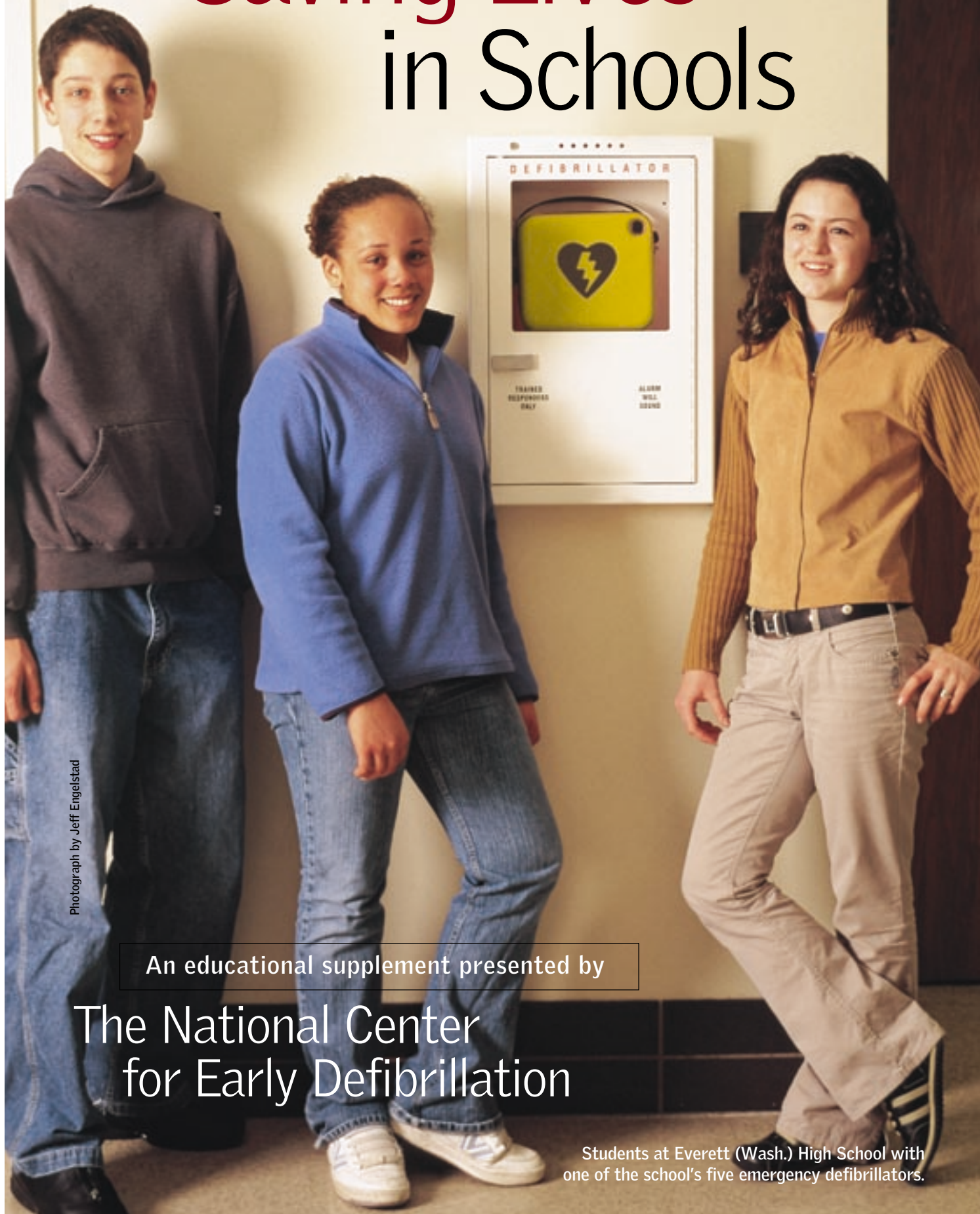


Saving Lives in Schools



Photograph by Jeff Engelstad

An educational supplement presented by

The National Center
for Early Defibrillation

Students at Everett (Wash.) High School with one of the school's five emergency defibrillators.

Why AEDs Should Go to School

Sudden cardiac arrest happens to kids as well as adults. A simple device known as an AED can save lives, but only if it's in the right place at the right time.

by **Mary Newman**

Executive Director, National Center for Early Defibrillation

During a tragic week in January 2003, three students from different schools in New York City suddenly collapsed in cardiac arrest. Catherine Bodden, 16, was in the classroom; Kimario Green, 19, was in gym class; and Randy Collote, 13, was trying out for baseball. The schools did not have automated external defibrillators (AEDs) handy, and all three students died. 🚨 Do schools in your community have AEDs? If they don't, it may be time for a change.

It's not just the headlines about sudden death in young people that are causing an increased interest in school AED programs. People are beginning to recognize that sudden cardiac arrest is the leading cause of death among adults in the United States — and it can also affect children and adolescents. And they're starting to understand that there is a cure for it: the quick combination of CPR and defibrillation.

They see that advances in technology have made it possible for non-medical personnel to use AEDs with a minimum of training. Furthermore, changes in state and federal laws have not only strengthened liability protection for those associated with AED programs but also have provided funding to support such programs. These lifesaving devices can now be found in airports, malls, hotels, movie theaters, fitness centers and churches. The trend forces the question: Why not schools?

Fiscally speaking, times are tighter than ever before for schools nationwide, and it may seem like overkill to invest in a device that might never be used. But the tragic deaths of so many young people, coupled with the failure to provide the proven cure in a timely manner, make words like "priorities," "budget constraints" and "unlikely event" fall on the deaf, wounded ears of loved ones left behind.

