

Compression-Only CPR



Peer Instruction Guide



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Introduction

This guide was produced as a joint project of Medtronic Philanthropy, the Heart Rescue Project, and the Minnesota Resuscitation Consortium. It's designed to make it easy for anyone to educate peers in how to respond when someone experiences sudden cardiac arrest (SCA) — by performing compression-only cardiopulmonary resuscitation (CPR) and using an automated external defibrillator (AED). The guide includes instructions for conducting either DVD-assisted instruction or one-on-one or small group scripted instruction.

According to the American Heart Association, an estimated 70% of Americans feel helpless to act during a cardiac emergency. In addition, more than 80% of cardiac arrests happen at home. So the importance of learning CPR and helping others learn is greater than ever.^(1,2)

The Value of Peer Instruction

The more people who know how to take action, the more lives we can save. When CPR is provided, the chance of survival doubles, and when an AED is also used, the survival chance triples, according to the American Heart Association.⁽¹⁾

By educating others, you:

- Increase awareness of the severity of sudden cardiac arrest
- Make CPR education cost effective and convenient
- Demonstrate that CPR is not difficult to perform
- Relay confidence: "If all these people can do it, so can I"
- Improve the chances for survival.

Who Can Be an Instructor

This instruction tool can be used by anyone. Whether you're an instructor through a national organization or an individual who wants to make a difference, this guide provides the necessary information to conduct awareness, CPR and AED peer instruction so more bystanders know how to take action during a sudden cardiac arrest emergency.

PREPARATION: Before You Begin

Consider Possible Community Partners

Consider partnering with others in your community who have an interest in improving safety and saving lives. You can connect CPR instruction to other health-related activities they may sponsor around prevention, active living, and emergency response.

Possible partners include:

- City or county governments
- Public service agencies
- Health advocacy groups
- Youth groups
- Healthcare facilities, such as clinics or hospitals

Plan the Venue and Format

There are numerous places and formats for hosting a CPR instruction session, such as:

Outdoor Event – Use kneepads and audio to create a fun, exciting learning environment that draws people in with the music and visuals.

Schools – Use creative learning techniques for large groups of students, teachers and staff, or single classrooms. Implementation can include:

- Lining up manikins in rows with participants taking turns practicing CPR in two-minute intervals
- Rotating group sessions on awareness, CPR, and AED
- Classroom instruction with homework to train families outside of school

Lunch & Learns – These can be hosted anywhere where you can play videos as participants eat, then provide the hands-on component after lunch.

In-Home CPR Parties – Lend out your guide for neighbors to host in-home instruction for the neighborhood.

Piggyback Other Events – Incorporate CPR education into other scheduled events, such as National Night Out, school carnivals, or association conferences.

PREPARATION: Tools to Assemble

You'll need the following tools to conduct a CPR instruction session:

For Both DVD-Assisted and Scripted Instruction

Manikins – Many types are available, depending on specific needs such as mobility, storage capacity, durability, cost, etc. A good rule of thumb is to have one manikin for every person in small groups and for larger groups of 10 or more, have one for every two to five participants. However, for very large groups, 25 to 30 manikins can be set up with practice sessions rotating every few minutes. Search the internet for websites to purchase manikins or borrow some from your local hospital or EMS agency.

AED Trainers – AED Trainers look exactly like real AEDs, but are 'dummy' devices that are remote controlled for learning purposes. If you have access to an AED Trainer, it's a great addition to any CPR class. If you don't have access to one (through school, EMS, fire agency, or nonprofit agency), a video demonstration of how to use an AED is available on the DVD that comes with this guide. Search the internet for websites to purchase AED Trainers.

Optional Audio Rhythm Aids – During the CPR practice, consider providing an audio rhythm aid that helps participants maintain the optimal 100 compressions per minute needed to keep the heart pumping until medical help arrives. You can use the bouncing ball section of the DVD that comes with this guide or play songs that have 100 beats per minute (bpm), such as:

- "Dancing Queen" by ABBA
- "Diamonds" by Rihanna
- "Hitsville UK" by The Clash
- "La Isla Bonita" by Madonna
- "Staying Alive" by the Bee Gees
- "Stupid Girl" by Pink

Optional Handouts – Many people like a small card or magnet listing the basic steps, as well as information on signs and symptoms of sudden cardiac arrest. See the Resources section for handout ideas.

PREPARATION: Teaching Tips

Be passionate – It will help engage participants.

Find out their reason for learning CPR – Then you can make the session more personal.

Use real stories if possible – Real-life examples make the need and the experience more relevant. Be sure to maintain confidentiality.

Customize your session to your audience – For example, you may need to use more basic language if instructing younger or older audiences.

Make your participants comfortable – Because much of the instruction is on the floor with manikins, ensure there is carpeting or a pad for kneeling. If possible, have chairs and some manikins on a table for those who are unable to kneel. If you're using the DVD, make sure that all participants can see the DVD and have enough space to perform compressions on the manikins. Space limitations may dictate how many people can participate at one time.



PREPARATION: Choose Appropriate Format

This guide allows for varying situations. It includes:

DVD-assisted Instruction – in which you serve as more of a facilitator while the DVD instruction plays.

Scripted Instruction – in which you do all the explaining with the help of some visual aids.

You can use all or some of the materials, as needed. Examples:

- Show only the awareness section of the DVD at community events to encourage participants to attend a training session at a later time.
- If you only have 10 to 15 minutes at a mall or other community event, consider using the scripted version.
- If you're meeting with only a few people or doing one-on-one instruction, the scripted version may be more appropriate.
- If there is no opportunity to show the DVD, use the scripted instruction.



DVD-ASSISTED INSTRUCTION: Sample Agenda

NOTES:

- Class lengths can vary based on content, venue, and the amount of questions. Times can be adapted to fit your content, venue, and format.
- For additional speaking points to use, see the Scripted Instruction section starting on Page 14.

MINUTES

- :00-:05 **Welcome and introduction**
 - Include a survivor story, if available
- :05-:08 **SCA awareness and importance of taking action**
 - Play DVD
 - Consider these optional handouts:
 - SCA Facts
 - SCA Symptoms and Risk Factors
 - CPR Makes a Difference
- :08-:10 **Discussion on myths and barriers to doing CPR**
 - Use talking points on Page 9
- :10-:14 **CPR demonstration**
 - Play DVD
- :14-:16 **Participant CPR practice with feedback and guidance**
 - Follow step-by-step instructions on Page 10
- :16-:19 **Participant CPR practice for two minutes**
- :19-:21 **AED demonstration**
 - Play DVD
- :22-:25 **Participant AED practice**
 - Follow step-by-step instructions on Page 11
- :25-:30 **Question and answer session**
 - Play DVD

CPR INSTRUCTION: CPR Myths and Barriers

Myths

“You can be sued if you perform bystander CPR.”

