

you can  
**Save a Life**<sup>™</sup>  
at school

KAITLIN FORBES survived sudden cardiac arrest thanks to the actions of teachers, staff and students at her high school. *Her story is inside.*



## A MESSAGE FROM THE SUDDEN CARDIAC ARREST FOUNDATION

**W**e see it in the news far too often: A student is at football practice, or playing lacrosse, or just walking to class when he suddenly collapses and dies from sudden cardiac arrest. When a tragedy like this happens, people often think there's nothing they can do. But there is: Immediate treatment—before paramedics arrive—with cardiopulmonary resuscitation, or CPR, and an automated external defibrillator, or AED, gives the victim the best chance at life.

Schools exist for the purpose of preparing young people for life. Doesn't it make sense that schools themselves should be prepared to save a life?

*You Can Save a Life at School* is more than the title of this publication. It represents the Sudden Cardiac Arrest Foundation's message to schools nationwide: You have the power—and the moral responsibility—to protect the lives of your students, your faculty members, your staff and your visitors. With simple preparation, you can save a life at school.

This publication relates the story of Kaitlin Forbes, a student who suffered sudden cardiac arrest in gym class at her high school in Rhinebeck, N.Y. Kaitlin lived because of the preparation and quick actions of her teachers, school nurse and fellow students. But preparation often can be traced to tragedy: You'll also read how Karen and John Acompora, after losing their son Louis to SCA at age 14, channeled their grief into a mission to help schools prepare to save lives. Their efforts helped save Kaitlin's life.

Implementing an SCA program at your school isn't difficult, but it does take work. The Sudden Cardiac Arrest Foundation makes it easier for you with useful information from successful school programs (check out "Building a Heart-Safe School" on page 12). You'll also find helpful ideas and checklists on our website, [www.sca-aware.org/schools](http://www.sca-aware.org/schools).

Why wait for a tragedy? Implement an SCA program at your school now. You may just save a life—and better yet, by teaching students lifesaving skills, you'll help build a generation of citizens who are ready, willing and able to help whenever SCA strikes.



Mary M. Newman  
President



Bobby V. Khan, M.D., Ph.D.  
Chair



**President:** Mary M. Newman

**Executive Administrative Assistant:** George Hughes Altman

**National Survivor Registry Director:** Jeremy Whitehead

**Intern:** Katie Andary

**Webmaster:** Michael Kuhleman

**Contributing Author:** A.J. Caliendo\*

### BOARD OF DIRECTORS

**Chair:** Bobby V. Khan, M.D., Ph.D., Assistant Professor of Medicine/Cardiology, Emory University School of Medicine, Atlanta, Ga.

**Vice-Chair:** Robert A. Niskanen, Managing Director, Resurgent Biomedical Consulting, LLC, Seattle, Wash.

Norman S. Abramson, M.D., FACEP, FCCM, Professor of Emergency Medicine, University of Pittsburgh, Pittsburgh, Pa.

David H. Belkin, Esq., Independent Counselor to Nonprofits, David Belkin Consulting LLC, Bethesda, Md.

Robert G. Gillio, M.D., Chief Medical Officer, InnerLink, Inc., Lancaster, Pa.

Keith Griffiths, President, The RedFlash Group, Encinitas, Calif.

Paula Opheim, Pharm.D., Pharmacist, CVS Pharmacy, Minneapolis, Minn.

Paul F. Pendergast, President and Chief Development Officer, St. Francis Hospital Foundation, Hartford, Ct.

### ADVISORY COUNCIL

Stuart Berger, M.D., Medical Director, Herma Heart Center at Children's Hospital of Wisconsin, Milwaukee, Wis.

Allan Braslow, Ph.D., President, Braslow & Associates, Greenwich, Ct.

Henry Jampel, M.D., Professor of Ophthalmology, Johns Hopkins University School of Medicine, Baltimore, Md.

Michael Kumer, Executive Director, Nonprofit Leadership Institute, Duquesne University, Pittsburgh, Pa.

Keith G. Lurie, M.D., Professor of Internal Medicine and Emergency Medicine, University of Minnesota; Co-Director, Cardiac Arrhythmia Center, Central Minnesota Heart Center, St. Cloud, Minn.

Joseph P. Ornato, M.D., FACC, FACEP, Professor and Chairman, Department of Emergency Medicine, Virginia Commonwealth University/Medical College of Virginia, Richmond, Va.

Edward M. Racht, M.D., Vice President of Medical Affairs, Chief Medical Officer, Piedmont Newman, Atlanta, Ga.

Edmund Ricci, Ph.D., M.Litt., Director, Institute for Evaluation Science in Community Health, University of Pittsburgh Graduate School of Public Health, Pittsburgh, Pa.

Michael R. Sayre, M.D., Associate Professor, Department of Emergency Medicine, The Ohio State University Medical Center, Columbus, Ohio

Samuel F. Sears, Ph.D., Associate Professor, Department of Clinical and Health Psychology, University of Florida Health Science Center, Gainesville, Fla.

Roger D. White, M.D., FACC, Professor of Anesthesiology, Mayo Medical School, Rochester, Minn.

Gary Zmrhal, Managing Partner, Cire Consulting, Chicago, Ill.

\*Sudden Cardiac Arrest Survivor

you can  
**Save a Life**  
at school

**Publisher:** Keith Griffiths

**Editorial Director:** Jeff Lucia

**Editor:** Carole Anderson

**Art Director:** Daniel DiPinto

**Project Coordinator:** Robyn Thiele

**Business Manager:** Jacob Knight

**Account Manager:** Lindsay Richey

The *You Can Save a Life* series is published by The Sudden Cardiac Arrest Foundation in partnership with The RedFlash Group. Copyright © 2009.



# contents

What causes sudden cardiac arrest in kids? .....11

Making your case: How to convince your school board to implement an SCA program .....14

Dollars and sense: Finding the funding .....15

Training: An integral component of any SCA program .....17

Get with the program: A checklist for setting up your SCA plan .....18

Heart screening: The new frontier? .....19

Win an AED for your school .....19

Sponsors, resources and program partners .....19

## online resources

Want more help in launching your own SCA program? Get all this—and more—at [www.sca-aware.org/schools](http://www.sca-aware.org/schools):

- A state-by-state list of CPR/AED laws and regulations affecting schools
- Funding resources
- Links to other organizations that can help you
- “Win an AED for your school” contest details
- Downloadable PowerPoint presentations on SCA and schools
- Helpful advice from successful school SCA programs



**Saving Kaitlin** It happens in small towns and large cities across the country: Children and adults alike suffer sudden cardiac arrest at schools. Some campuses are prepared; others aren't. Kaitlin Forbes' was. Here's her story. *By Laura McNeal*



**Building a Heart-Safe School** Launching an SCA program requires planning, budgeting, and, yes, work. Learn how other schools have tackled the task of implementing a lifesaving program—and how yours can, too. *By Mary Ellen Strote*

### >> SCA FACT

Sudden cardiac arrest is different from a heart attack. A person having a heart attack is awake, and the heart is beating. In SCA, the heart suddenly stops beating effectively. The person loses consciousness and can die within minutes.