The value of school AED programs is not only about saving kids. Because school populations also

include higher-risk middle-aged and elderly people such as teachers, parents, grandparents and visitors, and since schools typically serve as gathering sites for communities and places of refuge during crises, school AED programs make a lot of sense for adults.

For these reasons and more, we at the National Center for Early Defibrillation urge schools to install AEDs as part of a comprehensive program that includes CPR/AED education. And we applaud the efforts of parent groups and other advocates who seek to make school AED programs the norm, not the exception.

We hope *Saving Lives in Schools* will increase awareness about sudden cardiac arrest and the need for resuscitation readiness in the school community. Whether you're a student, teacher, school board member, administrator, school nurse, coach, athletic trainer, parent or just someone who cares, we hope to empower you to become a champion of rapid access to defibrillation in schools, at school events and in the community at large. NCED can help you do that, too — this publication and our website, www.early-defib.org, are filled with examples of successful programs and tips for getting started.

Most of all, we hope this publication will help inspire the creation of a new generation of citizens who are ready, willing and able to intervene in sudden cardiac emergencies. We believe in today's youth, and we know they can make a difference. ❤️

A Student's Perspective

Spurred by tragedy, a high school senior joins the defibrillator crusade

by Shannon Bulger

Not much happens in my hometown of Sammamish, Washington. So when Sean Shipler, a 14-year-old football star, went into sudden cardiac arrest in the middle of gym class, it had a major impact on the community. There was no AED at the school, and although people did CPR, it took 10 minutes for the paramedics to arrive with a defibrillator. Sean lived, but he suffered permanent neurological damage.

I was a junior that year, and although I hardly knew Sean, I couldn't stop thinking about what had happened. I envisioned him lying comatose, not dead, but hardly alive. I pictured his mother holding his hand, remembering the last words he had said to her that day before he left for school. I imagined his father, torn between work and family, desperately encouraging the doctors to do more.

I called Sean's father, Chris, a couple of weeks later and offered to help however I could. He told me about defibrillation and how Sean could have been saved if an AED had been available quickly. He told me about the battle building between the school district's risk-management team and concerned parents who knew the importance of public-access defibrillation.

After doing some research, I learned that four or five middle- and high-school students in the Puget Sound area had gone into sudden cardiac arrest in the past couple of years alone. Sean was the only one who had survived.

That's when I got involved as an AED advocate. We started out with rallies in parking lots, trying to get people fired up, but we didn't really have any turnout. We walked from homeroom to homeroom to talk about the cause. We had a potluck banquet with a couple of speakers giving talks about defibrillators, and we raised a lot of money and got some media coverage, too. We didn't have permission from the school district to do some of these things—in fact, the risk-management team tried to

block our efforts—but we did it anyway and didn't get in trouble.

My family joined in the AED crusade, hosting training seminars and planning fundraisers, trying to install AEDs in the local junior and high schools. It took a couple of years, but eventually we got AEDs into all of the junior and senior highs in the Lake Washington and Issaquah school districts.

My experience in working with the AED community has been life-changing. I'm proud that I made time and got involved in something that really matters. Some day, I'd like to work as a lobbyist for public access to defibrillation. If I'm successful, many families will be spared the grief and frustration that so many have already experienced. ❤️

Shannon Bulger

is now a sophomore at Willamette University in Salem, Oregon. She was recently honored by NCED for her work in advocating public-access AED programs.



Parents Who Care

The Grassroots Movement to Place AEDs in Schools

by Mary Newman

It's been said that there is nothing more painful than losing a child. When a child dies suddenly from cardiac arrest, the loss can be particularly traumatic in light of the assumption that this doesn't happen to children ... and the fact that the cure for most cases, rapid defibrillation, is so well established. Perhaps it is this deep anguish, and the need to draw some good out of it, that has motivated a growing number of parents to become champions for AED placement in schools.

In January, the National Center for Early Defibrillation hosted "AEDs in the Schools: An Issues Forum" with the purpose of bringing together the many parent advocacy groups from across the country to develop guidelines for establishing AED programs in schools. (The group will meet again October 22-24 at NCED's national conference in Washington, D.C.) All of the parents who attended the forum know firsthand the devastation that a child's sudden cardiac arrest can bring to a family. Here are some of their stories.

John and Rachel Moyer, from Shawnee on Delaware, Pennsylvania, lost their son, Gregory, a 15-year-old high school student, when he collapsed and died on

December 2, 2000, during a basketball game. The couple established the Gregory W. Moyer Defibrillator Fund, which has raised more than \$100,000 to place AEDs in area schools. In addition, they worked with state legislators to develop the first bill in the nation that provided state funding for AEDs in schools (General Assembly of Pennsylvania House Bill 996). The program, sponsored by Rep. Kelly Lewis and signed into law by Gov. Tom Ridge, provided \$2.4 million in funding for eligible school districts. The program provided two defibrillators at no cost to any school district that requested them and allowed schools to purchase additional devices at a discounted rate secured through a bulk contract.

John and Karen Acompora of Suffolk County, Long Island, were inspired to create the Louis J. Acompora Memorial Foundation in memory of their son, Louis, who died suddenly on March 25, 2000, at the age of 14. Louis, a lacrosse goalie at Northport High School, had been struck in the chest during a game. Although he was wearing a chest plate and was in otherwise good health, the impact caused commotio cordis leading to cardiac arrest, and Louis could not be resuscitated. The Foundation developed a comprehensive educational package that includes a book, video and PowerPoint presentation on AEDs in the schools. More than 4,000 copies have been distributed free of charge throughout the U.S. in an effort to increase awareness among parents and coaches about commotio cordis, the need for improved screening of student athletes, and the need for access to defibrillation in schools and athletic fields.

