

Understanding Cardiac Arrest

While playing in the Buffalo Bills - Cincinnati Bengals game on Monday Night Football on January 2, Bills player Damar Hamlin suffered [cardiac arrest](#) after a hit and was administered [CPR](#) on the field before being transferred to an area hospital, according [to a statement](#) by the Buffalo Bills.

What Happened and On-site Care Explanation

Hamlin reportedly experienced a cardiac arrest – when the heart stops abruptly with little or no warning. Early recognition of cardiac arrest improves the person's chance of survival and is key to starting the correct care of CPR and the appropriate use of defibrillation to restart the heart. The on-site medical team evaluated the situation and appeared to quickly remove his safety pads, begin CPR and apply the automated external defibrillator (AED).

CPR can help keep the heart pumping and blood flowing to vital organs until an electrical shock from a defibrillator is available to restore the heart to a normal heart rhythm. Then the patient can be safely moved for further medical treatment, supportive care, testing to determine what the cause of the arrest may have been, and recovery, including both physical and mental health resources for the person and their family.

Possible Causes of Cardiac Arrest

Cardiac arrest can have several causes. Since Hamlin collapsed immediately following a tackle on the play, one potential cause could be commotio cordis. Commotio cordis is a rare phenomenon from a sudden blunt impact to the chest causing sudden death in the absence of apparent cardiac damage.^[1] The blow to the chest at precisely the wrong time in the cardiac cycle causes an electrical abnormality in the heart resulting in an irregular heart rhythm that cannot pump blood to the body. Immediate CPR and a shock to reset the rhythm can help the heartbeat return to normal function.

Another cause of cardiac arrest that additional tests are likely to attempt to detect or rule out is [hypertrophic cardiomyopathy](#) (HCM) or a thickened heart muscle – a more common cause of sudden cardiac death in young people and athletes specifically. The thickened heart can be due to a genetic condition or can be caused by athletic conditioning that thickens the muscles of the heart and can make it more susceptible to an irregular heart rhythm like ventricular fibrillation/tachycardia^[2].



Traumatic Stress for Responders, Observers

Witnessing and responding to a cardiac arrest can be a very traumatic event and may cause a lingering psychological impact regardless of the outcome. Lay responders and witnesses may need support and resources to help process their experience.

Responders have cited exhaustion, guilt, flashbacks, sleep disturbances, self-doubt, anger, sadness, and fear. A positive outcome of performing CPR can mitigate some of the emotional responses; however, psychological responses are wide-ranging and individualized. In situations with a failed resuscitation attempt, PTSD symptom scores were twice as high for responders as those for non-witnesses.

“This was traumatic for everyone, especially Hamlin’s family and teammates but also for so many others involved and witnessing the event. More than 70% of cardiac arrests that do not happen in the hospital, occur in a home where access to medical professionals and an AED is not as readily available,” said Mariell Jessup, M.D., FAHA, chief science and medical officer of the American Heart Association. “Recognizing a cardiac arrest, calling 911 immediately, performing CPR, and using an AED as soon as it is available is critical for survival. Statistically speaking, it is likely that the person will need to be helped by a family member or a friend to survive.”

Having community members trained in CPR and AEDs in public spaces can increase the chances of survival. The rate of bystander CPR in North America is estimated at only 39-44%, and only about 1 in 10 people survive an out-of-hospital cardiac arrest. Improving the rate of bystander CPR is critical to increasing survival from out-of-hospital cardiac arrest (OHCA).

The skill to perform CPR and use a defibrillator are the foundational components of preparing laypeople to respond to cardiac arrest. People also need to feel emotionally prepared to respond and be able to cope with the aftermath of actually performing CPR.^[3]

Resources for Learning CPR and First Aid at the City of Tulsa

Each year in the United States, an estimated 350,000 people experience sudden cardiac arrest in the community ^[4]. Anyone who witnesses a cardiac arrest in the community (i.e., not in a hospital) can perform CPR. Roughly 70% of

CARDIAC ARREST VS. HEART ATTACK


People often use these terms interchangeably, but they are not the same.