FALSE: In the United States, Good Samaritan laws protect bystanders, as long as you act reasonably and prudently.

“CPR does more harm than good.”

CPR can only help a victim of cardiac arrest. While it is possible that CPR may break a rib, it is unlikely and should not deter you from taking action to save a life.

“You should be certified in CPR to respond in an emergency.”

While certification is a great option, the person in cardiac arrest won't mind if you are not certified. The important thing is to act and to learn what to do by practicing CPR skills.

“You need to provide rescue breaths to the victim.”

The American Heart Association guidelines currently recommend Compression-Only CPR for adult victims of cardiac arrest. Conventional CPR, which includes rescue breaths with compressions, may be better for infants and children, or victims of drowning.

Barriers and How to Overcome Them

Too many skills to remember – Compression-Only CPR is easy to learn and perform. In addition, the 911 operator will assist you through the steps of providing CPR.

Potential for mouth-to-mouth infection – This fear is eliminated with Compression-Only CPR, as no breaths are given.

Someone else will do it – There's no guarantee others will know what to do. A bystander's action could be the difference between life and death, so be prepared and learn what to do. Providing CPR is tiring. Bystanders should take turns after 2 minutes if possible.

CPR INSTRUCTION: Step-by-Step Instructions

1. **Check for responsiveness** – Shake the person and shout, “Are you all right?”
2. **Call 9-1-1** – or direct someone else to make the call if the person is unresponsive and struggling to breathe, gasping, snorting, or not breathing at all.
3. **Start chest compressions**
 - Position patient on the floor face up.
 - Place the heel of one hand on the center of the chest and the heel of the other hand on top of the first.
 - Lock your elbows, move your shoulders over the center of the person’s chest, and use the weight of your upper body to “fall” straight downward, compressing the chest at least two inches.
 - Lift your hands slightly each time to allow chest to recoil. Recoil, or taking the pressure off the chest, is important to allow blood to enter the heart.
 - Compress the chest at a rate of 100 per minute. When you get tired, take turns with others until paramedics arrive.
4. **If an Automated External Defibrillator (AED) is available, turn it on and follow the AED’s voice instructions** – Otherwise, continue chest compressions until paramedics arrive.

NOTE: For unresponsiveness in young children, age 8 or under, that are known to be victims of drowning or drug overdose, full CPR should be provided (30 compressions followed by two mouth-to-mouth rescue breaths). However, even in those cases, Compression-Only CPR is better than doing nothing. To learn full CPR, a more formal training class is recommended.



Initiate and continue chest compressions even if the patient gasps. Noisy breathing or gasping is not a sign of recovery. It’s a sign you are doing a good job.

AED INSTRUCTION: Step-by-Step Instructions

NOTE: If there is another person doing compressions, have them continue as you apply the AED.

1. **Place the AED at the person's side and turn the unit on** — Some units will turn on automatically when you open them. You will know the unit is on because it will begin voice prompts.
2. The AED may prompt or remind you to **ensure that the emergency number or 911 has been called.**
3. **Open the pads and apply them to the person's bare chest.** Use diagram provided to guide positioning.
4. **Stand clear** — Once the pads are applied and plugged into the unit (if needed), the AED will instruct that CPR should be stopped and everyone should stand clear as the device analyzes the person.
5. **If a shock is indicated** — the unit will charge and a signal (flashing light or sound) will show you where to push to deliver the shock. Some units will automatically deliver the shock. In either case, stay clear of the person until the shock has been delivered.
6. **If a shock is not indicated** — or the device has delivered a shock and says it is safe to touch the person — restart CPR immediately.
7. **The AED will continue to analyze** — If indicated, it will attempt to deliver a shock every two minutes.
8. **Do not remove the AED;** continue CPR and AED use until help arrives.



Remember that even during AED use, you want to minimize interruptions to CPR compressions.

SCRIPTED INSTRUCTION: Sample Agenda

NOTES:

- These scripts can be read “as is” or you can add details specific to your community or current events.
- In small group settings, show the audience the visuals on the flip side of the page you’re reading.
- In large group settings, consider handouts and a microphone to ensure participants can hear the steps. Also have someone demonstrate CPR and AED use on stage as you speak.