Subsequently, the Acomporas, with the help of Rachel Moyer, who lives in Pennsylvania but teaches in New York, successfully lobbied for a law that made it

John Acompora and Joe Lemel became school AED activists after each lost a son to cardiac arrest.



mandatory for all schools in New York to have AEDs. "Louis's Law" was signed by Gov. George Pataki on May 7, 2002. So far, the Acompora Foundation has placed 150 AEDs in New York schools, and at least five lives have been saved as a result.

For Linette Derminer, tragedy struck on June 7, 2000, when her son Kenneth, 17, died suddenly during football practice. She has since created the KEN (Kids Endangered Now) Heart Foundation, dedicated to the prevention of sudden cardiac arrest and death in youth and athletes. The Foundation website honors young people who have lost their lives to sudden cardiac arrest and others who have been saved. Derminer also has been active in promoting legislation in Ohio that would provide funding for AEDs in schools.

Project ADAM, a Milwaukee, Wisconsin, initiative, was developed in memory of Adam Lemel, a 17-year-old student at Whitefish Bay High School who collapsed on January 22, 1999, during a basketball game. Adam, an avid athlete who enjoyed many sports, had a rare form of cardiomyopathy that had gone undetected. Shortly after Adam's death, his parents, Joe and Patty Lemel, and David Ellis, a close friend of Adam's, channeled grief into action and worked with Children's Hospital of Wisconsin to begin a crusade to get AEDs into all 12 schools in Adam's high school conference. The effort was dubbed Project ADAM (Automated Defibrillators in Adam's Memory). To date, Project ADAM has provided defibrillators and training to more than 100 Wisconsin high schools and distributed more than 1,000 Project ADAM program manuals and CDs nationwide. Project ADAM also has distributed \$74,000 in training grants and is now working with people in Minnesota and other states interested in emulating the program.

The Lemels also worked with Sen. Russ Feingold, who introduced the ADAM Act, which was signed into federal law by President Bush on July 1, 2003. The law calls for establishing a national clearinghouse for information on AEDs in schools.

SUSAN AND RANDY GILLARY also had to face tragedy. Their sorrow began on April 1, 2000, when their daughter Kimberly went into sudden cardiac arrest during a

NCED Can Help **NCED and the foundations mentioned in this article can help you every step of the way in researching, proposing, funding, winning approval for, and implementing a successful AED program in your district or school. For a list of contacts, call NCED toll free at 866-AED-INFO or visit us online at www.early-defib.org.**



Sean Morley

Saved by AED at age 13
Struck in chest by baseball
Deerfield, Illinois



Kimberly Anne Gillary

Died at age 15
Collapsed while playing water polo
Troy, Michigan



Kayla Burt

Saved by AED at age 20
Collapsed at friend's home
Seattle, Washington



Louis Acompora

Died at age 14
Struck in chest by lacrosse ball
Suffolk County, New York

water polo game at a Michigan high school. Although a cardiac nurse and a cardiologist attending the game performed CPR, by the time the EMS team arrived with a defibrillator, it was too late. Kim never regained consciousness and died two days later at the age of 15. Two days after her death, Randy, who is an attorney, signed the articles of incorporation for The Kimberly Anne Gillary Foundation. The Foundation has raised more than \$460,000 and distributed more than 160 AEDs to Michigan high schools; its goal is to make sure every one of Michigan's 860 high schools has at least one AED.

Chris and Tammy Shipler's lives were thrown into chaos when their 14-year-old son, Sean, experienced sudden cardiac arrest while running on the track at Inglewood Junior High School in Sammamish, Washington, in November 2000. Sean received CPR during the 10 minutes he was in ventricular fibrillation before paramedics revived him with a defibrillator; the neurological deficit he now suffers might have been prevented had an AED been on site. Chris Shipler, work-



Kelly Mealman

Saved by AED at age 15
Collapsed at friend's house
Blaine, Minnesota



Adam Lemel

Died at age 17
Collapsed while playing basketball
Milwaukee, Wisconsin



Greg Moyer

Died at age 15
Collapsed in locker room
East Stroudsburg, Pennsylvania



Coach Terry Artman

Saved by AED at age 54
Collapsed at school pep rally
Glen Ellyn, Illinois

ing with a group of parents and students spearheaded by Scott Bulger and his daughter Shannon (see "A Student's Perspective," page 3), began a campaign to educate the community about the need for AEDs in local junior and senior high schools. Shipler's group coordinated its efforts with a public-awareness campaign sponsored by the Rotary Clubs of Issaquah and Redmond, along with Seattle Mariners pitcher Arthur Rhodes and his wife, Leah. Rhodes arranged an autograph-signing session in which players signed autographs for more than 1,000 supporters and raised more than \$50,000 for local school AED programs.

In August 2001, many of these families, along with others whose children were affected by sudden cardiac arrest, traveled to Seattle to share their experiences and unite in the common cause to save lives. As the group watched from the stands at a Mariners game, Sean Morley—who, thanks to an AED, had survived commotio cordis, the same syndrome that took Louis Acompora's life—threw out the first pitch to Arthur Rhodes.

School Saves

The good news is that thanks to AED placements in schools and at school events, there are increasing reports of survivors. In October 2001, sixth-grade student Daniel Golden, 11, collapsed at the bottom of a staircase at Monsignor McHugh School in Cresco, Pennsylvania, and school nurse Theresa O'Malley and a crisis response team rushed to his side with the school's new AED. After several shocks, Daniel's heartbeat was restored, and he was taken to a nearby hospital to recuperate. ... In December 2001, Mohammed Shah, 15, went into sudden cardiac arrest on school grounds and survived because Smithtown (N.Y.) High School had an AED on site. ... In December 2002, 16-year-old Andrea LaFleur collapsed in class at the Career and Technical Education Center at Orange-Ulster in Goshen, New York, from a previously undetected heart condition. If it had not been for quick action and the school's new AED, she would not be alive today.