# Saving Kaitlin

When a student suffered sudden cardiac arrest,  
a small-town high school refused to let her die.

---

story by laura mcneal

photography by william moree

---

**O**n May 11, 2005, an alarm clock that had been ticking silently for five years went off at a high school in Rhinebeck, N.Y. It was 1:30 in the afternoon and warm, and 15-year-old Kaitlin Forbes was playing co-ed softball. Over the past eight months, her sophomore P.E. class—the “randomest” mix in the beginning, Kaitlin says—had become “so close it was, like, ridiculous.” They had nicknames for each other, and despite her delicate face and long, sweetly girlish hair, Kaitlin had been dubbed Carl. She’d been doodling on her hand in art class a few minutes before, and there she’d written the lyrics of a song that would mislead the paramedics who would shortly be called: *I need the high to get me through the ever after.*

Kaitlin gripped the bat and stepped up to the plate. She had a lingering cough and dizziness from a spring cold, but she'd come to school an hour early that morning, as usual, to practice batting with a friend on this same field. An avid athlete, she played varsity softball, volleyball and basketball, and she went to UConn basketball camp every summer.

Kaitlin nailed the ball, as usual, and it flew past the shortstop to the bright-green leafy ever after.

She ran, but she felt so odd. "I don't feel good," she told Dylan Alben as she rounded first. Then everyone saw her fall.

"I was a jokester in that class," Kaitlin says. "They thought I was joking until I turned blue."

## Roughly 95 percent of all sudden cardiac arrest victims in America—including those who, like Kaitlin, are young and healthy—are not revived quickly enough, and they die.

Kaitlin had lost consciousness because her heart had stopped beating. It was quivering erratically, a useless trembling called ventricular fibrillation. Roughly 95 percent of all sudden cardiac arrest victims in America—including those who, like Kaitlin, are young and healthy—are not revived quickly enough, and they die.

But Kaitlin's gym teacher, Ron Keefe, saw almost immediately that she wasn't joking, nor had she simply fainted. He did the first four things that saved Kaitlin's life: He told her classmate Thomas McCormack to bring the AED, an automated external defibrillator that was stored like a fire extinguisher in a glass case by the gym door. He told another student, Matt DeIulio, to have the school secretary call 9-1-1. He sent Dylan Alben to get Bonnie Murphy, the school nurse. Then he started doing CPR on Kaitlin.

Football coach and P.E. teacher Mike Piccione was not usually on the field at that hour. "Normally I let the kids set up," he says, but on that particular day he'd decided to set up the cones himself. The first sign of trouble was Thomas McCormack sprinting toward the gym with a scared look on his face.

"I saw Ron Keefe behind him, looking like he's doing CPR

*Previous page:* Kaitlin with P.E. teacher Mike Piccione, school nurse Bonnie Murphy and her parents, Linda Cotter-Forbes and Darren Forbes. Piccione and Murphy helped save Kaitlin's life when she suffered sudden cardiac arrest on her school's softball field three years earlier.

on a kid, and I was like, *holy Jesus.*"

Piccione ran past Thomas McCormack. When he reached Kaitlin, she was purple, and she had no pulse. The breaths she took were far apart and strange, the telltale gasps of something called agonal breathing. Then Kaitlin stopped breathing altogether.

### a parent's worst fear

Rhinebeck is a town of just 690 families. Kaitlin's father, Darren Forbes, a state trooper, was in the office at the New York State Police barracks when he heard about a 9-1-1 call involving cardiac arrest on the high school field. He headed immediately to the school to offer help.

Kaitlin's mother, Linda Cotter-Forbes, also worked for the State Police as an investigator. That morning, she'd set her cell phone to vibrate because calls were interfering with her work. Then she put the phone in the pocket of her jacket.

"I had driven home to check something—a computer that wasn't working," Linda says. Her house is so close to the high school that she can see the baseball field from the tree fort in their backyard.

"I saw my mom and my little ones, and then I stopped at the deli to pick up an iced green tea," she recalls. "I grabbed two bottles—one for Kaitlin to give her later—and then I headed back to my office."

It was such a beautiful day that Linda took her jacket off and set it on the seat of her car. The jacket still held her cell phone, and the ringer was still off. "So it wasn't until I got back to my office and was approaching the door that I saw everyone looked quite upset," she says.

"Everything's going to be OK," her colleagues told her, "but they're doing CPR on your daughter."