Welcome and introduction

Include a survivor story if available

SCA awareness and importance of taking action

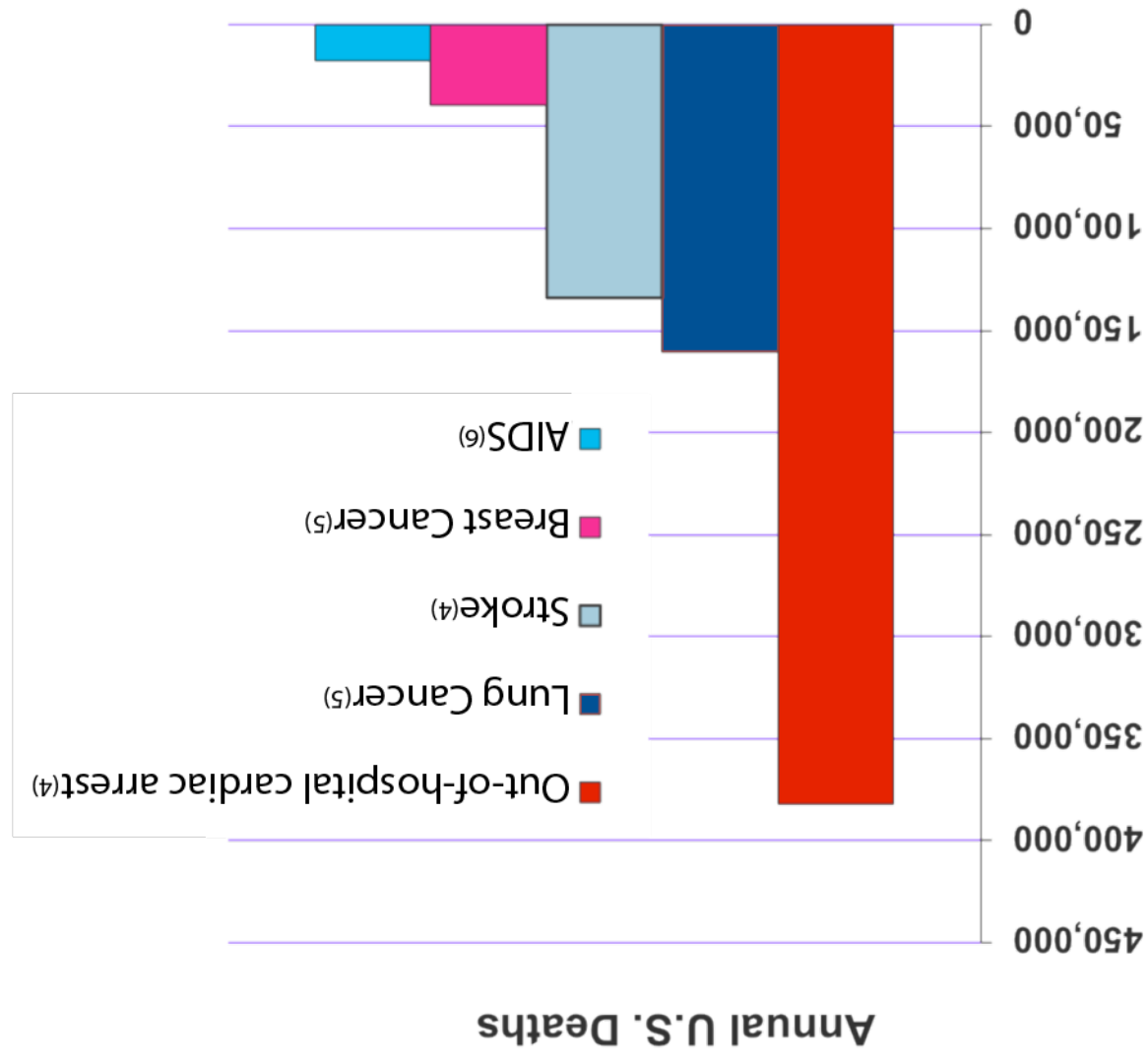
CPR instruction

Participant CPR practice

AED instruction

Participant AED practice

SCA is a Leading Killer



SCRIPTED INSTRUCTION: SCA Awareness

SCA is a Leading Killer

In the United States, sudden cardiac arrest—or SCA—is a leading killer, claiming 359,400 lives each year.⁽⁴⁾ More people die of SCA than lung cancer, stroke, breast cancer, and AIDs, combined.^(4,5,6) The overall survival rate on average is only 10%, and this number has not changed much in more than 30 years, despite new knowledge and technology.

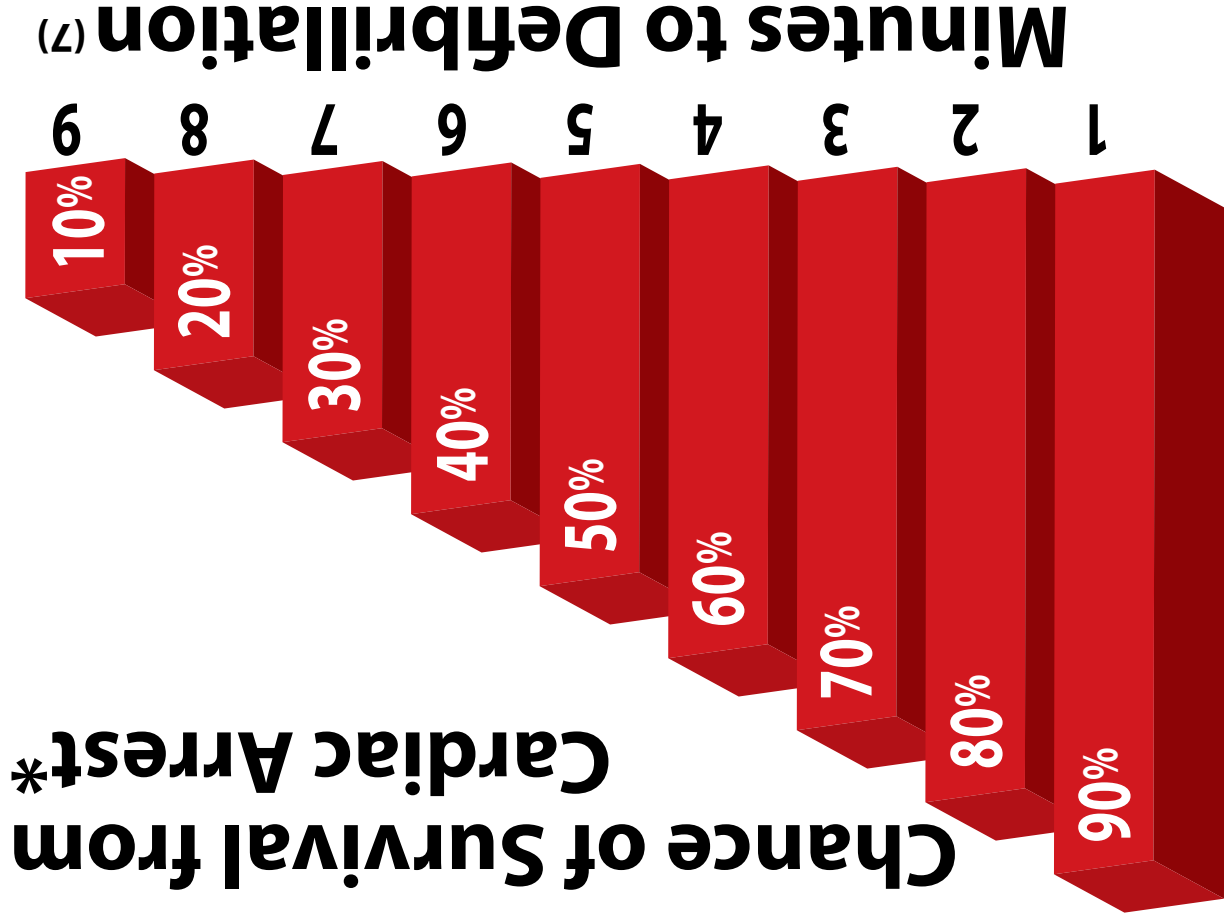
SCA is a national public health crisis. Because survival rates are so poor, there are fewer living advocates to rally for better care. There is no national Race for the Cure; no sustained, celebrity driven Public Service Announcement campaigns; and no nationally led government efforts.

So what exactly is sudden cardiac arrest? When SCA happens, the heart's lower chambers, or ventricles, suddenly develop a rapid, irregular rhythm called ventricular fibrillation. The quivering ventricles are unable to pump blood and oxygen to the body, including the brain and the heart. Within seconds, the person stops breathing normally and becomes unconscious. Without immediate treatment, the person almost always dies.

Sudden cardiac arrest is NOT a heart attack. A heart attack is caused by a blocked vessel leading to loss of blood supply to a portion of the heart muscle.

Sudden cardiac arrest generally occurs because of abnormalities in the heart's electrical conduction system, or it can develop following a heart attack.