And it's not always young people who benefit from school AED programs. In November 2001, Terry Artman, 54, an assistant cross-country coach at Glenbard High School in Glen Ellyn, Illinois, was at a pep rally after the team won the state championship. He had just finished his congratulatory remarks when he slumped to the floor, to the horror of his wife, Mary, and the 1,600 students, teachers and parents in attendance. School nurse Jean Karris and security guard Jim Kolzow, who is a retired paramedic, along with Barbara MacTaggart, a parent, became the resuscitation team and shocked the coach with the school's AED. "Terry was awake and alert before EMS arrived," said Karris. The school had implemented its AED program 18 months earlier, thanks to the efforts of Principal William Leensvaart and district administrators who wanted to prepare for the possibility of athletes suffering complications from hypertrophic cardiomyopathy. ... In May 2002, a 54-year-old man collapsed while playing tennis outside an elementary school in Sayre, Pennsylvania. Two teachers grabbed the school's new AED and put their recent training to use. The man had a pulse when paramedics arrived a few minutes later. ... In November 2002, 61-year-old John Tierney was in the stands of the high school football playoff game between Locust Valley and Seaford, New York, when he suffered a heart attack leading to sudden cardiac arrest. He was revived by a defibrillator that was at the scene.

Why Wait?

While some researchers and authorities continue to study and debate the relative value of school AED programs, families who have been personally affected by loss are forging ahead. Just knowing they might be able to prevent others from feeling their pain is reason enough. ❤️

How an AED Works

When someone collapses from sudden cardiac arrest, damage to the brain and vital organs begins in as little as four minutes if untreated. Often the heart does not stop completely but goes into ventricular fibrillation, in which the heart quivers rapidly but does not pump blood effectively. A shock from an AED can reverse this condition and prevent permanent damage and death, but only if it is delivered in the first few minutes after collapse.

Using an AED

If the victim is not showing signs of life, the rescuer:

1

Turns on the AED

2

Attaches the electrode pads to the victim's chest

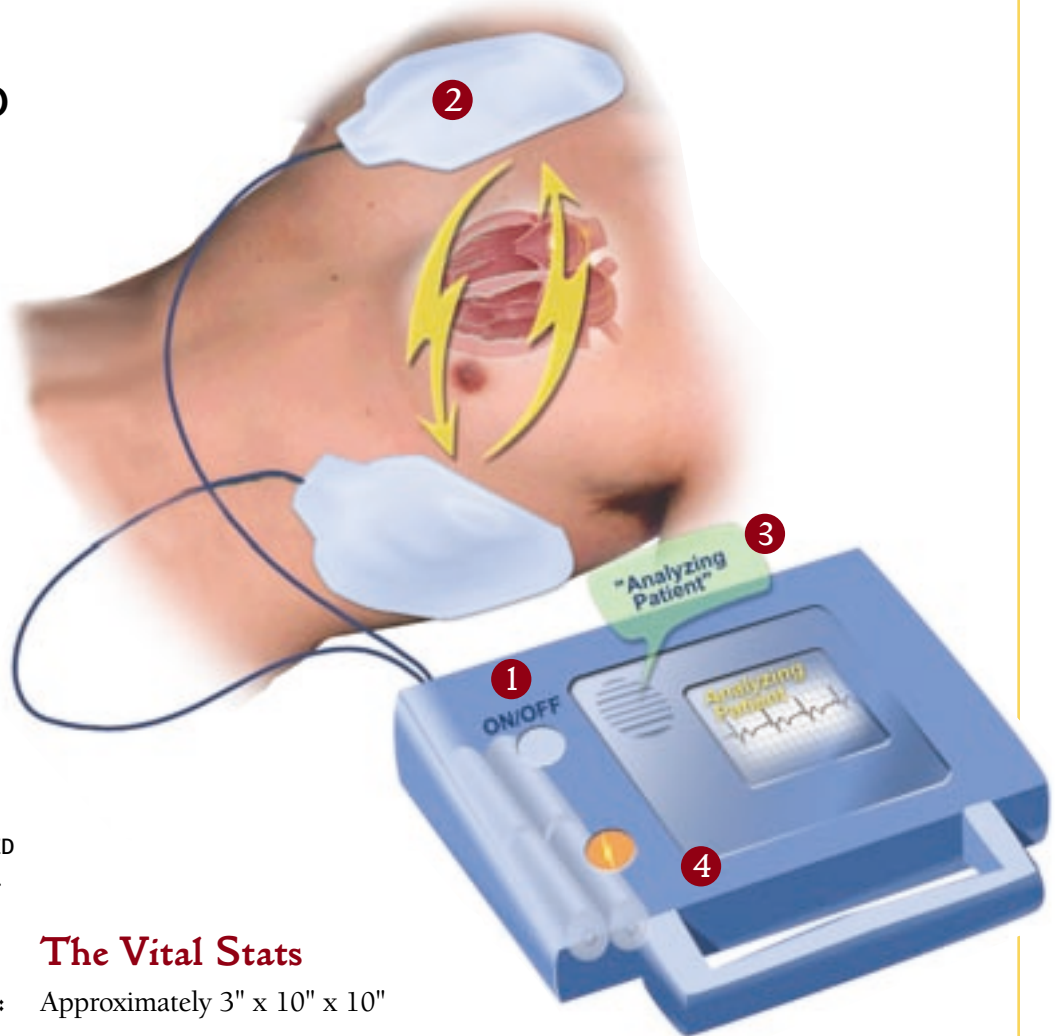
3

Presses the ANALYZE button or allows the device to analyze automatically

4

Presses the SHOCK button if advised

Sometimes a victim does not need to be shocked but does need CPR. AED training will teach you when to use the AED and when and how to do CPR.