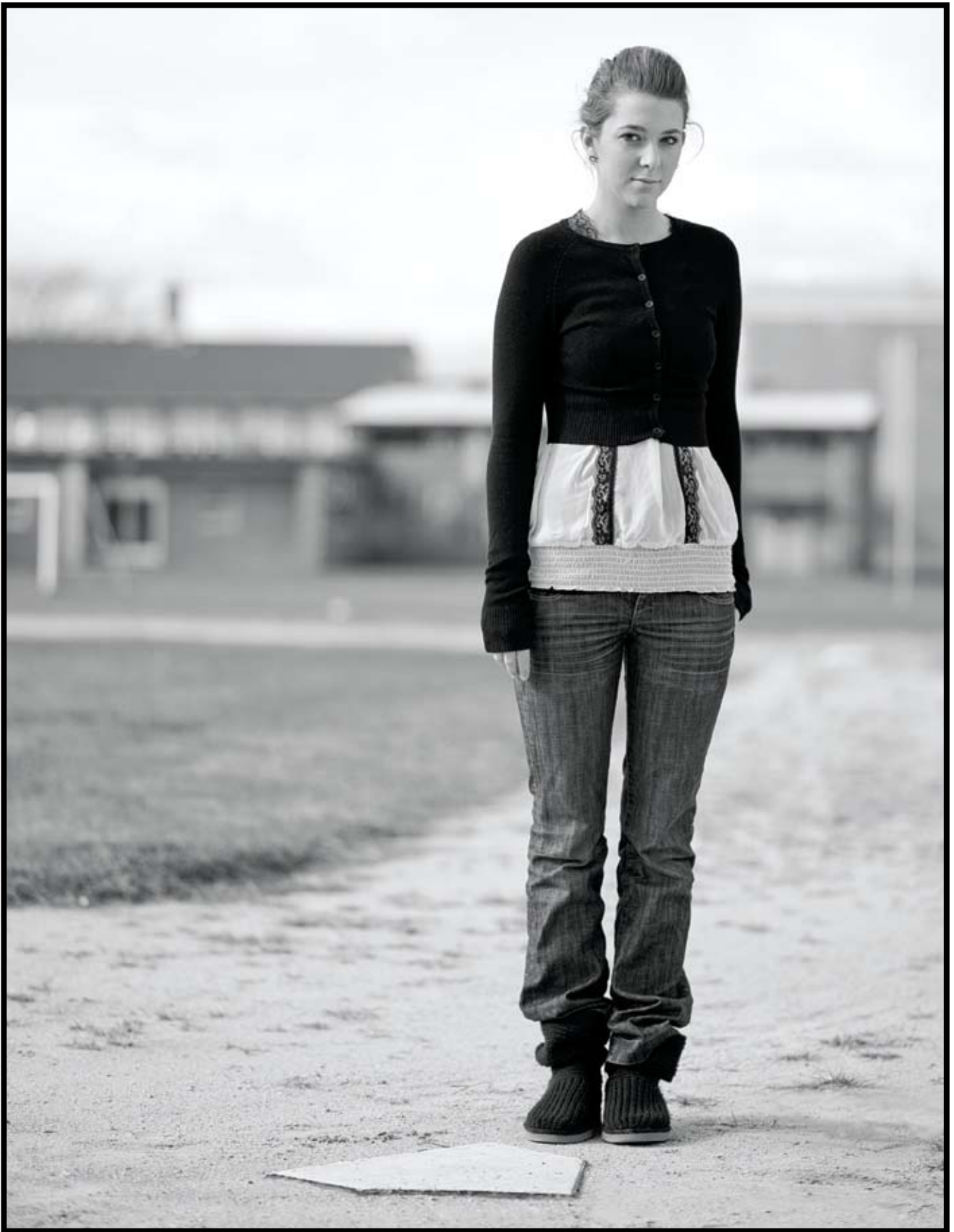
Linda didn't even know which daughter they meant—she has three—but she got back into her car. Someone from the station jumped in beside her, and she headed for the road that led both home and to the hospital.

### prepped school

School nurse Bonnie Murphy was not in her office when Kaitlin collapsed. "She had an eighth-period gym class," Murphy says, "and that's when I eat my lunch." Dylan Alben told the greeter, who sits in the school lobby and helps visitors sign in, that a nurse was needed outside. The greeter called the secretary upstairs, and then the secretary called the faculty room where Murphy was. They still had no idea that a student was in cardiac arrest.

"Most of the time, we have a sprained ankle," Murphy says, so she got the wheelchair. "I asked Dylan, 'What's the problem?' and he said, 'It's Kaitlin Forbes.'"

"She had always been very special to me," Murphy adds. Every morning, when she ate a bowl of oatmeal in her office, Kaitlin and a group of her friends would stop by during their free period



to tease Mrs. Murphy about her “porridge” and then, sometimes, stay and eat a little porridge themselves. “They’d re-apply their makeup and talk about where they’d bought their latest cool pair of shoes,” Murphy says.

When she reached the edge of the field, Murphy saw that Kaitlin’s condition was far more serious than a sprained ankle, so she began to run. “The closer I got,” she says, “the more I saw how purple she was.”

The field seemed incredibly far from the school that day, Murphy recalls. She reached Kaitlin perhaps three minutes after her collapse, and from then on was aware only of her face and that terrible color. She put her stethoscope on Kaitlin. No heartbeat. She breathed twice into Kaitlin, and then Mike Piccione, six-foot-four and 260 pounds, pressed down repeatedly on her chest. They did at least one full round of CPR, Murphy estimates, and then the AED arrived.

Once the AED appeared at his knee, Piccione says, “We did the steps we were trained to do—we put it on her, it shocked her, and it brought her back to life. Here’s a person who was purple, and showed no signs of life, and now she was back.”

The paramedics arrived, and so did Darren Forbes. He offered his assistance, and the emergency workers looked at him

and realized who he was. They moved to the side slightly, and Darren recognized his own daughter.

At the hospital, doctors determined that Kaitlin’s sudden cardiac arrest had been caused not by drugs (as the lyrics on her hand had inadvertently suggested) but by acute myocarditis, an inflammation of the heart triggered by the walking pneumonia no one knew she had. Her heart never re-established its own rhythm, and after four days on an external pacemaker, doctors attached an internal pacemaker to her heart.

That Kaitlin not only survived but reached the hospital in relatively good shape—“I almost never get kids in such good condition,” her cardiologist told the Rhinebeck staff members who visited Kaitlin the next day—was due to excellent preparation and foresight: The school had not one, but three, AEDs and had conducted drills in responding to sudden cardiac arrest.

But preparation, unfortunately, can usually be traced to someone else’s heartbreak.

### a vow to save other children

Five years before Kaitlin’s collapse, on March 25, 2000, a 14-year-old boy named Louis Acompora began playing his first high school lacrosse game in Northport, N.Y., a town on the north

# A SCHOOL SAVES A LIFE

When a student, faculty member or visitor suffers sudden cardiac arrest, the actions a school takes can mean the difference between life and death. On May 11, 2005, 15-year-old Kaitlin Forbes’ heart suddenly stopped beating during gym class. Here’s what happened next.

An AED is located in a special wall case by the gym door for use in emergencies.



School nurse Bonnie Murphy rushes to the field



Paramedics treat Kaitlin and transport her to the hospital. Doctors credit the school with saving her life.

An AED is an **automated external defibrillator**. If it detects cardiac arrest, it administers a lifesaving shock to the heart.

**STAND BACK!**

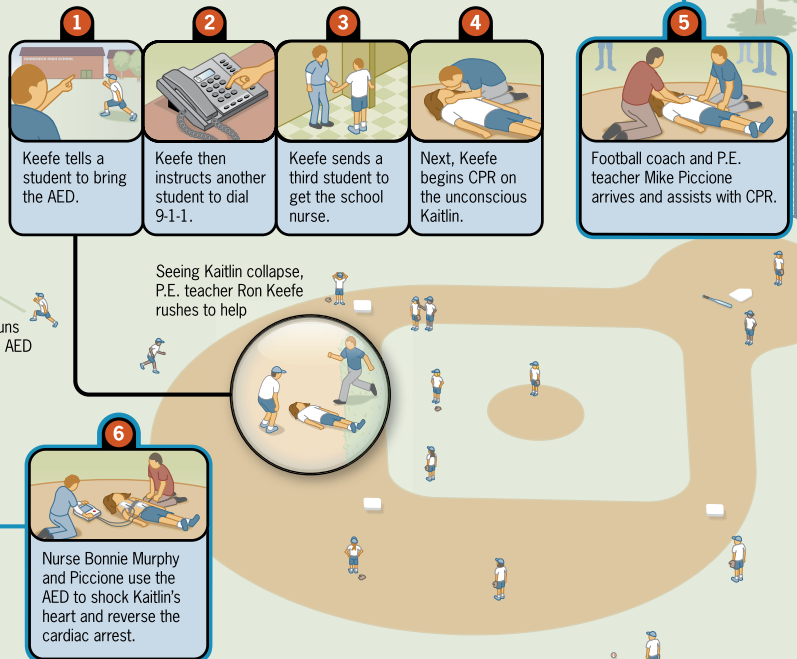
**Pad Placement**

Visual instructions and voice prompts guide the user.