Why Bystander Action is So Critical



SCA AWARENESS: Why Bystander Action is So Critical

Bystander action in the first few minutes after collapse from SCA is essential. The victim may die no matter what you do, but there is almost no chance the person will be revived unless you take action. In fact, a person's chance of survival DOUBLES TO TRIPLES if they receive CPR within the first few minutes after collapsing. For each minute that help is delayed, the chance of survival goes down.⁽³⁾



CLEAR



COMPRESS



CALL

Call. Compress. Clear.

SCA AWARENESS: Call. Compress. Clear.

Researchers discovered decades ago that CPR followed by rapid defibrillation—a shock to the heart—is the best known technique for treating sudden cardiac arrest. Providing CPR until defibrillation arrives helps keep blood circulating and organs alive.

More recently, studies have shown that doing chest compressions alone is just as effective as traditional CPR with mouth-to-mouth breathing.⁽⁸⁾ Infants and children, and drowning victims, need rescue breaths.

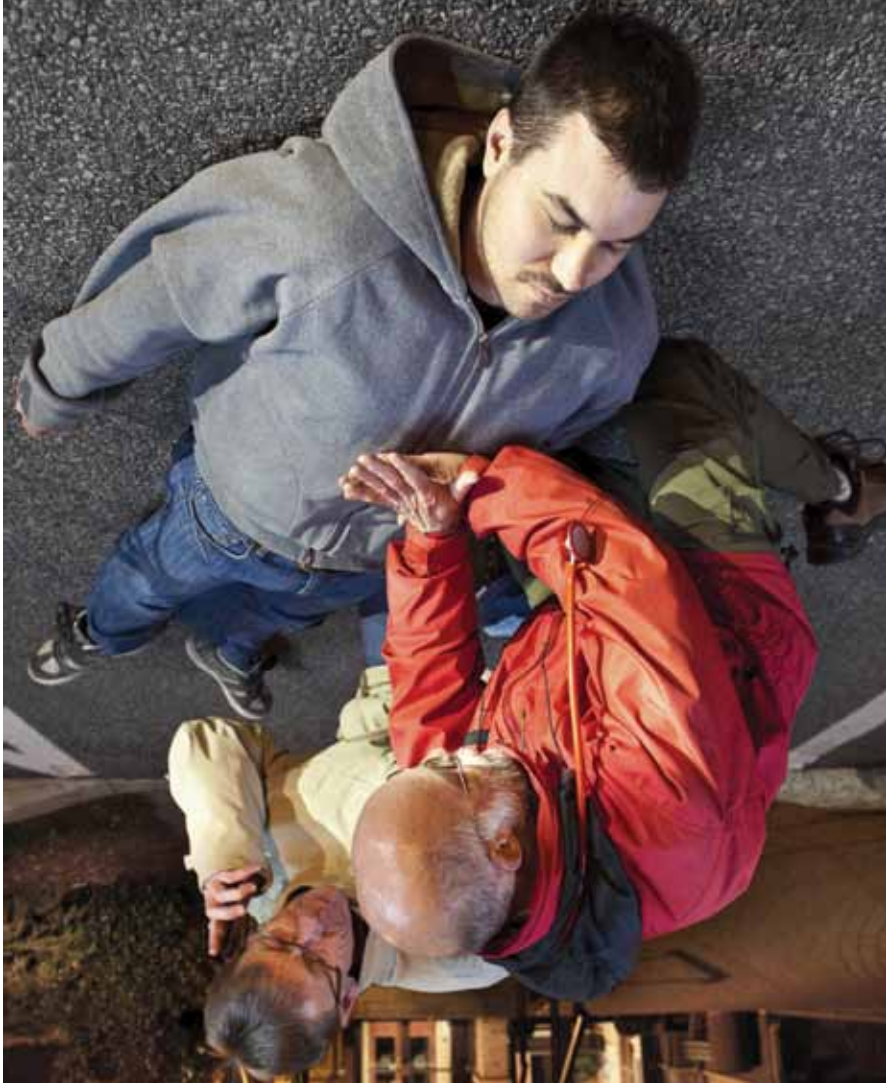
Because immediate response is so important in saving more lives, there is an increasing focus on educating the public about the vital role that bystanders CAN AND MUST play to save the life of a victim of sudden cardiac arrest.

Don't be afraid to take action. Good Samaritan laws are in place in every state to protect people from liability. You can't hurt a person in cardiac arrest, you can only help them by taking action.

So, let's get started and learn the steps:

1. Call 911
2. Start chest compression-only CPR and
3. Use an AED.

CPR Instruction



SCRIPTED INSTRUCTION: CPR Instruction

- The first thing to do when someone suddenly collapses and is not responding is to call 911.
- If there is an Automatic External Defibrillator or AED available, you should send someone to get it.
- Next, check if the victim is responsive by shaking their shoulder and calling out to them – “Hey, hey are you OK?”
- Then, move the person to his or her back—if it’s safe—and tip the head back and check for breathing. If the person is gasping or not breathing normally—you need to get started with the steps of CPR.

Let’s repeat the assessment and calling 911 steps; follow along:

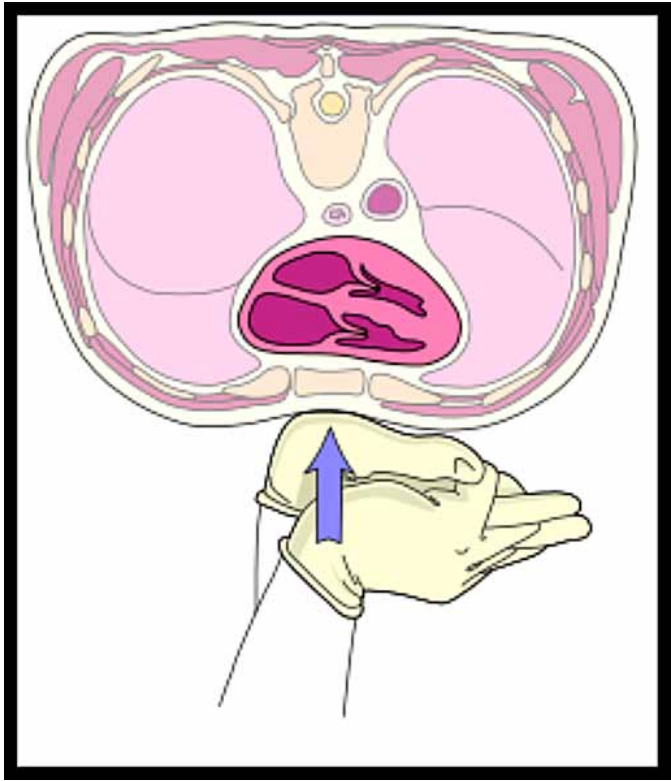
- Hey, Hey are you OK?
- Call 911 and get an AED
- Check for normal breathing
- Start chest compressions