The Vital Stats

SIZE: Approximately 3" x 10" x 10"

WEIGHT: 3 to 8 pounds

BATTERIES: Long-lasting lithium with no recharging required, or standard consumer batteries available in stores

VOICE PROMPTS: Included in all models; provide step-by-step instructions automatically when the unit is turned on

VISUAL DISPLAY: Included in some models; assists in coaching the user

MANUFACTURERS: Various; for a comprehensive list of models, visit www.early-defib.org/aeds.html

FDA STATUS: Physician authorization required for sale

LIST PRICE: About \$2,000 to \$3,000 for a single unit

Inside the Machine

The AED's computer can tell if the heart is in a treatable rhythm. If so, a shock is administered.



leading by example

School AED Programs That Work in the Real World

You *can* start your own AED program.
Just follow the lead of these people who've done it.

by Keith Griffiths

Where's the safest place in the U.S. to suffer a sudden cardiac arrest? It could be Everett (Wash.) High School, with five AEDs strategically located about the campus and more than 800 trained, motivated responders nearby. Nearly all teachers, staff and the entire student body have learned CPR and AED use.

What's the magic formula for creating success in school AED programs like the one in Everett? Advocates point to a variety of factors, but one theme clearly emerges: collaboration. "It's a triad with the schools, the families and the community organizations," says Cheryl Drewel, former health coordinator for the Everett School District.

Three years ago, Drewel faced the challenge of implementing new state school standards requiring students to "acquire the knowledge and skills necessary to maintain a healthy life: recognize patterns of growth and development, reduce health risks and live safely." When members of the Everett Fire Department, including Deputy Chief Jack Robinson, expressed interest in helping, she gladly invited them to a brainstorming session. "I went in thinking they'd recommend teaching the Heimlich maneuver to fifth-graders," she says. By the time they were done, they had outlined a bold plan to make AED implementation and training an integral part of the school health curriculum.

Three years after that initial outreach, 9,000 Everett district students have gone through the required program, which consists of three 50-minute sessions, including CPR and AED training. (The class is taught in middle school and again in high school.) In addition to the five at Everett High School, 10 AEDs have been placed in other district schools.

Connie Carmany is the AED coordinator for P.A.D.S (Public Access Defibrillation in Schools) of Lorain County, Ohio. She faces the challenge of implementing AED programs in 21 school districts. She agrees that partnering is critical: “You need to have a cross-section of the medical, public health, education and public safety communities.” Contact the superintendents, athletic directors, school nurses and other key people in each district early on, she says, and be clear on your goals. A needs-assessment survey can provide baseline information and an opening for education.

“Find an individual champion in each school district, someone who understands the importance of the issue and who will carry it through,” she suggests. “By far the easier way is to start with a single district, but if you have the energy and organizational ability, I think it’s great to organize on a county basis. That way you can share information between districts—grant sources, ideas and proposals.”

Training

In Everett, firefighters provide training at no cost through the Medic One Foundation, the non-profit educational arm of the fire department. (Donations offset the cost to the Foundation.) Drewel sees great advantage with using uniformed emergency responders for training. “There’s something magical when you see an emergency medical technician down there on the floor with a student,” she says.

Other programs have found it cost-effective to use staff members as trainers. Sandi Clark, R.N., is the district nurse coordinator for Warren County Public School District in Bowling Green, Kentucky, where there are 21 defibrillators in 18 schools. Clark and several aides became certified trainers so they in turn could train nearly 240 coaches and

staffers. “They were initially apprehensive—can we do this?—until they went through the program and found out how easy it was,” she says.

That’s the same experience they had in Broward County, Florida, says Jerry Graziore, director of safety for schools there. The county is nationally recognized for its community AED program. The school board budgeted to provide an AED to any school that had a minimum of two CPR/AED trained staff members. Thus far, with 104 defibrillators deployed, nearly 50 percent of schools have taken advantage of the program. “Once they began the training,” Graziore says, “they could see for themselves that the devices were really foolproof.”

Liability and Funding

“Aren’t you opening yourself up to lawsuits if you accidentally hurt someone?” risk managers sometimes ask when they first hear about AED programs. To Carmany, liability is a question to be answered, not a real obstacle. “Once you explain the issues,” she says, “people quickly understand that there’s more risk associated with *not* having an AED program.” In Broward County, the risk managers who initially questioned the wisdom of the community program are now some of its most ardent backers.

Funding is the other major issue. Says Carol Whitehead, Everett superintendent of schools: “Our number-one priority is health and safety. Parents expect that their most precious possession is OK at school. In tight financial times you simply need to look for other ways to make sure that your priorities are met—I don’t believe AED programs should move down on the priority list just because there is no money in the budget.” Eventually, schools will budget for AEDs as they do fire extinguishers and other safety equipment, says Everett High School Principal Pat Sullivan. In the meantime, “you have to rustle up resources to get things started.” In Everett, donations have paid for the devices.

To Carmany, education and funding are inextricably linked. One of her districts made the decision to budget for AEDs after an athlete in a neighboring county



NCED Can Help

For a copy of the Everett High School CPR/AED training curriculum and contact information for the organizations mentioned in this story, call NCED toll-free at 866-AED-INFO or visit us at www.early-defib.org.



Fund Finder

Carol Whitehead, superintendent of schools in Everett, Washington, says tight finances require creative thinking. “I don’t believe AED programs should move down on the priority list just because there is no money in the budget.”

Dollars for Defibrillators

Finding funds for AEDs for your school may be easier than you think. Several programs, listed below, specifically provide grants and other funding resources that can be used for school AED programs. In addition, several states (such as Pennsylvania and Illinois) have provided funding for school AED programs, and New Jersey and several others are considering such legislation.