CPR, or **cardiopulmonary resuscitation**, is a simple emergency procedure that can be performed by a layperson on a victim of cardiac arrest.



The rescuer presses hard and fast on the center of the victim’s chest, forcing blood from the heart to the brain and vital organs.







shore of Long Island three hours from Rhinebeck.

“He was the goalie, so I always worried,” Louis’ mother, Karen Acompora, says. “I’d ask him, ‘Why do you want to be the goalie?’ and he would get mad at me. ‘Don’t you think I’m good enough?’ he’d ask. I did—I just worried about him getting hurt.”

It was surprisingly warm for March, a bright 65 degrees. Louis’ older sister, Alyssa, was playing lacrosse, too, but just a scrimmage game. Normally Karen and her husband, John, split up on such occasions so that each of their children would have a cheering section, but this was Louis’ first high school game, so they sat in the stands together. Karen still felt a little divided.

Sticks twisted and clacked in the sunshine. A ball flew toward the Northport goal and Louis, who was wearing a chest protector, blocked it with his chest.

Then he went down.

“We thought he had the wind knocked out of him,” Karen says. Seconds passed, and he didn’t stand up.

“You should go down on the field,” Karen told her husband.

“He’s in high school now,” John said. “The parents can’t be running out on the field.”

But Louis still didn’t stand up. The coaches remained huddled around him, so Karen and John stood up and walked out to Louis.

Karen and John Acompora lost their son Louis to sudden cardiac arrest in March 2000. After his death, they worked tirelessly to pass legislation mandating the installation of AEDs in New York public schools—legislation that ultimately helped save Kaitlin Forbes.

“When we got to him,” Karen says, “we realized it was serious. Though it still was not registering *how* serious.”

The trainer, panicking, said Louis had no pulse.

“He has to have a pulse,” John said.

Karen had never heard of sudden cardiac arrest or an automated external defibrillator. No one realized that Louis had suffered sudden cardiac arrest caused by ventricular fibrillation—the same chaotic, fatal quivering of the heart that would fell Kaitlin five years later. The lacrosse ball had struck Louis’ chest—padded with an approved chest protector—at precisely the wrong moment in the heart’s electrical cycle, triggering a life-threatening phenomenon called *commotio cordis*.

The trainer and Louis’ coach began CPR, but it took nearly 15 minutes for paramedics to reach the lacrosse field. Neither CPR nor defibrillation was started soon enough to save him. On a bright and sunny day in his freshman year, Louis Acompora died.

It’s the sort of loss, irreversible and agonizing, that can send

grieving parents to an attorney's office. But money wouldn't bring Louis back, Karen says. "It wasn't worth our energy to sue the school district for something I honestly felt they didn't know." AEDs were relatively new devices at the time, and few people had ever heard of commotio cordis.

The Acomporas started a foundation in Louis' name, and in June of 2000, they held their first conference about the importance of AEDs at schools. The New York State Education Department agreed to investigate the need for placing AEDs in schools, and in October of 2001, the Acomporas' home county of Suffolk passed a bill mandating AEDs in county buildings, parks and police cars. Encouraged by this success, the Acomporas produced a video and a written protocol for installing and using AEDs in schools. Their garage filled up with boxes, and they mailed kits at their own expense to school administrators. They went on *Oprah*, and they traveled across the state.

In May of 2002, New York passed Louis's Law, which requires every public school in the state to install and maintain AEDs and to train personnel in their use. As a direct result of that law, 40 lives, including Kaitlin's, have been saved in the state. Karen continues to work out of her home in what she calls Louis' office, mailing out kits in the hope that schools and legislators in other states will listen.

"We felt that Louis gave us a job to do," Karen says, "and we had no choice but to pursue it that way. Honestly, as weird as it sounds, we feel kind of blessed that he did give us a job. He gave us something positive to focus on."

As John Acompora puts it, "Our goal is, he's not going to be forgotten. Possibly, he was put on this earth for a purpose, and if the purpose of Louis' being was to save lives, then we're going to do everything we can to help that purpose."

### training heroes

Rhinebeck had passed a giant safety test. They were prepared, grateful, and—presumably—safe. Then, on July 27, 2006, just 14 months after Kaitlin's cardiac arrest, Kaitlin's best friend and softball teammate, Maggie O'Malley, became nauseated on a train ride back from New York City, where she'd gone with her boyfriend, Scott, to celebrate her half-birthday. Maggie suffered sudden cardiac arrest at 1 a.m. on July 28, just as Scott was seeing her home.

The signs were confusing. "I never sus-

pected heart issues," Maggie's mother, Pat O'Malley, says. "She never had heart issues—it never even crossed my mind. I kept trying to say, 'What's the matter?'"

The 9-1-1 dispatcher told Pat and Scott to start CPR, but by the time they laid Maggie on the floor and began giving breaths, paramedics had arrived. Maggie died a few hours later, at the age of 17 and a half.

"I think everyone should know CPR. You might think you'll never have to know how to use it, but things happen every day that you don't expect."

— Kaitlin Forbes







Left: In a cruel twist of fate, Kaitlin's best friend, Maggie O'Malley, died of sudden cardiac arrest just 14 months after Kaitlin's collapse. Above: Mike Piccione emphasizes the role of AEDs and training in SCA preparedness.

The cause was once again myocarditis, but chronic instead of acute, meaning that while Kaitlin was still outwardly suffering from what she thought was a cold, Maggie's heart had been damaged by a past illness. Maggie's death still reverberates through the community of Rhinebeck, and it makes those who knew her even more determined to remember and prepare.

"I have a tattoo on my back for Maggie," Kaitlin says. "It's on my left shoulder blade, on the same side as my pacemaker."

Maggie's mother responded as Karen Acompora did, with a vow to save other people's children if she could. With Kaitlin and Linda Cotter-Forbes, Pat O'Malley formed the Heart Safe Club of Rhinebeck. She became a CPR and AED instructor. When Maggie's friends teach CPR or play in the Maggie O'Malley memorial softball tournament, they wear t-shirts reading *Heroes aren't born. They're trained.*

"I think everyone should know CPR," Kaitlin says. "You might think you'll never have to know how to use it, but things happen every day that you don't expect."

