchiness, and redness at the bite site can develop. Over time, cramping abdominal pain and muscular rigidity in the body may occur. A person may experience headache, difficulty breathing, fever, chills, weakness, nausea, and vomiting.

Scorpion Stings

In the United States, scorpions mainly live in dry, desert-type environments of the south and southwest. Death from a scorpion sting is very rare and has not been reported in the US for almost 50 years.[101]

Scorpions inflict severely painful stings. The pain occurs immediately and is often described as stinging or burning, although sometimes a tingling or numb sensation happens. Other possible effects at the sting site include redness, swelling, and a scab. The Arizona bark scorpion can sometimes cause abnormal muscle activity like muscle twitching, unusual eye movements, slurred speech, or difficulty swallowing and breathing.

Appropriate first aid for spider bites and scorpion stings is the same. Anticipate swelling. Remove jewelry or constrictive clothing near the bite. Wash the area well with soap and water. Apply a bag of ice and water wrapped in a towel to reduce pain and swelling, then call Poison Control Help at 1-800-222-1222. If the person develops signs and symptoms affecting the whole body, becomes unresponsive, or has a seizure, follow the pediatric first aid, CPR AED procedure.

Tick Bites

Ticks are blood-feeding parasites that are typically found in tall grass and shrubs. When a tick bites, it attaches itself firmly to the skin. The biggest concern with tick bites is the exposure and transmission of infectious disease, including Lyme disease. The entire tick should be removed as soon as possible. The longer a tick is attached, the more likely diseases or problems will occur.

To remove a tick, grasp it close to the skin with fine-tipped tweezers or a tick removal tool. Pull straight up with a steady, slow motion. Twisting or jerking can cause the mouth of the tick to break off. Clean the bite site well with soap and water or an antiseptic wipe. When finished, thoroughly wash your hands. If portions of the tick remain in the skin or the child develops a fever, rash, or aches within a few weeks of a tick bite, see a healthcare provider as soon as possible.

Do not use fingernail polish, petroleum jelly, a glowing hot match, or alcohol to remove a tick. These actions have no proven value and may cause harm.

Marine Animal Stings

Stings from marine animals, such as fire coral, sea anemones, and jellyfish, can occur when a person is in or around the ocean environment. Stings can result in significant pain at the sting site and a raised, red, itchy rash. Quickly wipe off stingers or tentacles with a gloved hand or towel. Wash the sting site liberally with household vinegar as soon as possible for at least thirty seconds to deactivate the venom and prevent further stinging. To help reduce pain, immerse the sting site with hot water for at least twenty minutes or until the pain subsides. The water should be as hot as the child can safely tolerate.

100 Gummin, D. et al. 2019 Annual Report of the American Association of Poison Control Centers' National Poison Data System (NPDS): 37th Annual Report, Clinical Toxicology, 58:12, 1360-1541, DOI: 10.1080/15563650.2020.1834219

101 Tarantula Bites and Scorpion Stings. Available: https://www.poison.org/articles/tarantula-scorpion-bite-sting-treatment-181 [Retrieved 6/18/21]

Stingray Stings

A stingray is a marine animal with a slender tail and venom-filled spines that can puncture the skin and inject venom. Stingray injuries result in thousands of emergency department visits annually.[102] Signs and symptoms of a stingray injury include immediate, severe pain at the sting site with a bleeding, often discolored wound. Some swelling may be present.

Control bleeding with direct manual pressure. Wash the area well with soap and water. To control pain and inactivate the venom, immerse the injured area in water as hot as the child can tolerate for at least thirty minutes or as long as the pain persists. Medical evaluation and treatment are necessary if the spine is embedded in the wound, if the puncture is deep, or if it involves the child's chest, abdomen, or neck. Severe reactions to marine animal stings can include difficulty breathing, heart palpitations, weakness, and syncope. If the child develops signs and symptoms of a severe allergic reaction or becomes unresponsive, follow the pediatric first aid, CPR AED procedure.

Animal and Human Bites

Human and animal bite wounds that break the skin can be very serious. They are frequently contaminated with bacteria. There is a high risk of infection. Bites from animals such as raccoons, skunks, bats, and foxes can also cause rabies. Left untreated, rabies is fatal. Pain, puncture wounds, bleeding, bruising, numbness, and tingling can occur with any bite.

Follow the Pediatric First Aid, CPR AED Procedure

Treat non-severe, mild external bleeding from a human or animal bite with continuous direct manual pressure with a sterile dressing or any clean available material. Maintain direct pressure for at least five minutes or until the bleeding stops. Wash the wound gently with soap and water and cover with a clean, occlusive dressing. Place a bag of ice and water wrapped in a towel over the area for up to 20 minutes to help reduce swelling and pain. Medical evaluation as soon as possible and within 24 hours is necessary for all human and animal bites that break the skin.