Often, students themselves take on the challenge: Matt Strauss (see page 12) approached St. Margaret's Hospital Foundation in Pittsburgh and easily secured funding for two AEDs for his high school. Students at Cedar Crest High School, in a small farming community near Seattle, were able to place an AED at the school through a fund-raising drive that began with contributions of \$100 each from 14 teachers. Training was provided free by the local fire department, and AED program champion Alidene Doherty, R.N., from the University of Washington, volunteered to provide guidance on policies, procedures and maintenance. Students at Windsor (Colo.) High School decided to use the proceeds from "Change Day" — when the entire student body empties its collective pockets for a charitable cause — to buy two AEDs after a classmate suffered sudden cardiac arrest.

If the thought of securing funding for your school's AED program seems overwhelming, it's good to know that those who have found it say it doesn't require a monumental effort. All that's needed is patience, persistence and passion for a noble cause.

Funding Tip: The Medtronic Foundation Heart Rescue Program provides grants for AED training; contact Joan Mellor at 763-505-2646 for more information. For a complete list of funding resources, go to www.early-defib.org.



American Red Cross

Saving a life is as easy as A-E-D. To learn more about CPR and defibrillation training, contact your local Red Cross Chapter. www.redcross.org



AMERICAN SAFETY & HEALTH INSTITUTE
WWW.ASHINSTITUTE.COM

To locate an approved American Safety & Health Institute Training Center and participate in a CPR/AED program, log onto www.ashinstitute.org or call 1-800-682-5067

real-world school AED programs

died from sudden cardiac arrest. "They said, 'Hey, guys, this 15-year-old track runner fell over dead ... it could happen at our school next.' They made the program a priority and didn't wait for grants or bake sales to get started." The reality of a death took it from a "nice to have" to a "need to have," she says, especially once they understood that even the fastest paramedics may not arrive in time to make a difference. Her advice to other districts: If you know an intersection is dangerous, don't wait until after a child is killed to put up a stop sign.

Building a Culture of Community

Both Everett's Robinson and Drewel tout additional benefits of training students in AED use. "This is hands-on, very tangible," says Drewel. "It's a classic exam-

ple of a student taking control, being responsible and being empowered." They learn the value of altruism, she says. "We're teaching a whole new generation about giving back to their community." Adds Robinson: "One student commented about the world today and how much better it makes him feel to know he has the capability to save a life."

Superintendent Whitehead explains another part of the lure: "Kids like the technology, the drama." Student surveys and comments from students interviewed for this story made it clear that AED training is the most popular part of health class.

"This program adds to the overall wealth of the community," concludes Principal Sullivan. "It makes it a safer, and richer, place to live." ❤️
Kristin Hanson also contributed to this report.



Karst Brandsma, associate superintendent for instruction in Everett public schools (left), Cheryl Drewel, former health coordinator for the school district, and Deputy Fire Chief Jack Robinson brought their ideas and their agencies' resources together in a collaborative effort to create Everett's AED program.

With These 10 Essential Steps, Any School Can Start an AED Program

1 **Pick a program coordinator and a medical consultant.**

A physician's prescription is necessary to buy an AED. The prescription can come from any licensed M.D. or D.O. (such as the school physician, a volunteer parent or even your own doctor). In the case of an event involving the AED, the physician and program coordinator should review the incident and response, and assess whether any quality-improvement adjustments could be made to the emergency response plan.

2 **Review state laws and regulations.** All U.S. states have Good Samaritan laws that provide immunity from legal liability when using an AED to help someone. Some states also have laws that mandate the presence of an AED in schools or at school events. Laws vary from state to state. (See www.early-defib.org.)

3 **Conduct a needs assessment and build a budget.** Before you determine what you'll need to buy and the related costs, consider these points:

- It would be ideal to have an AED at every sports event, keeping in mind that different teams may be playing or practicing simultaneously in different locations. Do an assessment of the average number of sports events on any given day to determine how many portable devices your school may need.
- Are phones readily available for anyone in the school to call 9-1-1 at any time, day and evening? If not, consider budgeting for phones as part of the AED program.
- An AED should be placed on the victim within 3 to 5 minutes of collapse. Therefore, the unit should be placed where it can be reached within 90 seconds while walking at a fast clip. This will allow you to return to the victim, with the device, within the recommended time frame.
- Public-access AEDs are often mounted in cases similar to fire extinguisher cabinets. Cases can be equipped with various features, such as an alarm or auto-dial system that alerts 9-1-1 or security when the door is opened or the device is removed. Basic cabinets start at about \$200.
- Advertising the AED's location is important. If the building layout is complicated, you may need extra signs. You can reproduce the universal AED symbol for free. (Download it from www.early-defib.org).
- Along with each AED, the following items are necessary: a battery; 2 sets of adult electrode pads (additional pediatric pads if desired); and an ancillary equipment pouch holding a towel, scissors, razor, pocket CPR mask, and a pair of non-latex gloves.

4 **Seek funding.** For ideas and funding sources in your area, see "Dollars for Defibrillators" at left, or visit www.early-defib.org.

5 **Select a device.** There are a number of different companies that manufacture AEDs and a variety of models available. Devices vary slightly in design and price, but they all are reliable and have been cleared by the FDA. For a comprehensive listing of devices on the market, see www.early-defib.org/aeds.html.

6 **Select a location.** The device should *not* be locked up in an office; choose a visible location that can be reached whenever people are at the school. Some suggestions: the auditorium, gym, front entry, and outside the nurse's office on the wall.