WHAT IS CARDIAC ARREST?

CARDIAC ARREST occurs when the heart malfunctions and stops beating unexpectedly.

Cardiac arrest is triggered by an electrical malfunction in the heart that causes an irregular heartbeat (arrhythmia). With its pumping action disrupted, the heart cannot pump blood to the brain, lungs and other organs.

Cardiac arrest is an “ELECTRICAL” problem.



WHAT HAPPENS

Seconds later, a person becomes unresponsive, is not breathing or is only gasping. **Death occurs within minutes if the victim does not receive treatment.**

WHAT TO DO

Cardiac arrest can be reversible in some victims if it’s treated within a few minutes. First, call your local emergency number and start CPR right away. Then, if an Automated External Defibrillator (AED) is available, use it as soon as possible. If two people are available to help, one should begin CPR immediately while the other calls your local emergency number and finds an AED.

CARDIAC ARREST is a LEADING CAUSE OF DEATH.

Cardiac arrest affects thousands of people annually with about three quarters of them occurring in the home.

Fast action can save lives.

For more information on American Heart Association CPR training classes in your area go to heart.org/cpr.


Follow us:
[facebook.com/AHACPR](https://www.facebook.com/AHACPR) twitter.com/HeartCPR [#CPRsaveslives](https://www.instagram.com/CPRsaveslives)

WHAT IS A HEART ATTACK?

A HEART ATTACK occurs when blood flow to the heart is blocked.

A blocked artery prevents oxygen-rich blood from reaching a section of the heart. If the blocked artery is not reopened quickly, the part of the heart normally nourished by that artery begins to die.

A heart attack is a “CIRCULATION” problem.



WHAT HAPPENS

Symptoms of a heart attack may be immediate and may include intense discomfort in the chest or other areas of the upper body, shortness of breath, cold sweats, and/or nausea/vomiting. More often, though, symptoms start slowly and persist for hours, days or weeks before a heart attack. Unlike with cardiac arrest, the heart usually does not stop beating during a heart attack. **The longer the person goes without treatment, the greater the damage.**

WHAT TO DO


Even if you’re not sure it’s a heart attack, call your local emergency number. Every minute matters! It’s best to call your local emergency number to get to the emergency room right away. Emergency medical services (EMS) staff can begin treatment when they arrive—up to an hour sooner than if someone gets to the hospital by car. EMS staff are also trained to revive someone whose heart has stopped. Patients with chest pain who arrive by ambulance usually receive faster treatment at the hospital, too.

WHAT IS THE LINK?

Most heart attacks do not lead to cardiac arrest. But when cardiac arrest occurs, heart attack is a common cause. Other conditions may also disrupt the heart’s rhythm and lead to cardiac arrest.



The heart attack symptoms in women can be different than men (shortness of breath, nausea/vomiting, and back or jaw pain).





American Heart Association.

© Copyright 2019 American Heart Association, Inc., a 501(c)(3) not-for-profit. All rights reserved. trademark of the AHA. Unauthorized use prohibited. 8/190514900.

cardiac arrests that do not happen in the hospital occur in homes and private residences, therefore, a friend or family member is most likely to be the person who needs to act. CPR, especially if performed immediately, can double, or triple a cardiac arrest victim's chance of survival.

For adults and adolescent children, [Hands-Only CPR](#) is an easy-to-learn skill that requires only two steps: call emergency services and push hard and fast in the center of the chest at a rate of 100-120 beats per minute.

City Employees have the option to take either a certification or non-certification CPR/AED/First Aid training class. There is no difference in the curriculum of the classes. However, there is a \$25 fee associated with the certification CPR/AED/First Aid Class, which covers the cost of student workbooks. **CPR/AED/First Aid Certification Training classes are available upon request.*

Non-Certification CPR/AED/First Aid classes are held at the Safety Training Center, 10925 E. Cameron, from 8 a.m. to 1 p.m.

Dates for non-certification training classes are listed below:

- February 1
- March 17
- April 6
- May 4
- June 23

To request more information, or to schedule a workgroup CPR class, please contact safety@cityoftulsa.org.





