American Heart Association.

Cardiac Emergency Response Plan and Protocol

Cardiac Emergency Response Plan (CERP)

Cardiac Emergency Response Plan (CERP): Supports the creation of an organizational policy and procedure for preparing and responding to cardiac emergencies. The CERP provides general recommendations and best practices and should be customized for each organization such as school, school district, sports facility, or workplace. The CERP Protocol is specific facility-based actions taken in a cardiac emergency that can be shared with team members and visually posted throughout a building. This document is supported by the American Heart Association, Project ADAM, Parent Heart Watch and a national task force of experts in preparing for sudden cardiac arrest.

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Cardiac Emergency Response Plan (CERP)

(Updated: September 2024)

Purpose

1) This document provides direction and detailed guidance for responding to a sudden cardiac arrest (SCA) through a Cardiac Emergency Response Plan (CERP). This plan outlines Cardiac Emergency Response Teams (CERTs), AED maintenance and locations, CERP protocol and related staff training/certification. This document does not replace any district policies or local, state, or national regulations.
2) In the United States, it is estimated that annually 356,000 adults experience out-of-hospital cardiac arrest as well as 23,000 pediatric cardiac arrests (Mozaffarian, D, 2015; Okubo, M et al, 2020). Although approximately 90% of those people will not survive the event, the likelihood of survival increases with prompt intervention. According to the American Heart Association (AHA), early intervention that includes CPR and restoration of normal heart rhythm with the use of an AED increases the chance of survival.

Developing a Cardiac Emergency Response Team (CERT)

1) Designate one person as the Cardiac Emergency Response Team Coordinator who oversees CPR-AED program activities, training, education, and evaluation.
2) All individuals on CERT should have current CPR/AED training from a nationally recognized organization.
3) Designate individuals to promptly call 9-1-1 and direct EMS to the location of the sudden cardiac arrest (SCA).

Best Practice Considerations:

a) Consider having the Cardiac Emergency Response Team comprise of at least 5 people or 10% of staff.
    a. In recognition of periodic absences and overall staff turnover, a robust team of individuals trained to be part of the CERT is essential to ensure uninterrupted response activities.
b) CERT members should be able to step away from their tasks to assist when CERP is activated or have coverage for their classrooms.
c) A list of these individuals and their CPR certifications should be maintained on-site in a readily accessible area.

d) Plan for ongoing coverage following an emergency response in case a subsequent event occurs.

Community and Workplace Considerations:

a) Consider including individuals that are most often at the facility as members of the CERT.
b) Consider including your organizational leadership as members of the CERT or trained in CPR and AED use.
c) Include shared use partners and their leadership if the building or location is shared.

Automated External Defibrillators (AEDs) – Placement, Installation and Maintenance

1) Minimum recommended number of AEDs for [insert name of building or organization name] include inside the building and outside the building:
    a) *Inside the building* – The number of AEDs shall be sufficient to enable a person to retrieve an AED and deliver it to any location within the building, ideally within 3 minutes of being notified of a possible cardiac emergency. AED should be clearly marked in a backpack or hard case.
    b) *Outside the building* (e.g., on school grounds, venues, or athletic fields) – The number of AEDs, either stationary or in the possession of an on-site athletic trainer, coach, or other qualified person, shall be sufficient to enable the delivery of an AED to any location outside of the building including any venue, athletic field, or school grounds, ideally within 3 minutes of being notified of a possible cardiac emergency. AED should be clearly marked in a backpack or hard case.
2) Regularly check and maintain each AED in accordance with the AED's operating manual and maintain a log of the maintenance activity including periods of time where the building or location will not be used for long periods of time, such as summer months when school is not in session or community locations only opened at certain times of the year.
3) CERT coordinator should set up a process for verifying and tracking equipment readiness and maintenance.
4) Additional Resuscitation Equipment: A resuscitation kit shall be connected to the AED carry case. The kit shall contain latex-free gloves, razor, scissors, towel, antiseptic wipes, a CPR barrier mask, and consider an extra set of AED pads. Consider storing other medical equipment with the AED or kit such as naloxone and epinephrine autoinjector.
5) AEDs should not be locked in an office. It should be stored in a location that is always easily and quickly accessible.

