The Life You Save...

Community Defibrillation Programs & the Emergency Care Responder
Be the Catalyst
Transforming the bystander into a citizen responder

Bystander: One present at an event who does not participate in it.

Catalyst: A substance that increases the rate of a chemical reaction; a person who precipitates an event

More than 250,000 people die each year in the United States from sudden cardiac arrest (SCA), despite the efforts of the finest cardiologists and coronary care units. More than 650 people die every day of SCA despite the finest emergency departments, physicians and nurses. More than 25 people die every hour from SCA, despite the finest prehospital care systems and personnel, from fire department first responders to paramedics. (And these numbers are probably conservative—a new report from the Centers for Disease Control suggests that the incidence of SCA may actually be twice as high, affecting as many as 450,000 each year.)

We also know how to significantly reduce these deaths, as symbolized by the Chain of Survival: 1) early notification of 9-1-1; 2) early CPR (which can double the chance of survival if started within the first few minutes); 3) early defibrillation (survival rate decreases 10% every minute until the shock is delivered); and 4) early advanced care.

But what we need to understand is that in most instances emergency care providers can’t get there fast enough to make a difference—by themselves. We often talk about the importance of “bystander CPR.” But look at the above definition of bystander: someone who “does not participate.” The purpose of this supplement is to challenge all public safety responders to encourage would-be bystanders in their communities to react appropriately—to become citizen responders.

Promoting citizen, fire department, and law enforcement response to sudden cardiac arrest remains an under-appreciated yet critically important responsibility of public safety agencies. We must help everyone in the community see that what they do in the first few minutes after witnessing someone’s collapse has proven to be the most important determinant of whether the victim lives or dies. EMS, law enforcement, fire department and other public safety personnel should champion the adoption of systems in the community that ensure immediate care by lay citizens and those public safety personnel most likely to be first on the scene. These men and women are ideally positioned to become catalysts for change in citizen bystander response.

This supplement provides you the tools to become the catalyst in your community and your organization. It offers information you can use to convince your organization, local leaders and the general public about the importance of being prepared and willing to respond when SCA strikes. It includes stories of model AED programs and resources for developing successful programs. It was created by the National Center for Early Defibrillation (NCED), a new resource center based at the University of Pittsburgh. NCED was established in January 2000 as an academically-based, manufacturer-neutral clearinghouse of information on the subject of early defibrillation. Our mission statement says it best: To foster optimal immediate care for victims of sudden cardiac arrest by providing leadership, expertise and information related to early defibrillation.

The NCED website (www.early-defib.org) is a comprehensive repository of all things related to early defibrillation, including state and federal laws, funding suggestions, and the latest research and news related to SCA management. You can read about SCA survivors and the best practices of other successful early defibrillation programs. NCED also provides consultation (via e-mail, phone or site visit) to assist with local program development.

Needed: Community Champions

Be the champion of AED programs to government and to private organizations alike. Be the innovator who stimulates citizen moves from being mere bystanders to being effective responders. The life you save may be a neighbor, a father or a grandfather, a brother or a sister, a mother or a grandmother. Or it could very well be a colleague. We know the solution—now we must act.

Vincent N. Mosesso, Jr., M.D., is medical director of NCED. He is assistant professor of emergency medicine at the University of Pittsburgh School of Medicine and medical director of prehospital care for UPMC Health System. He has focused much of his academic research on prehospital care including the role of police and first responders in the use of AEDs.
There is nothing more painful than losing a child. And when one dies unexpectedly from sudden cardiac arrest (SCA), the loss can be particularly severe. Kids aren’t supposed to die this way, the family thinks, and could the death have been prevented if rapid defibrillation was available? 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 AEDs in schools.

Parents/Friends Who Care

Karen Acompora of Suffolk County, Long Island, was inspired to create the Louis J. Acompora Memorial Foundation, in memory of her 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, he died instantly from commotio cordis leading to cardiac arrest. The Foundation, whose motto is “Taking our children out of harm’s way,” developed a comprehensive educational package that includes a book, video and Power Point presentation on AEDs in the schools. It has been widely distributed free of charge to increase awareness among parents and coaches about commotio cordis and the need for improved screening of athletes along with access to defibrillation in schools and athletic fields. Thanks to Acompora’s efforts, 20 AEDs have been installed in area schools and more than a thousand kits have been distributed nationwide. Louis’s story touched the hearts of millions more when Karen appeared with Oprah Winfrey.