Participant CPR Practice



CPR INSTRUCTION: Participant CPR Practice

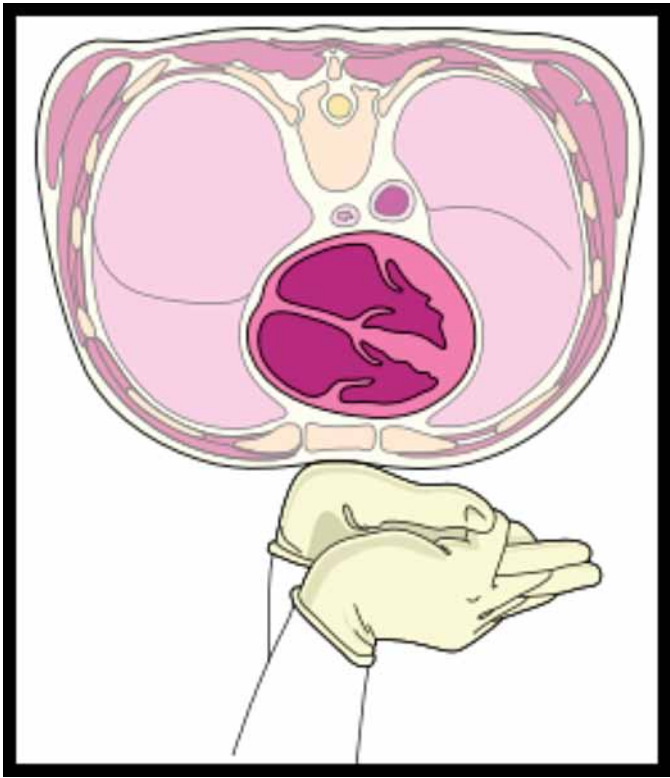
Now, make sure you are kneeling at the manikin's side. If you are using a table, make sure the manikin's head is to one side. It's OK to practice on a table, but you may have trouble providing deep enough compressions. In a real event, you will need to be on the floor or you will have to move the person to a hard surface like the floor. Good body mechanics are important to provide good compressions, and to minimize fatigue, because this is hard work.



Push Down 2 Inches

CPR INSTRUCTION: Push Down 2 Inches

- First, find the center of the chest between the nipple line. The heel of one hand should be on the lower half of the breast bone.
- Interlock your other hand and lean directly over the manikin. Your elbows should be locked and shoulders should be directly over the chest to get good, deep compressions. Compressions on an adult should be at least 2 inches.
- Let's practice some compressions. (Ensure that participants are using good body position and hearing the click if available on manikins.)
- Compression-only CPR should be continued until EMS arrives. With compression-only CPR, you will be doing continuous compressions at the rate of 100 per minute, which is about the same as the beat of the song "Stayin' Alive" by the Bee Gees. (If you have a song that's 100 beats a minute, play it now to help participants keep rhythm.)



Allow for Recoil

CPR INSTRUCTION: Allow for Recoil

- It is important to allow the chest to recoil between compressions. Allowing the chest to completely return to its normal position after a compression ensures that the heart will fill with blood so that the next compression will push more blood out to the body.
- Let's practice that—put your hands in position and follow the music for a minute.

Let's put it all together



CPR INSTRUCTION: Let's put it all together

(After the minute is up:)

Let's put it all together from finding the patient, calling 911 and compression-only CPR:

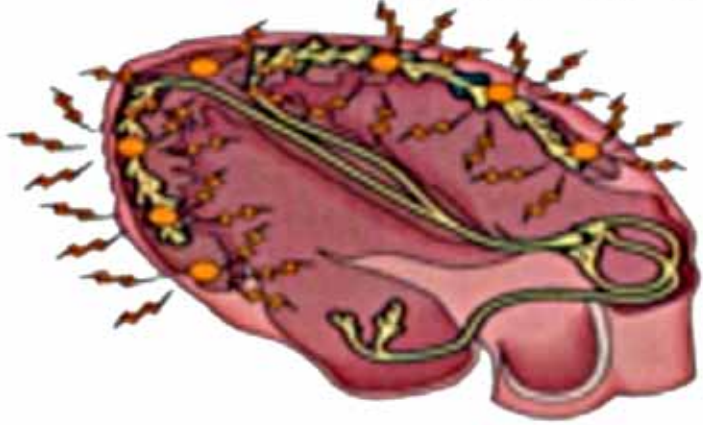
- Hey, Hey are you OK?
- Call 911 and send someone for an AED if possible.
- Check for signs of breathing. If not breathing or not breathing normally – start compressions
- Place hands in the center of chest
- Compress at a rate of 100 per minute *(play music for 2 minutes)*

Remember, CPR can be very tiring, so switch out if someone is available to help.

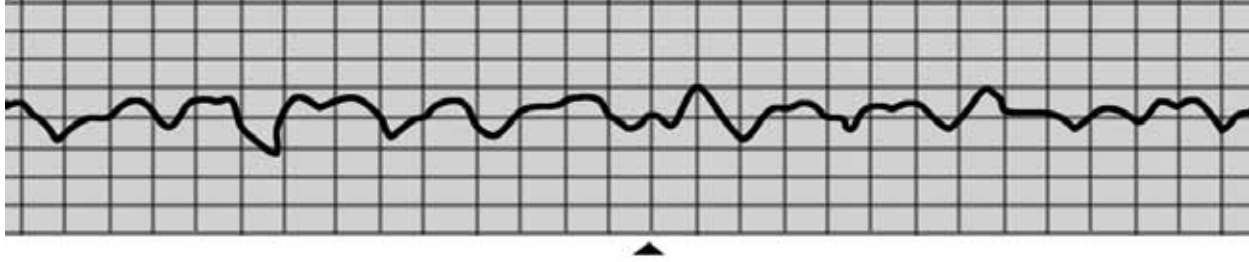
Make sure the second person is ready to start immediately. Minimal interruptions to compressions are very important. One way to do this is to have your helper kneel on the opposite side of the victim.

Great job, now you know what to do if someone suddenly collapses, and just how easy it is to help save someone's life. Remember that quickly starting compressions will help increase the chances of a person surviving sudden cardiac arrest.

AEDs Detect and Treat Irregular Heart Rhythm



Chaotic electrical discharge as seen on an ECG tracing.