6) AEDs shall be accessible for responding to a cardiac emergency during day and night activities (e.g., sports activities) and after-hours activities (e.g., after-school activities) in accordance with this CERP.
7) Each AED should have one set of AED pads with the device.
8) Signage: All AEDs should have clear AED signage to be easily identified. These should be visible from the normal path of travel. A projecting (three-dimensional) universal AED sign shall be installed above cabinet or bracket/wall rack clearly marking the location of AED(s).
9) Recommend removing warning "for professional use only" on AED cabinets as AEDs provide instructions for use.
10) Locations of the AEDs are to be listed in the CERP Protocol with Building Location Information, AED locations, and Maps (see appendix).

<u>Best Practice Considerations:</u>

a) It is recommended each AED have a spare set of pads.
b) Backup AEDs: If resources allow, obtaining a back-up AED may be used for off-site travel or if another AED is out of service for maintenance.
c) AEDs to be installed using a cabinet or bracket/wall rack approved for such purpose and be surface mount or wall recessed. Proper cabinets for the climate need to be considered for outdoor storage.
    i. Regardless of which mount is chosen, AEDs shall be placed so that the AED's readiness indicator faces outward.
    ii. During installation, it is important to make sure that screws, bolts and wall anchors will not penetrate electrical wires or pipes inside wall.
    iii. Installation Height: Placed at an unobstructed height of forty-eight (48) inches from the floor. It may be lower to provide optimum accessibility in compliance with American Disabilities Act (ADA). ADA Accessibility Guidelines (ADAAG) specify that objects such as automated external defibrillator wall cabinets shall not protrude more than 4 inches from the wall into walks, corridors, passageways, or aisles.
d) Keep copies of event documentation with AED and first responder kits.
e) CERT coordinator should register their AED with the manufacturer and supplier to receive notifications of potential recalls or alerts.
f) Best practice is for all organizations that serve children and schools, regardless of grade levels served, to have an AED that can serve all ages. If AED has pads, apply pads based on manufacture recommendations. <u>Make sure pads do not touch.</u>
g) If pediatric pads are not available, adult AED pads may be used: The small pads or child key/switch will deliver a shock with a lower energy dose than the larger pads will. But if there aren't any smaller child pads, or if there isn't a child key or switch, use the larger adult pads. When you put the pads on the chest, make sure they don't touch each other. If a

child is very small, you may need to put one pad on the child's chest and the other on the child's back.

h) Consider having an AED readily available during activities outside of normal operating hours, such as on the sidelines of sporting events and practices.
i) Consider posting the American Heart Association *Act Now. Save a Life.* (Simplified Adult Basic Life Support) diagram near AED cabinet (see appendix).

Community Considerations:

a) Consider revising the current organizational funding priorities or plan for future funding to acquire the appropriate number of AEDs.
b) Regardless of the number of AEDs in place, educate as many people as possible in Hands-Only CPR (see Training in Cardiopulmonary Resuscitation (CPR) and AED Use section of this document).

Communication of CERP Protocol

1) The CERP Protocol should be posted broadly in places such as (but not limited to):
    a) In each classroom, cafeteria, restroom, health room, break room and in all offices or other occupied spaces.
    b) Adjacent to each AED.
    c) Adjacent to each public telephone.
    d) In the gym, near the swimming pool, and in all other indoor locations where athletic activities take place.
    e) At other strategic locations, including outdoor physical education and athletic venues and facilities.
    f) Attached to all portable AEDs.
2) The CERP protocol should be distributed to:
    a) All staff and administrators at the start of each year (or school year), with updates distributed as made. In workplace and recreation centers, the CERP protocol should be made available annually and when updates are made.
    b) All staff should be educated on the CERP protocol in their school yearly.
    c) All staff should be educated on recognizing the signs of a cardiac emergency that is or may become a SCA, how to activate a response, location of AEDs, and ideally have an introduction to at least hands-only CPR and AED use.
    d) New staff members should receive the CERP protocol in their orientation materials.

Best Practice Considerations:

a) A copy of the CERP protocol should be provided to any organization using the school, building, or location. The organization using the building or location should then adapt the CERP protocol to the needs of their group/organization.
b) Consider having a plan in place for after-hour events or off-site field trips.
c) Consider a modified CERP protocol which takes into consideration the nature and extent of the use and shall meet the spirit and intent of the CERP Protocol to ensure that preparations are made to enable a quick and effective response to a cardiac emergency on-site after standard business hours.
d) A facility user or renter should have their own plan, especially those using facility after normal operating hours. This should include location of the AEDs and knowledge of hands-only CPR and AED use. Visit Parent Heart Watch for a sample Communication to Facility User or Renter.