Mike Piccione, who still teaches at Rhinebeck High School, acknowledges the expense of installing and maintaining AEDs and drilling students and staff in sudden cardiac arrest preparedness.

"But here's the point," he says. "This stuff saves lives. How can you save a life? This is it. Right here."

.....  
**Laura McNeal** is a journalist in Fallbrook, Calif.

## >> CAUSES OF SCA IN KIDS

Young people aren't immune from sudden cardiac arrest—and in some cases, they're actually more vulnerable than adults. Here's a look at the most common causes.

### Congenital Heart Defects

According to Stuart Berger, M.D., associate professor of pediatrics and cardiology at Children's Hospital of Wisconsin, congenital heart defects are responsible for about two-thirds of all sudden cardiac arrest cases in young people. Such defects include hypertrophic cardiomyopathy, which thickens the walls of the left ventricle, obstructing the flow of blood from the heart. Hypertrophic cardiomyopathy affects about 1 in 500 young people and is rarely diagnosed in advance of a cardiac event, so it remains the most common cause of heart-related sudden death in athletes and young people under 30.

Long QT syndrome is another congenital defect that can cause sudden cardiac arrest. Affecting 1 in 7,000 young people, long QT syndrome predisposes a person to an abnormality in the heart's electrical system. Simply put, the stage during which the heart is recharging for the next heartbeat is prolonged, making the electrical recovery phase inefficient; it's during this lengthened period that the heart is most vulnerable to electrical irregularities and sudden cardiac arrest. In certain forms of long QT syndrome, physical and emotional stress can trigger sudden cardiac arrest.

An unknown number of people are born with coronary artery abnormalities that affect the flow of blood from the aorta to the heart muscle. If the blood supply to the heart is diminished, the heart becomes starved of oxygen and is vulnerable to arrhythmias and sudden cardiac arrest.

### Myocarditis

Causing fewer than 20 percent of all cases of sudden cardiac arrest, myocarditis is an inflammatory disease of the middle layers of the heart. The disease may begin with a viral illness, but it's not the virus that leads to cardiac arrest. "It's the response to the virus that attacks the heart," Berger says. Viral myocarditis can be acute, meaning the person still has viral symptoms such as those associated with the flu or walking pneumonia, or it can be chronic, meaning that the disease persists in a person who has otherwise recuperated.

### Commotio Cordis

Commotio cordis is an electrical disturbance caused by a blow to the chest that occurs at precisely the wrong time in the cardiac cycle, resulting in ventricular fibrillation and sudden collapse. Young athletes, who have pliable chest walls, are at risk even when wearing chest protectors and have died while playing baseball, softball, lacrosse and hockey.

Since 1995, 182 cases of commotio cordis have been reported to the National Commotio Cordis Registry. The average age of a commotio cordis victim is 15, and the current survival rate is just 18 percent. —L.M.



# Building a Heart-Safe School

**Why many schools have launched lifesaving sudden cardiac arrest programs—and how yours can, too.**

---

story by mary ellen strote

photography by jeff lucia and daniel dipinto

---





**“Schools touch lives,”** says Debbie King, R.N., school health services coordinator in Georgia’s Fayette County, on the outskirts of Atlanta. “We have more people moving through our buildings than any business in town.”

A school is the quintessential public place—teeming with students, staff, faculty, parents, grandparents and visitors arriving for plays and recitals, homecoming games and graduations, fairs and community meetings. And anywhere large numbers regularly congregate, there’s a chance someone will collapse from sudden cardiac arrest (SCA), as upwards of a quarter of a million Americans do each year. That person will likely die unless there is a rescue plan in effect—which is exactly what public health experts recommend for such venues as shopping malls, sports stadiums, and, yes, schools.

Of the many public places that employ such plans, schools may offer the best opportunity for a good outcome: Washington state researchers found that 79 percent of cardiac arrests at schools were witnessed, compared with just 62 percent at other public locations.

King embraced the concept of SCA programs in 2003. “I’d been a nurse for 20 years and always believed people at schools should know CPR,” she recalls. “As soon as AEDs came on the market, I wanted one.” King reached out to a local physicians’ organization and the county’s EMS system, which donated the first AED units to the schools. Together they developed AED guidelines and policies to present to her school board. And soon, a first-rate SCA program was born.

Today, all of the Fayette County Public Schools’ nurses and their back-ups undergo CPR/AED training, along with one faculty person per grade and all phys-ed and health teachers. Coaches attend a first aid program, which includes CPR/AED use; the 250 bus drivers and 250 after-school staffers take a CPR course as well. As teacher’s assistants are hired, they, too, complete CPR training, as do all ninth-graders through their health class. And King isn’t finished: “My personal goal is to have a CPR-trained person in every classroom,” she says.



### >> CHAIN OF SURVIVAL

Research shows that the earlier an SCA victim is helped, the greater the chance of survival. Schools can play a critical role by taking the first steps in the well-known “chain of survival”:

1. Recognize the emergency and decide to act.
2. Call 9-1-1.
3. Start CPR or provide continuous chest compressions.
4. Use the nearest AED.
5. Continue providing help until EMS arrives and takes over care.
6. Encourage the victim to see a specialist for follow-up care.

## MAKING THE CASE TO YOUR SCHOOL BOARD

One of a school board’s main responsibilities is to implement essential safety measures, such as installing fire extinguishers in school buildings. SCA preparedness should have the same high priority, according to Maureen O’Connor, an advocate of school-based programs and manager of the public access defibrillation program for San Diego Project Heart Beat, an organization dedicated to combating SCA.

“Death from sudden cardiac arrest is not age-, gender- or health-specific,” O’Connor explains. “Every year, approximately 7,000 U.S. children are stricken, most often at school, because that’s where kids spend the majority of their day—in class or in after-school care or playing sports.”

When it happens, child and teen victims are subject to the same scary statistics as their elders: Without immediate intervention, only 5 to 10 percent will survive. But if the “chain of survival” is implemented (see left), survival rates can reach an astonishing 70 percent. “Ask any firefighter,” says O’Connor. “They’ll tell you that AEDs are used more than fire extinguishers.”

Convincing a school board of the need for an SCA program shouldn’t be difficult, but it does take preparation. In 2002, Jeannie Salvadori, R.N., was the district nurse in Southern California’s Carlsbad Unified School District when she was approached by parents who had lost their 7-year-old daughter to sudden cardiac arrest and wanted AEDs placed in the

schools. Before Salvadori addressed the school board, she elicited support from her school superintendent. “We did a lot of preliminary work before we wrote the proposal for the board,” Salvadori says.

When organizers in eastern Carver



Do your homework: Before approaching the school board with an SCA proposal, arm yourself with data, have a plan for implementing and operating the program, and get as much support as you can from parents, administrators and faculty members.