7 **Develop a response plan.** Procedures should be written and drills performed. Also, a copy of the plan should be kept with the AED. The procedures manual should address:

- How and when to call 9-1-1
- Location of AEDs
- Simple diagram and steps for using the AED
- Emergency contact numbers and procedures
- Post-event review forms

8 **Coordinate with EMS.** Your local emergency medical services should be made aware of the location of all AEDs in the building, and the program should be registered with the state EMS authority.

9 **Conduct training.** Ideally, all faculty, staff, students, and users of the school should be trained in CPR and AED use. If this is not possible, identify people such as athletic directors, health teachers, janitorial staff who are around after hours, student leaders and coaches to be trained first. You can use in-house or outside instructors. Tip: Try your local fire department, hospital or ambulance service. For a list of national training organizations, visit www.early-defib.org.

10 **Create public awareness.** Install signs indicating that an AED is available. Conduct assemblies and drills for occupants of the building. Send letters to parents and groups that use the school facilities (e.g., community sports teams, voting commissions, social programs) to convey:

- The location of all AEDs
- How to contact 9-1-1
- That they are allowed to use the AEDs
- That AEDs are simple and safe to use
- That when an AED is turned on, the voice prompts will guide the user through the rescue

—Kristin Hanson



community champion

High School Hero

A man in cardiac arrest got the shock of his life — thanks to the efforts of 17-year-old Matt Strauss

by Mary Newman

It was March 12, 2003, and Pittsburgh's Penn Hills High School was playing against Chartiers Valley High School in the varsity basketball finals. Matt Strauss, a 17-year-old junior, was there to cheer on his team. The tension was high, with seconds left to play and Penn Hills down by only a few points, when Matt heard a loud thud behind him. About 10 rows back, 48-year-old Martin Gannon had collapsed on the bleachers. Instinctively, Matt grabbed the AED at his feet and rushed to help. Two physicians who happened to be sitting nearby began CPR, assisted by a parent who had been trained in CPR and AED use. Matt hooked up the AED and instructed the crowd to stand back, which was probably the biggest challenge. "It was total chaos," he says.

Following the device's voice instructions, Matt pressed the shock button once. "Within three seconds, there was a pulse, and then Mr. Gannon started gurgling and coughing," he says. "When EMS arrived, he was sitting up, talking and grinning."

Resuscitation Readiness

Today, Gannon is alive and well and considers himself lucky. But it wasn't just luck that Matt was ready to resuscitate. The fact that this high school had an AED on hand at the unpredictable time of need was a result of Matt's tireless efforts during the previous year. It all began in January 2002, when Matt saw an ad for an EMT class at a community college and decided to pursue the training, taking his classes on Saturdays. Six months and 144 hours of training later, he began to volunteer for a local ambulance company, usually working Friday nights.

During this time Matt became increasingly aware of the importance of defibrillation, not only because of his new role, but also because of media coverage of the subject. "I kept seeing articles about AEDs popping up everywhere, including the Internet," he said. What brought it home was when someone collapsed at the grocery store where Matt worked. Matt performed CPR, but the EMS defibrillator arrived too late to be of any value.

By then, Matt, who also volunteers his time as a student athletic trainer, began to think about the benefits of having an AED available for school sporting events.

When he approached the school administration and school board with the idea, he was rebuffed. But he persisted, and when there was a change in the school leadership, the program got the green light.

At the advice of the school's athletic trainer, Matt applied for a grant from a local hospital foundation, which supplied the school district with two AEDs. By August 2002, 12 volunteers, including teachers, coaches and students, had been trained. It became routine for coaches and athletic trainers to make sure the AEDs traveled to every game.

It was Matt's turn to carry the device on that fateful day in March. "Mr. Gannon was dead one second, and the next, we're pressing the button and he's back," Matt says. He probably would not be alive today if we weren't able to shock him so quickly. Think about it ... it could have been your mom, your grandma, the coach, a teacher—who knows? The thing is, the more you know, the more you can help."

And what about the basketball game? "We lost the playoffs," says Matt, "but I guess you could say we won at something much more important." ❤️

Legal Support for School AEDs

by Richard A. Lazar, Esq.

AEDs are clearly effective and needed in schools, yet few schools currently possess them. A brief look at the legal landscape helps explain why this is true—and why it may change.

Generally, schools might buy and deploy AEDs for three reasons:

Voluntary deployment. Schools may choose to deploy AEDs voluntarily for both risk management and public health reasons or because of grassroots efforts precipitated by the sudden cardiac death of a student. Examples of schools voluntarily implementing AED programs are found in Pennsylvania, West Virginia, Wisconsin and Washington state, among others. Yet, probably due to the absence of funding and the lack of a perception that AEDs should be a high priority, this voluntary movement is not yet widespread.

Legislative action. Schools may also deploy AEDs because of a legislative mandate or because funding is made available by a state. An example of a legislative mandate is the Aviation Medical Assistance Act of 1998, which requires that all commercial aircraft that carry passengers have AEDs by April 2004. Some state legislatures are beginning to consider mandating or encouraging the placement of AEDs in schools. New York, for example, passed a law specifically mandating AEDs in schools: “School districts [and other school related entities] shall provide and maintain on-site in each instructional school facility automated external defibrillator (AED) equipment in quantities and types deemed ... to be adequate to ensure ready and appropriate access for use during emergencies.”

Among other things, the New York law also requires that at least one staff member trained in AED use be present for events using public school facilities.

Officials must also ensure that an AED is available at school-sponsored athletic events held away from school.

In contrast to New York, Pennsylvania and Delaware created voluntary school AED programs that provide funding for purchase of the devices. Each law imposes a number of conditions that must be met in order to obtain funding. Examples include training, maintenance, device accessibility, and EMS system involvement. Neither state requires schools to obtain AEDs.

Legislative activity related to AEDs in schools appears to be on the rise. However, there seems to be no consistency in approach or public-policy rationale surrounding these initiatives.