Safety & Health Tip

Most pediatric dog bite injuries affect male children, ages 6 to 12 years, and are caused by a household dog. Infants and grade schoolers are more likely to sustain bites to the head and face.[103] To reduce the rate of dog bite injuries, prevention programs centered on teaching the dangers of canine interactions with humans should be targeted at children.[104] For more information on dog bite prevention, visit the American Veterinary Medical Foundation (AVMF) website.[105]

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102 Myatt T, Nguyen BJ, Clark RF, Coffey CH, O'Connell CW. A Prospective Study of Stingray Injury and Envenomation Outcomes. J Emerg Med. 2018 Aug;55(2):213-217. doi: 10.1016/j.jemermed.2018.04.035.

103 Reuter Muñoz KD, Powell LE, Andersen ES, Nye AD, Powers JM, Rhodes J, Pozez AL. Analysis of Pediatric Dog Bite Injuries at a Level 1 Trauma Center Over 10 Years. Ann Plast Surg. 2021 Jun 1;86(6S Suppl 5):S510-S516. doi: 10.1097/SAP.0000000000002928. PMID: 34100808. [Retrieved 11-11-21]

104 Tuckel PS, Milczarski W. The changing epidemiology of dog bite injuries in the United States, 2005-2018. Inj Epidemiol. 2020 Nov 1;7(1):57. doi: 10.1186/s40621-020-00281-y. PMID: 33129353; PMCID: PMC7603431. [Retrieved 11-11-21]

105 Dog bite prevention. AVMF Available: https://www.avma.org/resources-tools/pet-owners/dog-bite-prevention [Retrieved 11-11-21]

section six

APPENDIX

PROCEDURE FOR PEDIATRIC FIRST AID | CPR AED

PERFORM AN ASSESSMENT

- Assess **Scene Safety**
- Take **Standard Precautions***
- Assess **Responsiveness**
- Activate **EMS** and/or **EAP**†
- Send Someone to **Get a First Aid Kit & AED** (unless readily available to you)

ASSESS BREATHING FOR NO MORE THAN 10 SECONDS

RESPONSIVE, BREATHING

OBTAIN CONSENT

- Obtain consent from a parent or legal guardian, if readily available.
- Introduce yourself and let the child know you are there to help.
- Assess for life-threatening conditions. If present, immediately provide appropriate first aid.
- If a child shows signs of shock, and there is no difficulty breathing, keep them lying down, face up.

PERFORM A SECONDARY ASSESSMENT

- Ask the child, parent, or legal guardian to describe the current problem.
- Look for medical identification jewelry.
- Visually assess the child from head to toe.
- Look for Deformities and Open injuries. Ask about Tenderness and Swelling. (DOTS)
- Provide appropriate first aid for any problems found.

UNRESPONSIVE, BREATHING NORMALLY

MAINTAIN AN OPEN AIRWAY

- Place an uninjured, unresponsive child on their side in the recovery position to help protect the airway.
- Cradle an infant in your arms, with their head tilted downwards.
- Assess for life-threatening conditions. If present, immediately provide appropriate first aid.
- Give naloxone for suspected opioid overdose (if available).

UNRESPONSIVE, NOT BREATHING NORMALLY OR ONLY GASPING

START CONVENTIONAL CPR

- Position child or infant on a firm, flat surface.
- Perform cycles of 30 high-quality chest compressions and 2 rescue breaths. §
- If alone after about 2 minutes, activate EMS and/or EAP and get an AED (if not already done).
- Return to the infant or child, continue CPR, and use the AED.
- Give naloxone for suspected opioid overdose (if available).

UNRESPONSIVE. NOT BREATHING NORMALLY. USE THE AED AS SOON AS IT IS AVAILABLE. APPLY PADS TO BARE CHILD OR INFANT'S SKIN ACCORDING TO THE PICTURES. FOLLOW AED PROMPTS

SHOCK ADVISED?

YES

- Clear the child/infant.
- Give 1 shock.
- Immediately resume high-quality CPR.
- Follow AED prompts.

NO

- Immediately resume high-quality CPR.
- Follow AED prompts.

CONTINUE UNTIL OTHER CPR OR EMS PROVIDERS TAKE OVER OR THE PERSON STARTS RESPONDING (BREATHING, MOVING, REACTING).