Community Considerations:

a) Consider sharing the CERP with volunteers.
b) Educate as many people as possible in Hands-Only CPR (which can be used for teens and adults). Most people that are not medically trained are not used to responding to emergencies. Education on Hands-Only CPR, sharing the plan, and practice is vital.

Training in Cardiopulmonary Resuscitation (CPR) and AED Use

1) Staff training
    a) The CERT team and a sufficient number of staff should be trained in cardiopulmonary resuscitation (CPR) and in the use of an AED. Training shall be renewed at least every two years.
    b) The school or organization should designate the person responsible for coordinating staff training and the medical contact for AEDs, if available.
    c) Training may be traditional classroom, on-line, or blended instruction but should include cognitive learning, hands-on practice, and testing.
        i) Consult local regulations to ensure your plan meets any additional local requirements.
    d) All staff and appropriate volunteers, regardless of if they are a CERT member, should receive annual training on SCA and understand how to

recognize a cardiac arrest, how to initiate the response team, and where the AEDs in the building are located.

e) Include as many other people as possible (staff, faculty, coaches, volunteers, students, parents, etc.) who can receive additional CPR/AED education and awareness of the plan.

Best Practice Considerations:

a) It is recommended that as many staff members as possible are trained in hands-only CPR/AED.
b) It is recommended that at least 10% of staff, 50% of coaches, and 50% of physical education staff in schools should have current CPR/AED certification.

Community and Workplace Considerations:

a) Provide training on CPR and AED use for your organizational leadership and individuals that are most often at the facility.
b) Regardless of the number of people trained and certified, all staff and appropriate volunteers, should receive annual education on sudden cardiac arrest and how to recognize a cardiac arrest, how to initiate the response team, and where the AEDs in the building are located.

Local Emergency Medical Services (EMS) Integration with the School Plan

1) Provide a copy of this Cardiac Emergency Response Plan to local emergency response and dispatch agencies (e.g., the 9-1-1 response system), which may include local police and fire departments and local EMS.
2) The development and implementation of the CERP shall be coordinated with the local EMS Agency, organization safety officials, on-site first responders, administrators, organizational leadership, athletic trainers, school nurses, and other members of the school or community medical team.
3) Work with local emergency response agencies to 1) coordinate this Plan with the local emergency response system and 2) to inform local emergency response system of the number and location of on-site AEDs.

Best Practice Considerations:

a) When possible, invite local EMS and first responders to the Cardiac Emergency Response Drills. They can give meaningful feedback and provide information about realistic situations.
b) Speak with your local EMS team to see if training supplies are available for education and to use for the CERP drill.

Community Considerations:

a) Creating or strengthening partnerships with local emergency medical services will enhance all areas of your organization's preparation and response to an out-of-hospital cardiac arrest. If you are not familiar with your local emergency response system, you can start by contacting your closest fire department or local public health department.

Conduct Practice Drills

1) Please refer to the CERP Drill section on the Project ADAM website for more information.
2) Cardiac Emergency Response Drills are an essential component of this Plan. The site should perform at least one successful drill each year (two or more are recommended) with the participation of staff, safety officials and other targeted responders. A successful Cardiac Emergency Response Drill is defined as full and successful completion of the Drill in 5 minutes or less. One drill may include a tabletop exercise with all the staff and CERP members present.

Best Practice Considerations:

a) Consider utilizing a checklist outlining response steps to ensure all actions are being completed. An observer can time the event and check off steps as they occur.
b) Save time after the drill to debrief with staff about how the response can be improved, if the CERP needs to be edited, and that the team feels confident in a real response.

Annual Review and Evaluation of the Plan

1) Conduct an annual internal review of the Cardiac Emergency Response Plan (CERP) for schools. The annual review should focus on ways to improve the response process, to include:
    a) A *post-event review* following an event. This includes review of existing documentation for any identified cardiac emergency that occurred at the location or at any sanctioned function. There should be a designated person responsible for establishing the documentation process.
2) Post-event documentation and action shall include the following:
    a) A contact list of individuals to be notified in case of a cardiac emergency.
    b) Determine the procedures for the release of information regarding cardiac emergencies.