Common law mandate. A third reason schools may choose to deploy AEDs is because of a perceived “standard of care” mandate created by negligence law. The primary driver here is the fear of being sued if a student suffers sudden cardiac arrest and no defibrillator is available. Olmstead Falls High School (Ohio) is subject to just such a claim. The parents of a 15-year-old student who died from SCA after a track event sued the local school district and board of education, claiming their daughter died because no AED or phone was immediately available after she collapsed. The case is pending.

Given the publicity surrounding the death of students in schools, coupled with a growing awareness of AEDs and their benefits, it is likely more lawsuits against school districts will arise. Schools, as public entities, have special immunity defenses not available to private parties, so it remains to be seen how successful these claims are. However, the fear of negligence suits will certainly drive some schools to initiate AED programs.♥

Attorney Richard A. Lazar is president and CEO of the Early Defibrillation Law & Policy Center.

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www.early-defib.org

Vincent N. Mosesso, Jr., M.D.
Medical Director

Paul M. Paris, M.D.
Associate Medical Director

Mary Newman
Executive Director

Kristin Hanson
Program Coordinator

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ASK NCED

What is sudden cardiac arrest?

In sudden cardiac arrest, also known as SCA, the heart abruptly stops beating because of an electrical disturbance. When this happens, blood stops flowing to the brain, the heart and the rest of the body, and the person collapses. In fact, the victim is "clinically dead" and will remain so unless someone helps immediately.

How common is sudden cardiac arrest in children and adolescents?

7,000 to 10,000 young people die each year from sudden cardiac arrest. In a 15-year study of non-hospital cardiac arrests in the U.S., 7 percent of victims were younger than 30 years old, and 3.7 percent were younger than age 8. Sudden cardiac death occurs in one out of every 200,000 high school students while playing sports every year.

What causes sudden cardiac arrest in young people?

There are three common causes:

Long QT syndrome is an often unrecognized congenital condition that predisposes the child to an abnormality in the heart's electrical system, sometimes resulting in cardiac arrest. This is a genetic disease that affects 1 in 7,000 young people. Episodes are most commonly triggered by physical

exertion or emotional stress.

Commotio cordis is an electrical disturbance caused by a blow to the chest. It occurs most often in baseball but has been reported in most other sports and other situations in which there is even minor impact to the chest. Researchers at the U.S. Commotio Cordis Registry studied 124 cases and found the average age is 14. Only 18 victims in the study (14 percent) survived; most of those who did survive were saved by prompt CPR and early defibrillation.

Hypertrophic cardiomyopathy is a congenital heart muscle disease. The walls of the heart's left ventricle become abnormally thickened (hypertrophy). The structural abnormality can lead to obstruction of blood flow from the heart, causing loss of consciousness and irregular heartbeat, and leading to cardiac arrest. About 1 in 500 have this disease; many are unaware.

How is sudden cardiac arrest treated?

Sudden cardiac arrest is treatable most of the time, especially when due to an electrical abnormality called ventricular fibrillation. Treatment must be provided within the first few minutes to be effective, preferably within 3 to 5 minutes. Even the fastest emergency medical services may not be able to reach a victim that quickly. That's why prompt action (CPR and use of an AED to deliver a shock that will eliminate the erratic electrical activity) is so important. ❗

Contributors:

Terry Gordon, D.O.,
Kristin Hanson,
Vincent Mosesso, M.D.

Ready to help:
NCED staff members
Vince Mosesso, M.D.,
Mary Newman, and
Paul Paris, M.D.



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fact sheet

Number of children with no previous symptoms who die suddenly from cardiac arrest each year: 7,000

Number of students who died from sudden cardiac arrest in New York City schools during a single week in January 2003: 3

U.S. average survival rate, in percent, of victims of sudden cardiac arrest: 7

Survival rate, in percent, of people who experience ventricular fibrillation at Chicago O'Hare Airport, which has one of the first public-access defibrillation programs in the U.S.: 56

Target time interval, in minutes, between the time a person collapses and treatment with a defibrillator: 3

Number of minutes after cardiac arrest before irreversible brain damage usually begins: 4

Time, in hours, needed to learn to perform CPR and use an AED: 4

Approximate list price of an automated external defibrillator: \$2,000–\$3,000

Number of AEDs placed in Michigan schools through the Kimberly Anne Gillary Foundation, thanks in part to donations of \$80,000 from Michigan lawyers: 160

Amount donated by the Philadelphia Trial Lawyers Association to the Gregory W. Moyer Defibrillation Fund for placement of AEDs in Philadelphia schools: \$100,000

Amount paid by United Airlines to settle a lawsuit filed by a widow whose husband died after suffering sudden cardiac arrest on board an aircraft that did not have an AED: Undisclosed

Number of children who have died from commotio cordis (cardiac arrest resulting from a moderate blow to the chest, such as from a baseball) since the formation of the U.S. Commotio Cordis Registry in 1999: 75

Age, in years, of Louis J. Acompora, a Northport, New York, lacrosse goalie who died after blocking a shot with his chest while wearing approved protective gear: 14

Number of states that have introduced or adopted legislation promoting AEDs in schools: 13

Amount appropriated by the General Assembly of Pennsylvania to fund AED programs in schools: \$2,400,000

Amount appropriated by the New York State Legislature to fund a law making AEDs in schools mandatory: \$0



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This educational supplement was produced by the National Center for Early Defibrillation, a non-profit organization based at the University of Pittsburgh Department of Emergency Medicine. NCED offers an interactive CD-ROM designed to educate high school students about sudden cardiac arrest—and to help them develop the motivation and skills necessary to save a life. To order a copy or learn more, visit www.early-defib.org.