Put Your Best Foot Forward on Job Applications

You know the old saying – you only get one chance to make a good first impression. When applying for a position within the City of Tulsa, many think the first impression comes during the interview process. However, that is not always the case.

Your personal job application is your first opportunity to “impress” the hiring analyst and hiring supervisor (as applicable) with your knowledge, skills, and experiences and to show that you meet the qualifications for the position.

The application is a vital part of the certification process. Oftentimes, Human Resources will receive applications that are not complete and/or do not include sufficient information to decide whether the applicant meets the minimum requirements of the position. Many applicants will write, “see resume,” and omit key details about their personal work history.

Here are some tips to remember when filling out a City of Tulsa internal job application.

- **Applications should be accurate and include all relevant experience.**
- Be sure to include information about your current position within the City of Tulsa
- **DO NOT** assume a hiring analyst or supervisor already knows you or your work experience.
- **DO NOT** assume the hiring analyst will pull old applications and personnel files to fill in the missing pieces.

Section 111.1 of the Personnel Policies and Procedures states, “*Failure of an employee to completely fill out an application and include relevant experience for the Personnel Director or designee to consider can disqualify employees from consideration for the position.*”

So, put your best foot forward and take the time to complete and/or review your application, and update your profile application in MUNIS prior to submitting it. If you have questions or need assistance, please email jobs@cityoftulsa.org.



Preventing Workplace Burns

National Burn Awareness Week is February 5-11. Every year, the American Burn Association brings attention to burn injuries that result in over 40,000 hospitalizations per year. While a very large majority of these burns occur in the home, workplace burns are a very preventable source of injury. Awareness, hazard prevention, and protection can dramatically lessen the risk of burns in the workplace.

Types of Workplace Burns

Thermal Burns — Thermal burns are burns caused by heat from liquids (called "scalding" burns), open flames, hot objects, and explosions. The best way to reduce your chances of suffering from a thermal burn is to eliminate the source of the heat if possible. If there are pipes or other objects that heat up to dangerous temperatures, then it is important to place guards or barriers on them to protect individuals from being burned. The last line of defense would be to use proper PPE that will protect you from being burned by a hot object or material.

Chemical Burns — Chemical burns are the result of skin or eyes encountering strong acids, alkaloids, or other corrosive or caustic materials that eat away or "burn" skin and deeper tissue. In the workplace, these accidents can occur after exposure to industrial cleaners (such as rust removers or drain cleaners), and chemicals in laboratories or manufacturing workplaces. One of the best ways to prevent chemical burns is to make sure all workers are well-versed in Hazard Communication, which covers the symbols and labels that will communicate chemical risk. These labels will also include important information on the steps workers can take to prevent burns if they come into contact with dangerous chemicals. **Eliminate the use of dangerous chemicals whenever possible.** Substitute a chemical that burns the skin quickly with one that does not burn as easily. Block areas or processes that have the chance to expose individuals to hazardous chemicals. Have emergency showers or eyewash stations available for immediate use if exposed to a chemical.

Electrical Burns — Current travels through the body and meets resistance in tissue, resulting in heat burn injuries. To avoid burns from electrical sources, high-voltage areas and machinery should be clearly marked. Safe work practices need to be followed to work safely around electricity. Locate and stay away from both underground and overhead power lines. Inspect all tools for defects in insulation as well as missing ground prongs. Properly repair or discard any compromised cords. Do not operate electrical tools in moist or wet environments. Always properly lock and tag out equipment before performing your work on them. Try to turn the equipment on to ensure no power is still being given to it. The last line of defense is to wear PPE that protects you from electrical current.

Sun Exposure Burns — While these could technically be categorized as a thermal burn, sun exposure burns are worthy of special consideration. Employees who work under the sun should be well-versed in the sun safety practices

that will keep them safe and should take precautions to reduce hours under harsh direct sun. Employees should seek shade if possible, and wear sun-protective work clothing, hats, and sunscreen to reduce the risk of burns from sun exposure.