County near Minneapolis made their successful pitch to the school board, they came armed with data. “We started by identifying the hazard,” says health services coordinator Kristi Juare, R.N., L.S.N., N.C.S.N. They described the statistics on sudden cardiac arrest, outlined the chain of survival and laid out their plan for managing the program.

Any school board worth its salt will ask about legal liability, and you’ll need to be ready with your state’s laws on AEDs. The good news is that all 50 states and the District of Columbia provide AED Good Samaritan protection for laypeople and legal immunity for all rescuers. “There are so many levels of protection for schools,” says Paul Weinberg, JD, of the Weinberg & Garber law firm in Northampton, Mass.

**GET AWARE!** For a state-by-state list of AED laws, visit [www.sca-aware.org/schools](http://www.sca-aware.org/schools).



“Schools are protected not only by state laws, but also by the federal Cardiac Arrest Survival Act, which pre-empts state laws, providing additional protection for users and acquirers of AEDs, unless there is gross negligence or reckless behavior.

“I’m not aware of any lawsuits against schools or school districts that have implemented CPR/AED programs,” Weinberg adds. “Besides, kids are dying. It’s just the right thing to do.”

Board members might be inspired to know that CPR training is a valuable addition to the students’ health curriculum. “You’re not just teaching squish and blow,” explains Lt. Brad Dykens, a firefighter and paramedic in St. Petersburg, Fla., of the student and adult CPR courses he teaches in Pinellas County Schools. “The CPR course includes a wellness component; it’s a threshold to understanding other avenues of health.”

Once you’ve gotten your board’s OK, maintain its support by keeping members in the loop. “It took three years before each of our schools had at least one AED,” says Debbie King of Fayette County. “Each time another came on line, we made announcements at school board meetings, in the local newspaper and in PTO newsletters. I also make a report every year to board members to keep them abreast of our progress.”

## FUNDING YOUR PROGRAM

**A**n AED can cost \$1,200 or more, and you’ll need to pay for CPR training and materials—but you may be surprised by how many resources are available to help cover these start-up costs. A recent survey of 118 high school principals in Washington state found that 60 percent of the AEDs in their schools were funded by donations, compared with just 27 percent funded by the school district and 11 by the school itself or its athletic department. When Jeannie Salvadori’s program in Carlsbad was gearing up, a large community fair brought in \$54,000. Other local donors might include churches and hospitals, businesses willing to trade financial donations for promotional opportunities, and service or fraternal groups, such as Lions Clubs, Rotary Clubs or the Elks.

In California’s beach community of Oceanside, the school district recently received 10 AEDs from the Oceanside Pacific Kiwanis Club. The gift was a good fit for the service club, notes Randi Gibson, director of student services for the Oceanside Unified School District. “Kiwanis’ vision is to help children,” she says. And in Minnesota’s Carver County, a local medical center’s foundation donated money for start-up costs.

Another potential donor base is parents, many of whom are eager to add an extra layer of protection for their children, says



When you start crunching numbers, don’t forget to include longer-term costs, such as periodic CPR refresher training, AED parts replacement and maintenance.

Maureen O’Connor of San Diego Project Heart Beat. “Once you explain that most parents of victims were unaware that their child had a heart defect until the child collapsed in cardiac arrest, it’s a no-brainer for them to contribute,” she adds.

Finding a grant from a foundation is another way to cover initial costs, though the process can be time-consuming. If you take that tack, do your research. “Look for a local foundation →



### SURVIVAL PROFILE: DAVID BELKIN

**QUICK RESPONSE** by members of a pick-up basketball team and a school janitor saved David Belkin after his cardiac arrest in February 2007. The 65-year-old lawyer, who’d been pronounced in perfect health by his doctor nine days earlier, was playing a Sunday morning half-court game in an elementary school gym in Honesdale, Pa., when he collapsed. One of the other players, an emergency physician, tried to find Belkin’s pulse and couldn’t. Aware that the school district had outfitted each campus in the Poconos mountains community with an AED, the doctor started chest compressions and shouted for teammates to find the device. While one player called 9-1-1, another found the janitor, who rushed the AED to Belkin’s side. After just one shock, Belkin’s heart was beating again. “Did we win?” he asked when he awakened moments later. At the hospital, doctors installed a tiny internal defibrillator in his chest.

Belkin knows that rapid action was key to his survival: “But for the AED being in that elementary school and being applied immediately, I know that I would not be here today.”

with a mission that includes health and wellness,” advises Dave Bianco, program coordinator of Pittsburgh United for Life-Saving Emergencies (PULSE), an arm of the St. Margaret Foundation, which has outfitted 19 school districts in Pennsylvania’s Allegheny County with AEDs. But don’t apply for financial help until you have all your ducks in a row.

“Simply handing an AED to a school is a recipe for failure,” says Bianco of PULSE’s selection criteria. “Schools must also have the means to manage and maintain the AEDs, something PULSE supplies for the districts in its program.” PULSE requires that schools demonstrate their investment in their own program by purchasing a wall cabinet for each AED and ensuring that on-site personnel obtain training in CPR/AED use.

Joan Mellor, program manager for the Medtronic Foundation, the philanthropic arm of the Minneapolis-based Medtronic medical technology company, takes a similar approach when funding start-up programs in schools. “We give priority to school programs that educate students and staff about preventing sudden cardiac arrest and preparing them to act in an emergency,” she says. “It’s not enough to have 10 teachers who know how to respond to a cardiac emergency. A student body that also knows what to do is an essential part of the safety net.” Mellor looks for proposals with “built-in sustainability, including train-the-trainers courses, so the school won’t be spending money each time they teach CPR to a new faculty member.”

Your funding challenge may depend on whether your state mandates AED placement in schools—and if it does, whether the mandate is funded. “Your budget may also depend on how your state has written legislation that affects such programs,” says Mellor. If, for example, it requires that students be trained in CPR before they graduate from high school, the student CPR training portion of your program may already be funded.

Seeking help from local government may be an option; county supervisors sometimes have discretionary funds available for school health and safety programs. The feds are a less likely source, though some rural schools may be eligible for AEDs through the Department of Health and Human Services’ Rural

Access to Emergency Devices Grant Program.

Take the long view when you pencil out your budget—and don’t forget that AEDs, like fire extinguishers, require periodic parts and maintenance. “To keep AEDs operable, you need to change their batteries periodically and the pads every two years, even if the devices haven’t been used,” says Salvadori. In the Carlsbad district, these ongoing costs are financed in a variety of ways. The PTAs in some schools paid for the batteries, pads and CPR training, and a small amount of funding came from California’s Local Educational Agency Medi-Cal Billing Option, which allows districts to bill for some services they provide and redirect funds into school health and wellness.