SCRIPTED INSTRUCTION: AED Instruction

AEDs Detect and Treat Irregular Heart Rhythm

An AED, or automated external defibrillator, is a device a bit smaller than a laptop computer. AEDs analyze a victim's heart rhythm to determine if it is irregular. It sends an electrical charge to stop the abnormal rhythm, and allows a normal heartbeat to resume.

It is kind of like rebooting your computer to give it a chance to restart normally.



Examples of AEDs

AED INSTRUCTION: Know the Basics

AEDs are life-saving tools that should be used, if available, whenever CPR has been initiated on a victim of sudden cardiac arrest. Anyone can use an AED in an emergency.

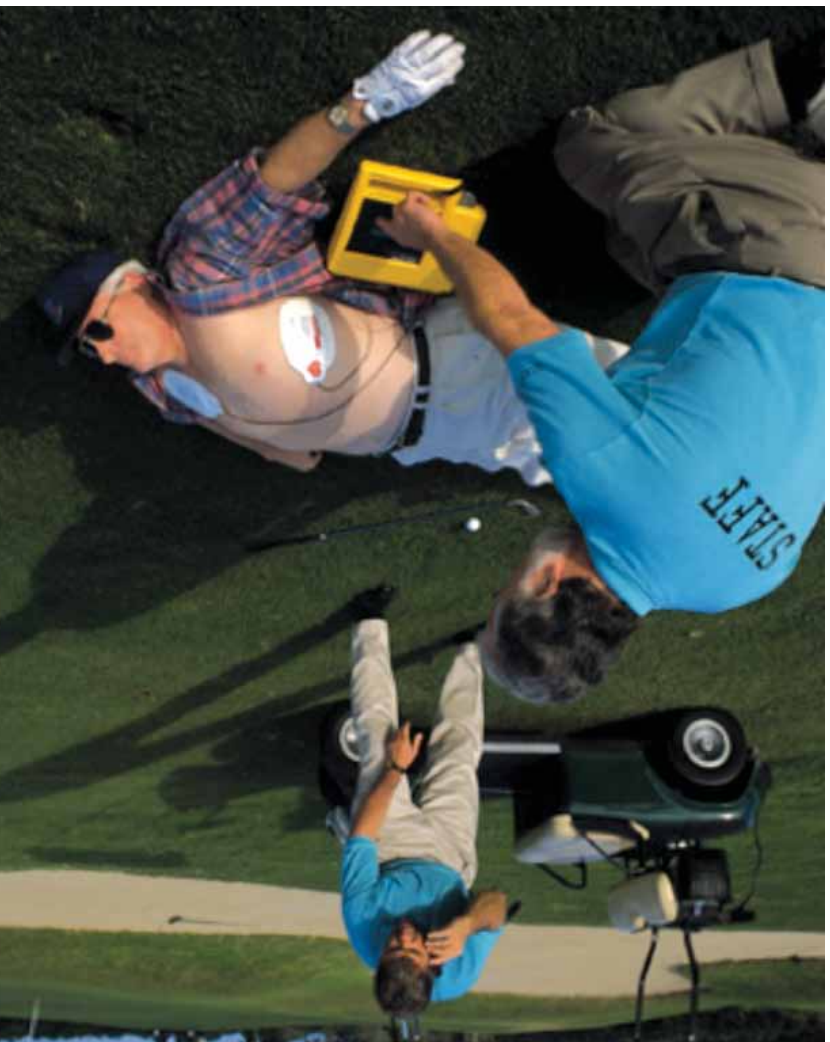
There are many different brands of AEDs, but they all provide the same effect. AEDs are also very easy to use – simply follow the voice prompts and visual aids on the unit. AEDs can be found in many public places mounted on the wall, much like a fire extinguisher.

Whenever someone suddenly collapses, you should initiate the steps of providing CPR and additionally send someone for an AED if there is one close by.

Compressions and AEDs work in tandem. BOTH are needed. When you do compressions, you push on the chest to do the work of the heart. Compressions are essential for someone in cardiac arrest to keep vital organs alive. However, compressions alone, without defibrillation, rarely restores a normal heart rhythm.

Remember AEDs cannot shock a person who doesn't need it and can be the life-saving tool for someone who does.

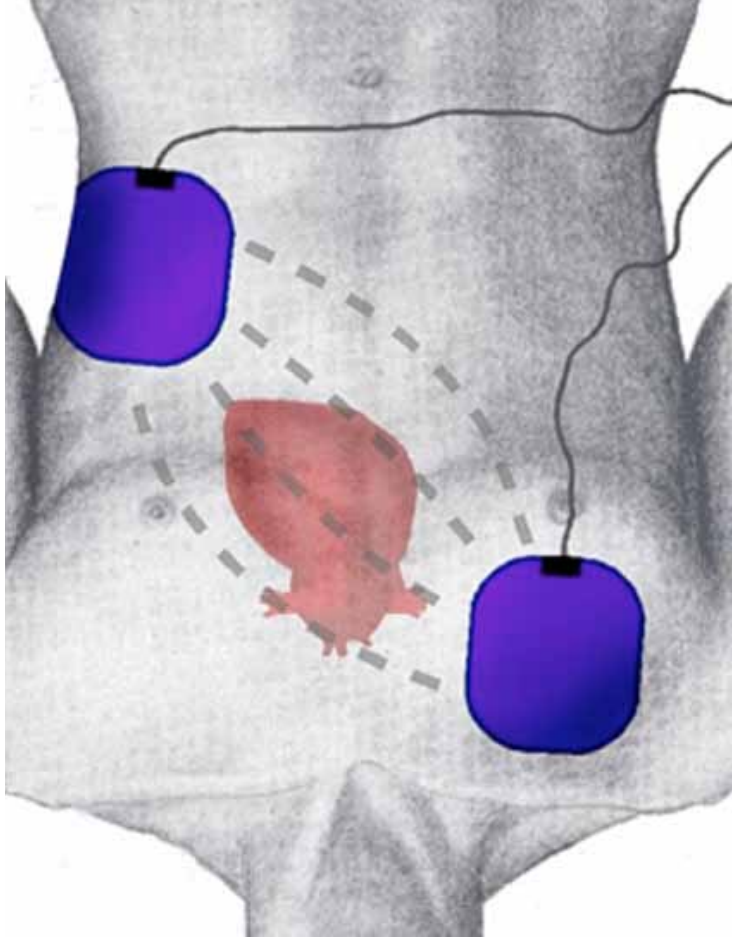
AED Instruction



AED INSTRUCTION: Step-by-Step Instruction

Let's go through the use of an AED step by step. Once you have the AED open it up and turn it on. The voice prompts will tell you exactly what to do. (Either talk through or listen to voice prompts on AED trainer that you are using)

- The AED will remind you to call for help immediately.