c) Date, time, and location of the cardiac emergency and the steps taken to respond to the cardiac emergency.
d) The identification of the person(s) who responded to the emergency.
e) The outcome of the cardiac emergency. This shall include but not be limited to a summary of the presumed medical condition of the person who experienced the cardiac emergency to the extent that the information is publicly available. Personal identifiers should not be collected unless the information is publicly available.
f) An evaluation of whether the CERP and CERP Protocol was sufficient to enable an appropriate response to the specific cardiac emergency. The review shall include recommendations for improvements to the CERP and CERP Protocol and in its implementation if the plan was not optimally suited for the specific incident. The post-event review may include discussions with medical personnel (ideally through the school's medical counsel) to help in the debriefing process and to address any concerns regarding on-site medical management and coordination.
g) An evaluation of the debriefing process for responders and post-event support. This shall include the identification of aftercare services including crisis counselors and/or other local resources.
h) A review of the documentation for all Cardiac Emergency Response Drills performed during the year. Consider pre-established Drill report forms to be completed by all responders.
i) A determination, at least annually, as to whether additions, changes or modifications to the Plan are needed. Reasons for a change in the Plan may result from a change in established guidelines, an internal review following an actual cardiac emergency, or from changes in facilities, equipment, processes, technology, administration, or personnel.
j) After an actual emergency event occurs, you may need assistance in downloading and storing information from the AED to aid in the patient's continued medical care.
k) If the AED is taken with the patient or is removed from its cabinet, please place a sign about where the next closest one is located until there is an AED put back in the cabinet. Consider having a process or checklist for AEDs that have been used to verify all parts have been checked and replaced.

<u>Best Practice Considerations:</u>

a) Consider activities after normal operating hours, such as before or after school events.

Activation of Cardiac Emergency Response Team During an Identified Cardiac Emergency

1. Activate the Cardiac Emergency Response Team immediately when a cardiac emergency is suspected.
2. The Protocol for responding to a cardiac emergency should be posted and readily accessible to anyone.

   Best Practice Considerations:

   a) All Cardiac Emergency Response Team members should be able to step away from their tasks without risking harm to students or others.
   b) All members should be alerted uniformly via overhead page, radio, text, or phone.

References

Mozaffarian, D., Benjamin, E. J., Go, A. S., Arnett, D. K., Blaha, M. J., Cushman, M., ... & Turner, M. B. (2015). Heart disease and stroke statistics—2015 update: a report from the American Heart Association. *circulation*, *131*(4), e29-e322.

Okubo, M., Chan, H. K., Callaway, C. W., Mann, N. C., & Wang, H. E. (2020). Characteristics of pediatric out-of-hospital cardiac arrest in the United States. *Resuscitation*, *153*, 227-233.

Cardiac Emergency Response Plan (CERP) Protocol

(School, Organization, Workplace, Sports Facility, or Location Name)

Sudden cardiac arrest events can vary greatly. All staff and Cardiac Emergency Response Team (CERT) members must be prepared to perform the duties outlined below. Immediate action is crucial to successfully respond to a cardiac emergency. Consideration should be given to obtaining on-site ambulance coverage for high-risk athletic events. One should also identify the closest appropriate medical facility that is equipped with advanced cardiac care.

Follow these steps in responding to a suspected cardiac emergency:

1) Recognize the following signs of sudden cardiac arrest and act quickly in the event of one or more of the following:
    a. The person is not moving, unresponsive, or unconscious.
    b. The person is not breathing normally (has irregular breaths, gasping or gurgling, or is not breathing at all).
    c. The person may appear to be having a seizure or is experiencing convulsion-like activity. Cardiac arrest victims commonly appear to be having convulsions. If the person is having a seizure without a sudden cardiac arrest an AED will not deliver a shock.
    d. If the person received a blunt blow to the chest, this can cause cardiac arrest, a condition called commotio cordis. The person may have the signs of cardiac arrest described above and is treated the same.

2) Facilitate immediate access to professional medical help:
    a. Call 9-1-1 as soon as you suspect a sudden cardiac arrest. Provide the facility address, cross streets, and patient's condition. Remain on the phone with 9-1-1. (Bring your mobile phone to the patient's side and put on speaker, if possible.) Give the exact location and provide the recommended route for ambulances to enter and exit and escort emergency responders to the victim.
    b. Immediately contact the members of the Cardiac Emergency Response Team (CERT) using your facility's designated communication system (i.e. walkie talkies, overhead page).

c. If you are a CERT member, proceed immediately to the scene of the cardiac emergency.