Finally, because your funding may arrive in stages, consider focusing first on the high schools, where teenage sports are played, next on the middle schools, and last on the elementary schools. (For a look at why sports may increase the risk of sudden cardiac arrest, see “Causes of SCA in Kids” on page 11.) When funds are limited, the American Academy of Pediatrics recommends giving priority to large schools, those used for community gatherings and those with the longest EMS response times.

Above all, be positive. “In our experience, when a school is really motivated to implement an SCA program, there’s almost always a way to get the resources to do it,” says Laura Friend, associate executive director of the nonprofit program Parent Heart Watch.

### >> DID YOU KNOW?

Scientists have found that teaching schoolchildren to perform CPR has a cascade effect: **The kids, in turn, teach this lifesaving technique to their parents.** As part of a study in Denmark, researchers taught CPR to 35,000 seventh graders at 806 schools. While at school, the students watched a training video and practiced CPR on inflatable mannequins; each then took a self-training CPR kit home. A follow-up survey found that on average, each child taught CPR to 2.5 family members and friends. This is important because adults age 40 to 50—the age of many students’ parents—are the most likely to encounter someone in cardiac arrest and the least likely to have taken a conventional CPR class.



## SURVIVAL PROFILE: **MATT KEENE**

**HIGH SCHOOL FOOTBALL LINEMAN** Matt Keene, 17, had just finished team practice when he mentioned he was having trouble breathing, then dropped onto the field and turned blue. For reasons still unknown, his heart had stopped. A coach radioed the school nurse, who called 9-1-1. Meanwhile, other coaches began CPR, and athletic trainers ran from an adjacent field with an AED. Within moments, they shocked Keene’s heart into beating.

Kimball Union Academy, a private school in New Hampshire, was prepared that afternoon in October 2006; officials had obtained two AEDs and were in the process of buying three more. The grateful recipient of his school’s administrative foresight has since turned his youthful energy to getting more AEDs into public places: Keene has testified before Congress, raised \$60,000, set up a foundation and equipped every school in his hometown of Berlin with the devices. “Not only do schools need AEDs,” Keene says, “but they need to have them near athletic events—on the fields, in arenas—close to where games are taking place.”



## TRAINING: AN INTEGRAL COMPONENT

Simply acquiring an AED for your school is like buying a computer without software; the hardware can't do the job alone. You'll need a core response team trained in CPR/AED use, including the school nurse, athletic coaches and other key employees. But the more staff and faculty who learn these skills, the better.

The chance of surviving sudden cardiac arrest doubles or triples when a bystander immediately begins CPR, but unfortunately, even when they're CPR-trained, some people are afraid to try. An SCA program that emphasizes practice drills and refresher training helps combat this natural anxiety.

"The important thing is to build a critical mass of people willing to take action not only in the schools, but also in the community," says Joan Mellor of the Medtronic Foundation. That includes training students, though there are different opinions on when youngsters should learn CPR. "Our impression is that ninth grade is the 'sweet spot,'" Mellor adds. "It's an age when students want to take it on, when they want to be empowered."

Others say that children are capable of learning at an even younger age. "Kids can learn CPR at 12," says Brad Dykens, who works as a regional instructor trainer for the American Safety & Health Institute and as an instructor for the American Heart Association. "Any younger and they're not large enough to effectively deliver chest compressions." He notes that



Maureen O'Connor of San Diego Project Heart Beat teaches CPR to a group of high school students in Carlsbad, Calif. Her mantra: Make it fun!

mastering the technique is easy: "Everyone can learn to do 100 chest compressions per minute to a beat—I play the Bee Gees' 'Stayin' Alive' in my classes." Most experts agree that AED training should wait until youngsters reach high school.

One thing you needn't fret over is your choice of CPR training method—as long as it's a nationally recognized course, such as one offered by the American Red Cross, the American Heart Association or the American Safety & Health Institute, according to Debbie King. "It's a good idea to pair up with your county's EMS and hospitals and use whatever they've chosen,"

she advises. "That way everyone is on the same page." If your school uses the same program as your local EMS system and hospital, King adds, training materials can be shared, and relationships have already been established.

Training costs need to be part of the long-term budgeting for your SCA program. Some school districts are lucky enough to receive free training from their local EMS system. Others, like Fayette County, cut costs by using faculty members as trainers. Debbie King's school system, for example, has 35 certified CPR/AED instructors—the ninth-grade health teachers.



### SURVIVAL PROFILE: LUCY LE MAY

**NEW-STUDENT ORIENTATION EVENING** was under way at Chaska Middle School West in Chaska, Minn., and gifted-education teacher Lucy Le May, 58, was in her classroom, welcoming parents of incoming sixth-graders. She'd said only a few words before she collapsed. Two parents who knew CPR jumped up and began chest compressions, while others called 9-1-1 on cell phones or ran to find school staff. A teacher who emerged from a nearby classroom took one look at the scene and hurried to retrieve an AED. It took two shocks from the device, but Le May's heart was beating by the time paramedics arrived several minutes later.

An unlucky gene caused Le May's cardiac arrest, but her resuscitation that night in April 2008 can be credited to good planning: Five years earlier, school district officials in eastern Carver County had mandated CPR training and placed an AED in every school building. After Le May's life was saved, she says, "The school added an extra AED in our building—and the next CPR class was packed!"

## 3-2-1 BLASTOFF: SETTING UP AN SCA PROGRAM

**B**ecause setting up an SCA program can take up to a year, veterans of the process suggest holding your first brainstorming session in the fall so you'll be ready to go by the start of the next school year. "There's a lot of paperwork, policies and procedures that need to be in place," Jeannie Salvadori of the Carlsbad district explains. "There's infrastructure to build, and people need to be trained on the AEDs and in CPR before you install that first machine." When you do roll out your program, don't be surprised if people are hesitant—and maybe a little nervous.

"At first, school staff were reluctant to participate in our annual AED drills," says Debbie King. "We'd announce one, and it would cause anxiety and consternation." But over time, confidence grew and morphed into enthusiasm. These days,



To be effective, a school's SCA program should include training for students as well as adults.

King's drills are unannounced. She arrives at a school with a fully dressed mannequin, lays it on the floor, tells bystanders that someone has collapsed and asks what they're going to do about it.

"Usually we do it in the hallway or library to avoid distracting from the learning that's

going on," King says. "Or we may do it in a faculty meeting or before or after school hours." The goal is to get an AED to the mannequin in fewer than four minutes, and schools compete with each other to respond fastest. Five years into the program and with 1,000 people in the district currently trained in CPR, King is confident that those who work and study in Fayette County's schools will react instantly to SCA by implementing the chain of survival.