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 tirelessly with state legislators to develop the first bill in the nation that provides state funding for AEDs in schools (General Assembly of Pennsylvania House Bill 996). The program, sponsored by Rep. Kelly Lewis, R-Monroe and signed into law by then Governor Tom Ridge, provides $2.4 million in funding. Eligible school districts can get two defibrillators free and can buy additional devices at a discounted rate.

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 Heart Foundation, dedicated to the prevention of sudden cardiac arrest and death in youth and athletes. The Foundation website, www.kenheart.org, features a hall of fame that honors young people who have lost their lives to sudden cardiac arrest and the few who have survived. Derminer also has been active in promoting legislation in Ohio that would provide funding for AEDs in schools. She also is developing a database of young victims of SCA.

In November 2000 the lives of Chris and Tammy Shipler changed forever. That’s when their 14-year-old son, Sean, experienced sudden cardiac arrest while running on the track at Inglewood Junior High School in Sammamish, Washington. Bystanders provided CPR until paramedics arrived 10 minutes later and revived him with a defibrillator. Although Sean survived, he suffered neurological...
impairment. Determined that this should not happen to other young people, Chris Shipper began a crusade to get AEDs into area junior and senior high schools. Shannon Bulger, a fellow student who was deeply touched by Sean’s accident, and her father, Scott, joined in the effort. They were guided by Alidene Dougherty, a defibrillation advocate from the University of Washington.

At first the group met with resistance. “Schools really need to be educated on this issue,” said Bulger. “It’s so frustrating that all too often a child has to die before anything happens.” To increase public awareness and raise funds for AEDs in the schools, Bulger arranged for the Seattle Mariners to sign autographs at one of their games in exchange for $20 donations. He invited the families of five other young SCA victims in the area and several other school-site AED advocates from around the country, including the Acomporas, Moyers and Derminers, to participate in the fundraiser. He enlisted the help of the Issaquah and Redmond Rotary Clubs, which provided volunteers to collect donations from fans and whose $50,000 was raised, making it possible for 19 schools to be equipped with defibrillators. Bulger created www.heart-safeschools.org to help spread the word.

Project ADAM, a Milwaukee, Wisconsin initiative was created 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 was previously undiagnosed. The day after Adam died, David Ellis, a close friend of Adam’s, channeled his grief into action, beginning a crusade to get AEDs into all 12 schools in his high school conference. Meanwhile, Karen Bauer, Becky Hirsch-Wolkenheim, and Stuart Berger, MD, of the Children’s Hospital of Wisconsin were planning an initiative to get AEDs into high schools across the state. They joined forces with David and created “Project ADAM” (Automated Defibrillators in Adam’s Memory). In the first 20 months of operation, Project ADAM provided defibrillators and training in 40 Wisconsin high schools, using bake sales, tailgate parties and can collections to raise funds. To date, Project Adam has distributed more than 150 program manuals. It works closely with Masonic Lodges, which partner with schools to provide matching funds.

The far-reaching effects of these grassroots efforts are making a tangible difference. After the sudden death of high school soccer player Louis Savino, 15, the Council Rock School District in Bucks County, Pennsylvania allocated $42,000 to buy defibrillators for all its buildings. Prompted by the sudden death of a 16-year-old baseball player who was struck in the chest with a baseball, the Board of Education in Jackson County, West Virginia, initiated the Ripley Project, which was endorsed by the State Board of Education and funded by the West Virginia legislature. It enabled the county school system to be among the first in the U.S. with a comprehensive program.

The good news is that some young victims have become survivors. In October 2001 sixth-grader Daniel Golden, 11, collapsed at the bottom of a staircase at the Monsignor McHugh School in Cresco, Pennsylvania. 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; he was taken to a nearby hospital to recuperate. The AED had been donated to the school less than two weeks earlier.

In November 2001, another school-site save occurred—but this time it was an adult who was resuscitated. Terry Arman, 54, assistant cross-country coach at Glenbard High School in Glen Ellyn, Illinois, was at a pep rally honoring the team for winning the state championship when he suddenly slumped to the floor. School nurse Jean Karris and security guard Jim Kolozw, a retired paramedic, along with parent Barbara Mac Taggart, became the resuscitation team. “Terry was awake and alert before EMS arrived,” said Harris. The school had implemented an AED program 18 months earlier, thanks to the proactive efforts of William Leensvaart, principal, and the district administration who wanted to prepare for the possibility of athletes who may suffer from hypertrophic cardiomyopathy.