3) Start CPR as soon as possible. The first person who can start CPR should begin immediately and, if additional bystanders are available, other tasks can be delegated.
    a. Begin continuous chest compressions and have someone retrieve the AED if not at the scene. Referred to the *Act Now. Save a Life.* (Simplified Adult Basic Life Support) graphic below.
    b. Press hard and fast in the center of the chest, at 100-120 compressions per minute. (Faster than once per second, but slower than twice per second.) Use 2 hands: The heel of one hand and the other hand on top (or one hand for children under 8 years old), pushing to a depth of at least 2 inches (or 1/3rd the depth of the chest for children under 8 years old). Follow the 9-1-1 telecommunicator's instructions, if provided.
    c. If you are able and comfortable giving rescue breaths, please use a barrier and provide 2 rescue breaths after 30 compressions.

4) AED Access. The person who can retrieve the AED the fastest (ideally in route to the scene) should get it to the site and leave the AED cabinet door open as a signal that the AED was retrieved.

5) Additional communication measures
    a. Give the exact location of the emergency. ("Mr. /Ms. ___ Classroom, Office or Room # ___, gym, football field, cafeteria, etc."). Be sure to let EMS know which door to enter.
    b. Assign someone to go to that door to wait for and flag down EMS responders and escort them to the exact location of the patient.

6) Use the nearest AED.
    a. When the AED is brought to the patient's side, press the power-on button, and attach the pads to the patient as shown in the diagram on the pads. Then follow the AED's audio and visual instructions. If the person needs to be shocked to restore a normal heart rhythm, the AED will deliver one or more shocks. Be familiar with your school's AED and be aware if you will need to press the shock button or if it will deliver automatically.
        i. *Note:* The AED will only deliver shocks if needed; if no shock is needed, no shock will be delivered.
    b. Minimize interruptions of compressions when placing AED pads to patient's bare chest.

c. Continue CPR until the patient is responsive or a professional responder arrives and takes over. Make sure to rotate people doing compression to avoid fatigue.
d. Do not remove AED pads even if the patient regains consciousness - the pads should be left in place until handoff to EMS occurs. This precaution is necessary in case the patient has a relapse.
e. If the AED is used be sure to have a plan to download the data, store the data, and deliver to the patient's cardiology care team.

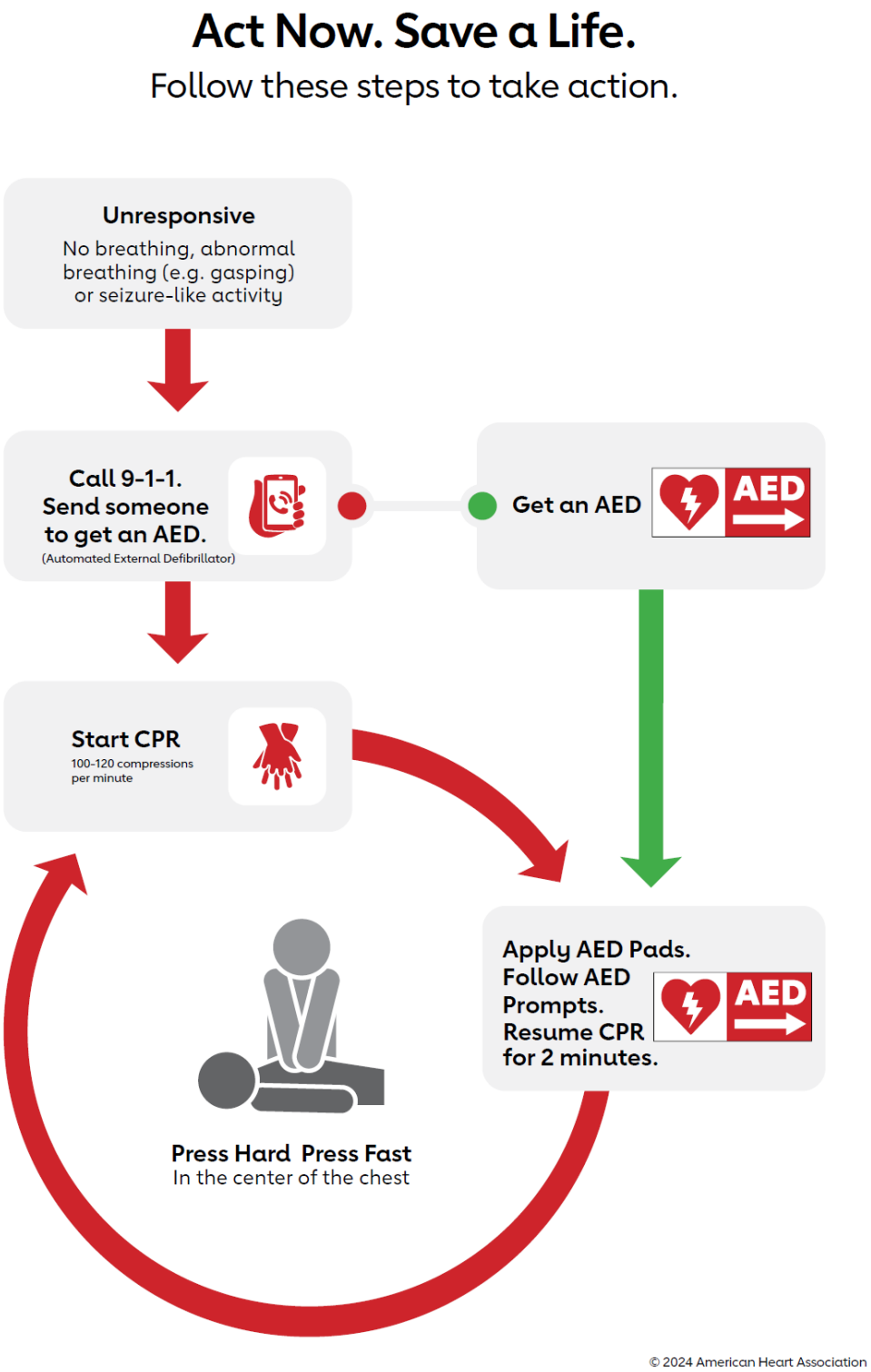
7) Transition care to EMS.
    a. Once EMS arrives, there should be a clear transition of care from the CERT to EMS.
    b. Team focus should now be on assisting EMS safely out of the building/parking lot.
    c. Provide EMS a copy of the patient's emergency information sheet.