* Use appropriate personal protective equipment (PPE) to protect against possible exposure to infectious agents. PPE may include gloves, goggles or face shields, surgical masks, gowns, respirators, and CPR masks. Wash your hands immediately after removing gloves.

† If you are not sure an emergency exists or when any person is unresponsive, badly hurt, looks or acts very ill, or quickly gets worse - call 911 to activate Emergency Medical Services (EMS) using a mobile device and/or activate your emergency action plan (EAP). Listen to the dispatcher's instructions.

§ In the case of drowning, begin with 2 rescue breaths. Child Compressions: Push in the middle of the chest about 2 inches with one or two hands. Infant Compressions: Push in the middle of the chest about 1 ½ inches with 2-Finger or 2 Thumb-Encircling Hands Technique. Rescue breaths are extremely important for infants and children. If unwilling or unable to provide rescue breaths, perform compression-only CPR because it is better than no CPR.

PROCEDURE FOR PEDIATRIC CPR AED

PERFORM AN ASSESSMENT

- Assess **Scene Safety**
- Take **Standard Precautions***
- Assess **Responsiveness**
- Activate **EMS** and/or **EAP**†
- Send Someone to **Get a First Aid Kit & AED** (unless readily available to you)

ASSESS BREATHING FOR NO MORE THAN 10 SECONDS

UNRESPONSIVE, BREATHING NORMALLY

MAINTAIN AN OPEN AIRWAY

- Place an uninjured, unresponsive child on their side in the recovery position to help protect the airway.
- Cradle an infant in your arms, with their head tilted downwards.
- Give naloxone for suspected opioid overdose (if available).

UNRESPONSIVE, NOT BREATHING NORMALLY OR ONLY GASPING

START CONVENTIONAL CPR

- Position child or infant on a firm, flat surface.
- Perform cycles of 30 high-quality chest compressions and 2 rescue breaths.‡
- If alone after about 2 minutes, activate EMS and/or EAP and get an AED (if not already done).
- Return to the child or infant, continue CPR, and use the AED.
- Give naloxone for suspected opioid overdose (if available).

UNRESPONSIVE. NOT BREATHING NORMALLY. USE THE AED AS SOON AS IT IS AVAILABLE. APPLY PADS TO CHILD OR INFANT'S BARE CHEST ACCORDING TO THE PICTURES. FOLLOW AED PROMPTS.

SHOCK ADVISED?

YES	NO
Clear the child/infant.	Immediately resume high-quality CPR.
Give 1 shock.	Follow AED prompts.
Immediately resume high-quality CPR.	
Follow AED prompts.	

CONTINUE UNTIL OTHER CPR OR EMS PROVIDERS TAKE OVER OR THE CHILD OR INFANT STARTS RESPONDING (BREATHING, MOVING, REACTING).

* Use appropriate personal protective equipment (PPE) to protect against possible exposure to infectious agents. PPE may include gloves, goggles or face shields, surgical masks, gowns, respirators, and CPR masks. Wash your hands immediately after removing gloves.

† If you are not sure an emergency exists or when any child or infant is unresponsive, badly hurt, looks or acts very ill, or quickly gets worse - call 911 to activate Emergency Medical Services (EMS) using a mobile device and/or activate your emergency action plan (EAP). Listen to the dispatcher's instructions.

‡ In the case of drowning, begin with 2 rescue breaths. Child compressions: Push in the middle of the chest about 2 inches (5 cm) with one or two hands. Infant compressions: Push in the middle of the chest about 1 ½ inches (4 cm) with 2-Finger Technique or 2-Thumb Encircling-Hands Technique. Rescue breaths are extremely important for infants and children. If CPR providers are unwilling or unable to deliver breaths, perform compression-only CPR, as it is preferable to no CPR.

PROCEDURE FOR ADULT CPR AED

PERFORM AN ASSESSMENT

- Assess **Scene Safety**
- Take **Standard Precautions***
- Assess **Responsiveness**
- Activate **EMS** and/or **EAP**†
- Send Someone to **Get a First Aid Kit & AED** (unless readily available to you)

ASSESS BREATHING FOR NO MORE THAN 10 SECONDS

UNRESPONSIVE, BREATHING NORMALLY

MAINTAIN AN OPEN AIRWAY

- Place an uninjured, unresponsive person on their side in the recovery position to help protect the airway.
- Give naloxone for suspected opioid overdose (if available).

UNRESPONSIVE, NOT BREATHING NORMALLY OR ONLY GASPING

START CONVENTIONAL CPR

- Position person on a firm, flat surface.
- Perform cycles of 30 high-quality chest compressions and 2 rescue breaths.§
- If another trained CPR provider is available, take turns performing compressions. Switch quickly, about every two minutes.
- Give naloxone for suspected opioid overdose, but do not delay CPR and AED use to give it.