Should AEDs Go To School?

Some experts caution that the incidence of sudden cardiac arrest in young people is rare and that putting AEDs in schools are not a high priority. Others argue that school populations include not only low-risk young students but also higher-risk middle-aged and elderly teachers, parents and visitors. Further, schools usually serve as community gathering sites and places of refuge during crises. What’s more, by placing AEDs in schools and training (and retraining) students, in time, a whole generation of adults will be comfortable with the devices. They’ll be grounded in a new response culture in which quick, effective “bystander” action is the norm, not the exception.

For parents who are grieving, the need for AEDs in schools is self-evident. “We don’t know if having one (an AED) there that night would have saved Greg,” said Rachel Moyer. “But we do know that we want to make sure that no other parent will have to wonder.”

Mary Newman is the Executive Director of the National Center for Early Defibrillation and is nationally recognized as an advocate, author and educator in public safety for more than 20 years. She created the "Chain of Survival" metaphor which is used worldwide to graphically show the importance of a quick and comprehensive response to victims of sudden cardiac arrest.

Causes of Sudden Cardiac Arrest in Kids

Commotio cordis is arrhythmia or sudden death from low-impact, blunt trauma to the chest without apparent heart injury. Ventricular fibrillation is the most common associated arrhythmia. Commotio cordis occurs most commonly in baseball but has also been reported in hockey, lacrosse, softball and other sports. Researchers at the U.S. Commotio Cordis Registry studied 124 cases and found the average age of death was 14. Only 18 victims in the study (14 percent) survived, usually because of prompt CPR and early defibrillation.

Hypertrophic cardiomyopathy (HCM) is a congenital (born with) heart (cardio) muscle disease (myopathy). The muscular walls of the left ventricle become abnormally thickened (hypertrophy). As HCM progresses, it can alter the structure of the heart and impair its functioning, sometimes causing sudden cardiac arrest. About one in 500 people have HCM; many are unaware they have it.

For Resources for School-Site AED Programs
http://www.early-defib.org
Emergency physicians Vince N. Mosesso, Jr. and Paul M. Paris established the National Center for Early Defibrillation (NCED), a not-for-profit information resource center based at the University of Pittsburgh, in January 2000. NCED’s mission is to foster optimal immediate care for victims of sudden cardiac arrest by providing leadership, expertise and information related to early defibrillation.

NCED advisors include noted experts Lance Becker, MD, Allan Braslow, PhD, Jim Christenson, MD, Mickey Eisenberg, MD, Keith Griffiths, Richard Lazar, Esq., Joan Mellor, Joseph Ornato, MD, and Roger White, MD. Mary Newman serves as executive director.

NCED was initiated with a major grant from The Medtronic Foundation. It has since secured funding from the Asmund S. Laerdal Foundation and five AED companies, including Medtronic Physio-Control, Laerdal Companies Worldwide, Philips Medical Systems, Zoll Medical Corporation and Cardiac Science. NCED also has received funding from several AED training organizations including the American Heart Association, the American Safety & Health Institute and EMP International/Medic First Aid. NCED is neutral with regard to defibrillation products, training and services, working collaboratively with all interested organizations having a common interest in improving survival from sudden cardiac arrest.

NCED’s primary resource is its website, www.early-defib.org, which offers comprehensive information on sudden cardiac arrest and early defibrillation. Sections address such topics as news and events, conducting community assessments, program implementation, scientific literature, state and federal AED laws, legal liability issues, funding, medical direction, training, device options and demonstrations, model AED programs and survivor stories.

NCED also provides consultation services by phone or by e-mail and provides AED medical direction services in Western Pennsylvania.

One of NCED’s key interests is to identify and address obstacles to defibrillation access. Toward that goal it regularly hosts special issue forums. Topics have included: Police AED Issues Forum (Jan. 2001); AEDs on the Golf Course: A Roundtable Discussion (May 2001); Risk Management, Insurance and AED Issues Forum (Jan. 2002). Each of these forums reflects the latest research and experience by experts in the field and are designed to stimulate dialogue, resolution and community action.

Written summaries of each Forum will be available on the NCED website.

