Responding to cardiac arrest

Key Points

- According to the federal Occupational Health and Safety Administration, 220,000 cases of sudden cardiac arrest occur annually in the United States and about 10,000 of these events occur at work. Thirteen percent of workplace deaths reported to OSHA are the result of cardiac arrest.
- Sudden cardiac arrest occurs when ventricular fibrillation (an uncoordinated heart rhythm) takes place or when the heart stops beating altogether. Without medical attention, the victim loses consciousness and dies. Causes of cardiac arrest include heart attack (many victims have no prior history of heart disease), electrocution (a common risk at many landscaping job sites), and asphyxiation (loss of consciousness caused by inadequate oxygen). In our industry, asphyxiation can occur from the build up of exhaust fumes if workers use, repair or maintain equipment in enclosed spaces or if they fall into a pool or other body of water. In September 2009, a 26-year-old landscape worker in Plantation, Florida, was in cardiac arrest when rescuers pulled him from a lake after the mower he was operating fell in and pinned him under water. He died at the hospital.
- Cardiopulmonary resuscitation can double or triple a victim’s chances of survival, according to the American Heart Association, but, it has to be done quickly. Survival chances decrease 7 to 10 percent with every minute that passes without CPR or defibrillation. Federal OSHA recommends CPR training and workplace availability of automated external defibrillators (AEDs) to speed resuscitation.

Checklist for employers and supervisors

- Ensure workers are trained to recognize sudden cardiac arrest, notify emergency personnel, and care for the victim until such personnel arrive.
- Depending on circumstances, you might need to train certain employees to perform cardiopulmonary resuscitation (CPR) and/or provide defibrillation with an AED. Regardless of circumstances, providing CPR training to at least one person per crew is a good idea.
- While federal OSHA doesn’t expressly require employers to provide CPR training, OSHA’s “Guidelines for First Aid Training Programs” recommends CPR training as a general element of a first aid program. Employees should receive annual refresher training to retain their knowledge. OSHA does not certify first aid training programs or instructors, but employers must ensure training courses adequately cover the injuries/illnesses likely to be encountered. Classes are offered through local chapters of the American Red Cross and the American Heart Association, hospitals, ambulance services, and fire departments.
If emergency care is not available within 4 minutes of a job site/workplace, having someone with CPR training on-site might be necessary to satisfy OSHA standards. The medical services and first aid portion of regulation 29 CFR Part 1926 states: “In the absence of an infirmary, clinic, hospital, or physician that is reasonably accessible in terms of time and distance to the work site, which is available for the treatment of injured employees, a person who has a valid certificate in first aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the work site to render first aid.” In a 2007 letter in response to a request for clarification of these requirements, the agency stated that trained emergency service providers, such as fire department paramedics or EMS responders, “would be equivalent to the ‘infirmary, clinic, or hospital’ specified by the literal wording of the standards” and that “while the standards do not prescribe a number of minutes, OSHA has long interpreted the term ‘near proximity’ to mean that emergency care must be available within no more than 3–4 minutes from the workplace.”

Check your state’s workplace CPR training requirements since they could be more stringent than federal OSHA standards.

✓ Consider making AEDs available on job sites and at your office. Federal OSHA doesn’t require this, but it does recommend it. According to the agency, waiting for the arrival of EMS personnel results in only a 5- to 7-percent survival rate, but studies with immediate defibrillation have shown up to 60-percent survival one year after sudden cardiac arrest. An AED is a medical device that analyzes heart rhythm and delivers an electric shock to restore it to normal. AEDs are compact, lightweight, portable and battery-operated. Federal OSHA strongly recommends placement of AEDs in seven work-environment types. The following four environment types commonly exist in the landscaping industry: close to a confined space, areas where electric-powered devices are used, outdoor work sites where lightning may occur, and remote sites, such as construction projects. For more information, see OSHA’s “Saving Sudden Cardiac Arrest Victims in the Workplace — Automated External Defibrillators” brochure at osha.gov/Publications/osha3185.pdf.

✓ If you provide AEDs, ensure employees are trained to use them. Federal OSHA doesn’t have standards specific to AEDs; however, exposures to first-aid hazards are addressed in standards for the general industry. See osha.gov/SLTC/aed/index.html for more information.

Keep in mind, some states have adopted different standards applicable to AEDs and may have different enforcement policies. If you have an AED in your workplace or if you’re considering adding one, be sure you understand any special requirements your state might have.
Employee dos and don’ts

Do:
- Call 911 immediately if someone collapses and/or is unconscious. Other cardiac arrest symptoms that should also prompt a 911 call include chest pressure; discomfort in the left arm, neck, or jaw; profuse perspiring that’s disproportionate to the temperature and work being performed; trouble breathing; and a pale, grayish skin tone.
- Before relaying any other information, tell the 911 operator where you are and that you need an ambulance. Since you’ll likely be using a cell phone, the 911 system might not be capable of tracing your location.
- If an unconscious person’s chest is not rising and falling and air isn’t going in and out of his or her nose, begin cardiopulmonary resuscitation, or, if an AED is available, have someone who is trained to use it do so. If there is no one available who is trained in either CPR or how to use an AED, the 911 operator can talk you through CPR steps.
- Ask your employer to provide CPR training.
- Once you’ve been trained in CPR, take a refresher course every year to stay updated on recommended changes to the procedure. If you haven’t done this, here are the most important 2010 updates:

  - The American Heart Association has created a simplified algorithm and chart showing the appropriate actions to take when resuscitation is necessary and the correct order of those actions. The chart appears below.
  - The instruction to “look, listen, and feel for breathing” has been removed from the algorithm.
  - Continued emphasis has been placed on high-quality CPR (with chest compressions of adequate rate and depth, allowing complete chest recoil after each compression, minimizing interruptions in compression, and avoiding excessive ventilation). Compression depth for adults has been changed from the range of 1½ to 2 inches to at least 2 inches.
  - There has been a change in the recommended sequence for the lone rescuer to initiate chest compressions before giving rescue breaths (C-A-B or chest compressions-airway-breathing rather than A-B-C). The lone rescuer should begin CPR with 30 compressions rather than two ventilations to reduce delay to the first compression.
  - The compression rate should be at least 100/minute rather than “approximately” 100/minute. The song “Staying Alive” has about 100 beats per minute. Performing CPR correctly is exhausting, so show another person what you’re doing and have that person fill in for you when you tire.

Don’t:
- Attempt to drive yourself to a hospital if you are experiencing any of the cardiac arrest symptoms previously stated. Ask a coworker to call 911.
- Drive a coworker exhibiting the symptoms of cardiac arrest to the hospital. Emergency medical treatment is likely to commence sooner if you call 911.
Source: American Heart Association