"Now when a child falls down on the playground and doesn't get up, school staff take the AED along when they respond," King says. "I can tell they've taken their training to the next step. They've internalized what they need to do to save lives."

.....  
**Mary Ellen Strote** is a California journalist specializing in health and medical topics.

### >> GET WITH THE PROGRAM: A checklist for setting up your own SCA plan

An effective SCA program—whether district-wide or at a single school—begins by involving the community, says Mary Newman, president of the Sudden Cardiac Arrest Foundation. "At your first meeting, create a task force involving principals, school board members, school nurses, teachers, coaches, athletic trainers, parents and student leaders," she suggests. "Also include representatives from your local EMS system, along with an organization that offers CPR training." Here's what needs to happen next:

- 1. Name a program coordinator.** Choose someone who can run the program, oversee the testing and maintenance of the AEDs, and conduct periodic CPR and AED training.
- 2. Review relevant laws.** State and local regulations will influence how you set up your program.
- 3. Appoint a medical director.** A physician must write a prescription for the AEDs and provide ongoing evaluation and oversight.
- 4. Decide where to place AEDs.** The devices should be placed strategically within a 90-second rapid walk of anywhere they may be needed—including school buildings and outdoor playing fields. There's no point in having AEDs if they're not accessible.
- 5. Develop a budget and seek program funding.** Remember to consider not only the cost of AEDs but also the costs associated with training and ongoing device maintenance.
- 6. Designate a core SCA response team at each school.** These CPR/AED-trained personnel should include the school nurse, coaches or physical education teachers, and other members of the faculty, staff and administration.
- 7. Create an emergency response plan.** Write and distribute a formal response plan so staff and faculty understand their responsibilities.
- 8. Promote your program.** Hold meetings and assemblies to inform faculty, staff and students where the AEDs are located and how to use them. Continue to publicize your program's progress, from the acquisition of AEDs to CPR training schedules.
- 9. Teach CPR to faculty, staff and students.** Some educators believe CPR training should be the norm for middle-school students; others suggest waiting until students reach high school. AED procedures are usually taught only to secondary students.
- 10. Conduct SCA response drills.** Practice emergency protocols much as you do fire drills, emphasizing such procedures as whom to call first—9-1-1? the principal's office? the school nurse?—and where to find the nearest AED.
- 11. Collect data.** Keep track of events requiring an AED so its use can be tabulated and evaluated. —M.E.S.



## >> HEART SCREENING: The new frontier?

Should student athletes undergo comprehensive cardiac screening before taking to the field? National screening standards do not yet exist in the U.S.; current recommendations from the American Academy of Pediatrics (AAP) call only for a physical exam and a careful family history by a health care provider who can recognize heart disease—

then for specialized testing in cases that warrant further evaluation. The American Heart Association (AHA) also recommends that high school athletes' screening be repeated every two years, with an interim history taken in the intervening years.

But some pediatric cardiologists believe this level of screening doesn't adequately identify risk factors. The International Olympic Committee



and the European Society of Cardiology have recommended that young athletes be screened with an EKG, and an AHA consensus panel concludes, "Cardiovascular screening for young competitive athletes is justifiable and compelling on ethical, legal and medical grounds."

Ideally, every school-age competitor should have the highest level of screening, but critics note the dilemma of ballooning health care costs and ask how the U.S. can apply a realistic, effective prescreening process in our huge population. And they wonder about the 9 percent false-positive rate that the Europeans have found; in the U.S., that would mean 1,999 false-positives for every young athlete detected with a problem.

Some communities have confronted the dilemma head-on. In Illinois, a foundation under the guidance of cardiologist Joseph Marek, M.D., has screened 20,000 students. With the help of high schools, community volunteers and volunteer cardiologists, the Midwest Heart Community Foundation administered three-minute, painless, non-invasive EKGs, analyzed test results and notified nearly 400 families of abnormal EKG results that needed further evaluation. Several students with life-threatening conditions were also identified. —M.E.S.

STUDENT  
VIDEO  
CONTEST!

## WIN AN AED for your school

Here's a great way to get students involved in raising awareness about sudden cardiac arrest. You might even win an AED for your school!

### Here's how:

1. Assign teams of students to write, film, star in and edit their own short (3–5 minute) video promoting the importance of knowing how to do CPR and use an AED.
2. Our panel of judges will review videos for overall message, creativity, originality and technical accuracy. Finalists will be posted on the Sudden Cardiac Arrest Foundation's website and our YouTube Channel and promoted to schools nationwide.
3. Winners will receive an AED for their school. Runner-up prizes include Nintendo Wii game systems and gift cards from iTunes and several popular clothing and sporting goods vendors.

For complete rules and submission instructions, visit [www.sca-aware.org/schools](http://www.sca-aware.org/schools). No purchase necessary.

you can  
**Save a Life**<sup>™</sup>  
at school

### Sponsors

- Boston Scientific
- Cardiac Science
- Health & Safety Institute and its family of brands (American Safety & Health Institute, Medic First Aid)
- Physio-Control, Inc.
- School Health Corporation
- St. Jude Medical Foundation
- ZOLL Medical Corporation

### Resources and Program Partners

- Advanced Coronary Treatment (ACT) Foundation of Canada
- Cardiac Arrhythmia Syndromes Foundation
- Cardiac Arrhythmias Research and Education (CARE) Foundation
- Citizen CPR Foundation
- The Gregory W. Moyer Defibrillator Fund
- HeartScreens for Teens
- Hypertrophic Cardiomyopathy Association (HCMA)
- Louis J. Acompora Foundation
- Parent Heart Watch
- Project Adam
- Project Heart Fit
- Project S.A.V.E.
- Save A Life Foundation
- St. Margaret Foundation
- Sudden Arrhythmia Death Syndromes (SADS)
- Sudden Cardiac Arrest Coalition
- Take Heart America
- University of Washington School of Medicine Survive Cardiac Arrest Program



The Sudden Cardiac Arrest Foundation is a national nonprofit 501(c)3 organization based in Pittsburgh. The Foundation is dedicated to raising awareness about sudden cardiac arrest and stimulating attitudinal and behavioral changes to help save more lives. Simply put, the mission of the SCA Foundation is to give "ordinary people" the power to save a life. **For more information, visit [www.sca-aware.org](http://www.sca-aware.org).**



Raising awareness. **SAVING LIVES.**<sup>™</sup>

VISIT [WWW.SCA-AWARE.ORG/SCHOOLS](http://WWW.SCA-AWARE.ORG/SCHOOLS) FOR THE LATEST UPDATES AND USEFUL  
INFORMATION ON HOW YOUR SCHOOL CAN FIGHT SUDDEN CARDIAC ARREST.

P.O. BOX 1322  
WEXFORD, PA 15090  
877-722-3475