UNRESPONSIVE. NOT BREATHING NORMALLY. USE THE AED AS SOON AS IT IS AVAILABLE. APPLY PADS TO PERSON'S BARE CHEST. FOLLOW AED PROMPTS.

SHOCK ADVISED?

YES	NO
Clear the person. Give 1 shock. Immediately resume high-quality CPR. Follow AED prompts.	Immediately resume high-quality CPR. Follow AED prompts.

CONTINUE UNTIL OTHER CPR OR EMS PROVIDERS TAKE OVER OR THE PERSON STARTS RESPONDING (BREATHING, MOVING, REACTING).

* Use appropriate personal protective equipment (PPE) to protect against possible exposure to infectious agents. PPE may include gloves, goggles or face shields, surgical masks, gowns, respirators, and CPR masks. Wash your hands immediately after removing gloves.

† If you are not sure an emergency exists or when any person is unresponsive, badly hurt, looks or acts very ill, or quickly gets worse - call 911 to activate Emergency Medical Services (EMS) using a mobile device and/or activate your emergency action plan (EAP). Listen to the dispatcher's instructions.

§ For adults and teens in cardiac arrest, untrained bystanders and trained CPR providers should at a minimum provide compression-only CPR, with or without dispatcher assistance. If willing and able, trained CPR providers should perform conventional CPR at ratio of 30 compressions to 2 rescue breaths. In the case of drowning, begin with 2 rescue breaths.

FIRST AID KITS & SUPPLIES

National Health and Safety Standards; Guidelines for Early Care and Education Programs recommend that child care facilities maintain fully equipped first aid kits in each classroom in case of an injury. First aid supplies should be clearly labeled and stored in a location accessible to staff, but out of reach of children. Transportable first aid supplies should be available when children are outside the facility. All vehicles that transport children should have transportable first aid supplies. First aid supplies should be checked at least once a month and expired items replaced.

An itemized list of first aid supplies with a written log (sample to the right) should be kept documenting the date supplies and expiration dates were checked and the name and signature of the person who checked the supplies. The list contains the minimum supplies that should be kept, routinely inventoried, and restocked as needed,[106] as well as any additional supplies that may be required to meet the American National Standard-Minimum Requirements for Workplace First Aid Kits and Supplies.[107]

106 Adapted from CFOC Standards Online Database. Aurora, CO; National Resource Center for Health and Safety in Child Care and Early Education; 2020. Available: https://nrckids.org/CFOC/Database/5.6.0.1 [Retrieved 3/10/22]

107 ANSI/ISEA Z308.1-2015, American National Standard-Minimum Requirements for Workplace First Aid Kits and Supplies. Available: https://webstore.ansi.org/Standards/ISEA/ANSIISEAZ3082015?source=blog [Retrieved 3/10/22]

First Aid Kit Supply & Inspection Log

First Aid Kit Location: _____ Date: _____

Required Supplies

- ☐ Adhesive bandages & adhesive tape
- ☐ Antiseptic solution or antiseptic wipes
- ☐ Cold pack(s)
- ☐ Cotton-tipped swabs
- ☐ Digital or tympanic (ear) thermometer
- ☐ Eye patch
- ☐ Fever-reducing medications (e.g., acetaminophen/ibuprofen) to be used ONLY for children with an order from a primary health care provider and signed parental consent
- ☐ First aid guide
- ☐ Flexible roller gauze
- ☐ Flexible roller or elastic bandage
- ☐ Liquid hand soap and/or alcohol-based hand sanitizer
- ☐ Pen/pencil and note pad
- ☐ Personal Protective Equipment (CPR mask, eye protection, disposable gloves)
- ☐ Plastic or biohazard waste bags (for safe infectious waste disposal)
- ☐ Safety pins
- ☐ Small scissors
- ☐ Sterile eyewash
- ☐ Sterile gauze sponges (various sizes, incl. 4 x 4)
- ☐ Sterile water (2 L) for flushing
- ☐ Trauma pads (5 x 9 in.) or individually wrapped sanitary pads
- ☐ Triangular bandages
- ☐ Tweezers

Additional Supplies

- ☐ Manufactured tourniquet(s)
- ☐ Gel-soaked burn dressing
- ☐ Burn treatment
- ☐ Malleable splint
- ☐ Antibiotic ointment or cream

Expired Items? ☐ No ☐ Yes **Restocked?** ☐ No ☐ Yes

Checked by (Full Name): _____

Signature: _____ Date: _____

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