If you are interested in promoting access to defibrillation in your community, contact the National Center for Early Defibrillation, 200 Lothrop St., Pittsburgh, PA 15213; (toll free) 1-866-AED-INFO; info@early-defib.org.
Liability No Barrier

AED Programs Can Reduce Legal Risk

Perceptions and fear of legal liability continue to serve unnecessarily as barriers to large-scale adoption of public access defibrillation (PAD) programs in out-of-hospital settings. I’ve written elsewhere about general legal standards applicable to early defibrillation. Following are some of the few early defibrillation lawsuits that have arisen in recent years. One clear lesson emerges from a review of these cases: Businesses that adopt early defibrillation programs using automated external defibrillators (AEDs) appear to reduce their risk of legal liability resulting from sudden cardiac death when compared to businesses that do not.

One important point deserves mention at the outset. In the year 2000, nearly 40,000 AEDs were sold, and the market for them appears to double about every 18 months. Notwithstanding the widespread distribution of AEDs, there are no reported instances of lay users or their employers being sued for the use of an AED. Rather, all PAD cases revolve around the failure to have or use an AED. Here are some examples.

Airlines/Theme Parks/Health Clubs

The airlines faced AED related lawsuits before any other industry. In one case, United Airlines got sued by the widow of a man who suffered sudden cardiac death on a 1995 domestic flight. The widow alleged that United was liable “because it failed to equip its aircraft with certain medical equipment, including an automatic external defibrillator, and because her husband would have survived if the in-flight emergency medical kit had contained such equipment.” (Our italics.) The case recently settled under Pennsylvania’s emergency medical services laws contain “no prohibition or limitation on first-aid efforts performed by lay persons” and sent the case back to a lower court for trial. Most importantly, the court noted that the state’s AED Good Samaritan immunity law makes clear “the legislature intended to make clear that persons performing first-aid efforts in response to an emergency medical kit had contained such equipment.” (Our italics.)

Another case, Florida’s “The Q Sports Club” got sued for damages resulting from failure to have an AED on-site to treat a victim of sudden cardiac arrest. The 42-year-old engineer plaintiff remained in a coma with virtually no brain function. The case settled for $2.25 million.

In another early case, a Florida jury found the Busch Gardens theme park company liable for the death of 13-year-old girl who had collapsed and suffered sudden cardiac death after a roller coaster ride. The court held that Pennsylvania’s emergency medical services laws contain “no prohibition or limitation on first-aid efforts performed by lay persons” and the park failed to have an AED.

In another recent case, a Florida jury awarded $500,000 in damages, in large part because the park failed to have an AED.

A recent target of AED litigation has been the health and fitness club industry. In one case, a tennis club got sued for failing to have an AED on-site to treat a victim of sudden cardiac arrest. Interestingly, the court held that Pennsylvania’s emergency medical services laws contain “no prohibition or limitation on first-aid efforts performed by lay persons” and accorded these persons immunity.” Good Samaritan immunity will likely play a role if the case goes to trial.

In another recent case, Florida’s “The Q Sports Club” got sued for damages resulting from failure to have an AED on-site to treat a victim of sudden cardiac arrest. The 42-year-old engineer plaintiff remains in a coma with virtually no brain function. The case settled for $2.25 million.

All of these cases support my long-held view that certain types of businesses can reduce their negligence liability exposure by adopting AED programs. The notion held by many companies that buying and deploying AEDs increases risk is not borne out in the courts. Moreover, liability risks impacting businesses that implement AED programs can be further reduced by Good Samaritan immunity laws, insurance and indemnification contracts with manufacturers. To sum up, early defibrillation programs are the right thing to do for many business and may offer lower legal risk than going without.

Lazar is a Portland, OR attorney and authority on legal, regulatory and public policy issues of public safety and the law. For references and a copy of Lazar’s “Understanding AED Legal Issues” visit www.early-defib.org.
Starting an AED Program
Ten Steps To Success

1 Establish an AED task force: Gather all potential stakeholders up front and form a task force. At a community level, this means the EMS director, fire chief or training officer, police chief or training officer, corporate leaders, elected officials, and representatives of training organizations, civic groups, senior citizens organizations and the media.

2 Review laws, regulations and advisories: Federal laws and advisories, state laws and sometimes local ordinances all address AED use. All states now have AED laws. They provide immunity from legal liability, but the details vary. Some states require training by nationally recognized organizations, coordination with EMS, medical direction and record keeping; others do not. (See www.early-defib.org for your state law.) The federal Cardiac Arrest Survival Act (addressing AED placement in federal building) provides additional immunity. Other federal actions supporting AEDs include an FAA ruling requiring AEDs on airlines, an OSHA advisory recommending AEDs at the workplace and a GAO report regarding cardiac arrest data collection. Every device on the market has been cleared by the Federal Drug Administration (FDA) as safe and effective. The FDA requires a prescription for anyone who purchases an AED.