8) Action to be taken by Office / Administrative Staff.
    a. Confirm the exact location and the condition of the patient.
    b. Activate the Cardiac Emergency Response Team and give the exact location.
    c. Confirm that the Cardiac Emergency Response Team has responded.
    d. Confirm that 9-1-1 was called. If not, call 9-1-1 immediately.
    e. Assign a staff member to direct EMS to the scene.
    f. Perform "Crowd Control" – directing others away from the scene.
    g. Notify other staff: school nurse, athletic trainer, athletic director, safety director, safety manager, leadership, sports facilities manager, etc.
    h. Plan for ongoing coverage following an emergency response in case a subsequent event occurs.
    i. Consider having the people (e.g., staff, students) stay in place (e.g., delaying class changes or hallway traffic, services provided, dismissal, recess, or other changes) to facilitate CPR and EMS functions.
    j. Designate people to cover the duties of the CPR responders.
    k. Copy the patient's emergency information for EMS.
    l. Notify the patient's emergency contact (parent/guardian, spouse, etc.).
    m. Notify faculty and students, staff, employees, and sports attendees when to return to the normal schedule or services.
    n. Contact organization leadership (e.g., school district administration), human resources and/or other facility management (e.g., sports facility management).

9) Debrief
    a. Discuss the outcome of the cardiac emergency. This shall include but not be limited to a summary of the presumed medical condition of the person who experienced the cardiac emergency to the extent that the information is publicly available. Personal identifiers should not be collected unless the information is publicly available.
    b. An evaluation of whether the CERP was sufficient to enable an appropriate response to the specific cardiac emergency. The review shall include recommendations for improvements to the Plan and in its implementation if the plan was not optimally suited for the specific incident. The post-event review may include discussions with medical personnel (ideally through the organization's medical counsel) to help in the debriefing process and to address any concerns regarding on-site medical management and coordination.
    c. An evaluation of the debriefing process for responders and post-event support. This shall include the identification of aftercare services including crisis counselors.

IMPORTANT: This is a resource document intended for use in formulating a plan for adoption by organizations, schools, school district, sports facilities or workplaces. Medical and legal counsel for the organization should review this Plan before implementation. It is the responsibility of the organization to ensure that the Cardiac Emergency Response Plan as adopted is consistent with local, state, and federal law.

American Heart Association *Act Now. Save a Life.* (Simplified Adult Basic Life Support)



Appendix

CERP Implementation Guide
CERP Resources

Acknowledgements

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