Open the pads

AED INSTRUCTION: Open the pads

- The AED trainer or the real AED will tell you to open the pads and apply them firmly to the bare chest.
- Once the pads are applied and plugged into the AED unit, it will tell you to stand clear while it analyzes the heart rhythm and determines whether a shock is indicated.
- Once the unit begins to charge, ensure that everyone is clear of the patient and prepare to push the indicator button if directed to do so. The indicator to shock is usually a flashing light.
- After the shock is delivered, provide chest compressions.
- The AED will continue to analyze and deliver a shock as indicated, every two minutes. As soon as the AED has delivered a shock, you should immediately resume compressions.
- If the AED says “no shock indicated” and the patient is not breathing or not breathing normally, immediately resume compressions until help arrives.

Remember that even during AED use, interruptions to compressions should be minimized. AEDs all work the same way, once you turn them on, you will receive voice prompts and pictures are included to guide you through the process.

Be sure to notice AED locations in the places you live, work and play.



RESOURCES: Handouts

SCA AWARENESS: SCA Facts

The Condition

- 359,400 people in the U.S. suffer sudden cardiac arrest (SCA) each year, yet less than 10% survive.⁽⁴⁾
- SCA occurs when the heart suddenly and unexpectedly stops beating.
- At any one time, an estimated 20% of the U.S. population congregates on school grounds, increasing the likelihood of school-based cardiac emergencies.
- In children and adolescents, the causes of SCA are varied and include heart conditions that result from abnormal heart structure or function, primarily electrical abnormalities, and outside factors such as a sudden blow to the chest or drug use.
- Every 3 days a young competitive athlete dies of SCA in the U.S.
- A victim of sudden cardiac arrest will often complain of feeling “faint” or dizzy, usually during or just after exercise. They will rapidly become unconscious and may gasp for breath for a short time.

The Treatments

- Victims of SCA can be brought back to life by providing chest compressions and early defibrillation with an automated external defibrillator (AED).
- Every second counts. When SCA occurs, chest compressions and the use of an AED need to start immediately.
- Survival rates decrease by 10% with each minute of delay.⁽⁷⁾
- There is a 5- to 6-minute window before death or irreparable brain damage occurs if no compressions are given.⁽⁹⁾
- The AED can only help and will only deliver a shock if it is needed.
- The AED is very easy to use. Just turn it on and follow the voice prompts.
- As anyone might witness a collapse, it is important for all staff members, parents, and athletes to be aware of what sudden cardiac arrest looks like and the action steps to help:

1.



Call 911

2.



Start Chest
Compressions

3.



Use an AED

4.

Turn it on
and follow
the voice
prompts

SCA AWARENESS: SCA Risk Factors

For Adults

- A family history of coronary artery disease or other forms of heart disease such as heart rhythm disorders, congenital heart defects, heart failure, cardiomyopathy
- Smoking
- Drinking more than one to two drinks a day
- Sedentary lifestyle
- High blood pressure
- High blood cholesterol
- Obesity
- Diabetes
- A previous episode of cardiac arrest
- A previous heart attack
- Age – after age 45 for men and age 55 for women
- Being male – men are at two to three times higher risk
- Use of drugs such as cocaine or amphetamines
- Nutritional imbalance, such as low potassium or magnesium levels

For Children and Teens

- Family history of known heart abnormalities or sudden death before age 50
- Specific family history of long QT syndrome, Brugada syndrome, hypertrophic cardiomyopathy, or arrhythmogenic right ventricular dysplasia (ARVD)
- Family members with unexplained fainting, seizures, drowning or near drowning, or car accidents
- Known structural heart abnormality, repaired or unrepaired
- Use of drugs such as cocaine, inhalants, or “recreational” drugs



CHEST - COMPRESSION - ONLY

CPR

IF YOU FIND AN ADULT THAT DOES NOT RESPOND:

CALL



Check for responsiveness:
tap and shout – are you OK?
If the person is not responsive or not breathing:
send someone for an AED

COMPRESS



Place your hands in the center
of the victim's chest,
Push hard and fast (2 inches @ 100x/minute)

CLEAR

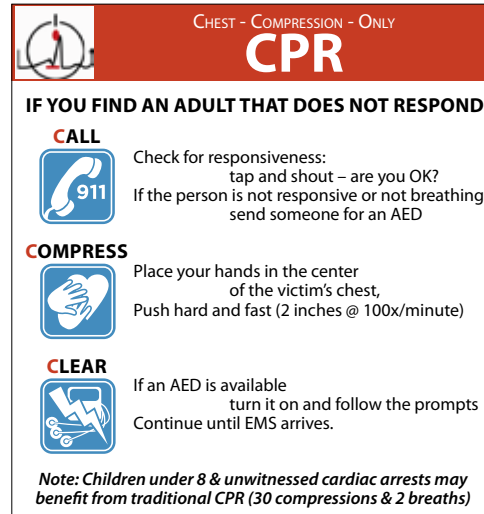


If an AED is available
turn it on and follow the prompts
Continue until EMS arrives.

Note: Children under 8 & unwitnessed cardiac arrests may benefit from traditional CPR (30 compressions & 2 breaths)

CPR Wallet Card

Cut out, fold, and keep in your wallet as a handy reminder of what to do in a sudden cardiac arrest emergency.



The graphic is a rectangular wallet card with a red header. On the left side of the header is a white circle containing a red stethoscope icon. To the right of the icon, the text "CHEST - COMPRESSION - ONLY" is written in small white capital letters, and below it, "CPR" is written in large white capital letters. The main body of the card is white with black text. It starts with the instruction "IF YOU FIND AN ADULT THAT DOES NOT RESPOND:" in bold. Below this are three sections: "CALL" with a blue phone icon and "911" text, "COMPRESS" with a blue hand icon, and "CLEAR" with a blue AED icon. Each section includes specific instructions. At the bottom, there is a note in italics about children and unwitnessed cardiac arrests.

CHEST - COMPRESSION - ONLY
CPR

IF YOU FIND AN ADULT THAT DOES NOT RESPOND:

CALL
Check for responsiveness:
tap and shout – are you OK?
If the person is not responsive or not breathing:
send someone for an AED

COMPRESS
Place your hands in the center
of the victim's chest,
Push hard and fast (2 inches @ 100x/minute)

CLEAR
If an AED is available
turn it on and follow the prompts
Continue until EMS arrives.

Note: Children under 8 & unwitnessed cardiac arrests may benefit from traditional CPR (30 compressions & 2 breaths)

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7. Cardiopulmonary resuscitation by bystanders with chest compression only (SOS-KANTO): an observational study. *Lancet*. 2007;369:920-6.

RESOURCES: Websites

Heart Rescue Partners
www.heartrescueproject.com

The official HeartRescue Project website. Describes goals for improving survival from out-of-hospital cardiac arrest. Includes information about all HeartRescue Partners and their activities. The website includes a link to an online version of the HeartRescue Playbook: **“Every second counts, every action matters”** which provides strategies for improving your communities cardiac arrest survival rates at all levels of the system of care: Bystander, EMS, Hospital, and Survivor Support. The playbook can be printed as a PDF.

Be The Beat
<http://bethebeat.heart.org/>

This website promotes SCA awareness for teens and includes games and online compression only CPR training in an engaging format.

CPR Anytime
www.handsonlycpr.org

Resource for ordering CPR Anytime Kits(inflatable manikin, and instructional DVD) from the American Heart Association. Includes training videos, and a tool kit with resources helpful in planning and presenting a compression-only CPR class.

American Heart Association
www.heart.org

The American Heart Association website can help locate CPR certification courses, and provides good information on sudden cardiac arrest and heart disease.

American Red Cross
<http://www.redcross.org>

The Red Cross website allows online registration for CPR classes for students, lay responders and professional rescuers. Information about school programs is available.

Save a Life Simulator with Ricky Rubio
of the Minnesota Timberwolves
www.heartrescuenow.com

Watch a simulated sudden cardiac arrest event and learn what to do using this interactive simulator. This site includes links to a creative public service announcement as well as to the HeartRescue website.

Anyone Can Save A Life, Emergency
Action Planning Guide — includes
numerous printouts and resources
www.anyonecansavealife.org

An excellent resource for coaches, teachers or businesses. This program is currently being used by several state athletic leagues. The program includes numerous printouts and resources which can be customized for your target audience.

RESOURCES: Articles

Minimizing Compression Pauses in Arizona

SUMMARY:

OUT-OF-HOSPITAL CARDIAC arrest is a major public health problem that affects approximately 300,000 individuals in the United States each year. While survival varies across the nation, the average survival rate among those communities that measure, is about 10%. Providing bystander CPR significantly improves outcome³ but CPR is generally performed in less than 30% of cases.

In 2005, researchers in Arizona established a statewide program aimed at improving survival by changing the approach to care provided by both bystanders and EMS personnel. The changes were designed to minimize interruptions in chest compressions and were based on increasing evidence that long pauses were detrimental. In Arizona, they call this approach *minimally interrupted cardiac resuscitation* (MICR). Below is an abstract that reports some of the results of the change to MICR in Arizona.

Bobrow BJ et al: Chest Compression–Only CPR by Lay Rescuers and Survival From Out-of-Hospital Cardiac Arrest. JAMA. 2010;304(13):1447-1454

ABSTRACT:

Context: Chest compression–only bystander cardiopulmonary resuscitation (CPR) may be as effective as conventional CPR with rescue breathing for out-of-hospital cardiac arrest.

Objective: To investigate the survival of patients with out-of-hospital cardiac arrest using compression-only CPR (CO CPR) compared with conventional CPR.

Design, Setting, and Patients: A 5-year prospective observational cohort study of survival in patients at least 18 years old with out-of-hospital cardiac arrest between January 1, 2005, and December 31, 2009, in Arizona. The relationship between layperson bystander CPR and survival to hospital discharge was evaluated using multivariable logistic regression.

Main Outcome Measure: Survival to hospital discharge.

Results: Among 5272 adults with out-of-hospital cardiac arrest of cardiac etiology not observed by responding emergency medical personnel, 779 were excluded because bystander CPR was provided by a health care professional or the arrest occurred in a medical facility. A total of 4415 met all inclusion criteria for analysis, including 2900 who received no bystander CPR, 666 who received conventional CPR, and 849 who received CO CPR. Rates of survival to hospital discharge were 5.2% (95% confidence interval [CI], 4.4%-6.0%) for the no bystander CPR group, 7.8% (95% CI, 5.8%-9.8%) for conventional CPR, and 13.3% (95% CI, 11.0%-15.6%) for CO CPR. The

adjusted odds ratio (AOR) for survival for conventional CPR vs no CPR was 0.99 (95% CI, 0.69-1.43), for COCPR vs no CPR, 1.59 (95% CI, 1.18-2.13), and for COCPR vs conventional CPR, 1.60 (95% CI, 1.08-2.35). From 2005 to 2009, lay rescuer CPR increased from 28.2% (95% CI, 24.6%-31.8%) to 39.9% (95% CI, 36.8%-42.9%; P_.001); the proportion of CPR that was COCPR increased from 19.6% (95% CI, 13.6%-25.7%) to 75.9% (95% CI, 71.7%-80.1%; P_.001). Overall survival increased from 3.7% (95% CI, 2.2%-5.2%) to 9.8% (95% CI, 8.0%-11.6%; P_.001).

Conclusion: Among patients with out-of-hospital cardiac arrest, layperson compression-only CPR was associated with increased survival compared with conventional CPR and no bystander CPR in this setting with public endorsement of chest compression-only CPR.

Rea TD et al: Community Approaches to Improve Resuscitation After Out-of-Hospital Sudden Cardiac Arrest. *Circulation* 2010;121;1134-1140

In this contemporary review in cardiovascular medicine published in the journal *Circulation*, Drs. Tom Rae and Richard Page discuss the wide variations in outcomes from sudden cardiac arrest. They comment that such disparities in survival should motivate community leaders to improve outcomes and suggest that each community should build a plan based on its resources and which addresses its limitations. If communities develop and deliver well integrated community-based strategies for saving lives, all will benefit. In this paper they discuss specific strategies that can be integrated in communities across the US including:

- Early Access and activation of the emergency response system by the use of 911 in the US and Canada.
- Early CPR provided by a layperson can improve the likelihood of survival.
- Ensuring that CPR by the Professional Responder is delivered optimally
- Early Defibrillation using either an AED as a part of a public access defibrillation program, or when it is brought to the scene by a first responder, is a strong predictor of survival.
- Providing advanced life support with responders who are proficient in what they do, and who have good field leadership.
- Optimal post resuscitation care should be delivered once a patient is admitted to the hospital.
- Development of stronger links among the components of the chain of survival.

Resuscitate! **By Mickey S. Eisenberg, MD.**



Sudden cardiac arrest can strike anyone. But whether you survive sudden cardiac arrest may depend upon where you experience that event. Across the US there is an astonishing and completely preventable variance in survival rates.

In Resuscitate!, Dr. Eisenberg discusses fifty factors associated with the likelihood of surviving cardiac arrest and offers specific steps for raising a community's cardiac arrest survival rate. The book can be found on the Amazon web site.

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