3 Conduct a needs assessment: Do you have a weak link in your Chain of Survival? No matter how strong your early defibrillation program is, its overall effectiveness can be undermined if early access, early CPR or early advanced care are not optimal. (For a complete assessment checklist, go to early-defib.org.)

4 Cultivate public awareness: Develop a public awareness campaign, particularly if funding will be needed to support the program. This involves framing the issues, developing a statement of need, promoting media coverage, lobbying local political leaders and identifying and addressing potential obstacles.

5 Estimate program costs: To establish an effective program, plan not only for the cost of the devices but the initial and refresher training, medical direction, program management and quality assurance, maintenance, documentation, media coverage and community-wide CPR training.

6 Seek funding: Sometimes the costs of programs are incorporated into agency budgets. Often, outside funding is needed. There are many sources for AED program funding. Organizations and individuals will be more likely to contribute if your task force either forms a non-profit 501(c3) organization or aligns with one, so that contributions are tax deductible.

7 Establish medical direction: Leadership here is essential. See story opposite page.

8 Select device: There are a variety of AED models on the market with additional products expected soon.

9 Develop a response plan: To reach the victim as quickly as possible with optimum care it’s essential to develop a response plan that integrates community AED programs with the local EMS system. The plan, reviewed with the medical director, should include written policies and procedures for:

- Identification/training of the response team
- Specific roles of team members
- AED placement
- Internal/external (9-1-1) notification systems
- Response system function during operational hours
- Periodic AED drills
- Post-event review and feedback.

10 Conduct training: AED training takes two to four hours, including CPR instruction. Initial courses cost about $50/person. Refresher training, available through on-line programs, should be conducted every three to six months. See the AED Training Network at www.early-defib.org for a trainer near you.

AED Funding

Funds are readily available through many sources. Sometimes a simple letter or phone call does the job; other times it’s helpful to use the Common Grant Application, a single proposal that can be sent to multiple grantmakers. It’s wise to seek funding from multiple sources. Be patient, persistent and positive. As you develop your application, keep in mind the questions that grantmakers will be asking:

- Does the program fit the scope of the foundation?
- Is there a need in the community?
- Is the program unique and creative?
- Is there a realistic budget?
- Can program concepts be applied elsewhere?
- Will the program continue at the end of the grant period?
- Is the organization committed to the program?
- Is there evidence of collaboration?
- Will the organization report on progress?
- Will the program make a difference in the community?

Sources for AED Program Funding

1. Local corporations and corporate foundations. The Medtronic Heart Rescue Program (www.medtronic.com/foundation) provides AED training grants and the Prudential Helping Hearts Program (www.prudential.com/community/hearts) awards grants of $1,000 for AEDs for volunteer EMS squads.

2. Local civic organizations. They include: Elks Clubs (www.elks.org); Kiwanis Clubs (www.kiwanis.org); Lions Clubs (www.lions.org); Rotary Clubs (www.rotary.org).

3. Hospital foundations: Contact area hospital for funding opportunities and/or search the internet using “hospital AND foundations” as key words.


5. Federal government grants. Federal Rural AED Act (Authorized $25 million for rural AED programs; $12.5 million appropriated for FY 02; for info, call 301/443-0835); $1275 would authorize $55 million/year for five years for AED programs; HR 630/S727 would provide funding for CPR training in schools and AED training in schools with existing CPR training programs.

6. State government grants. Pennsylvania grants available for AED placement in schools; Texas grants available through tobacco settlement funds. Additional bills proposing AED funding have been introduced in IL, NJ, OK, PA, RI and VT. Contact your state EMS agency for opportunities in your state.
The Chain of Survival

To increase the chances of resuscitation, a system of care called the Chain of Survival must be in place, so that the following actions occur as quickly as possible:

- early access (call 911)
- early CPR
- early defibrillation
- early advanced care

Early defibrillation is the key factor associated with increased survival rates. AEDs were created to strengthen this link in the chain and have been shown to be remarkably effective, with survival rates as high as 45 percent. Currently, the American Heart Association estimates 250,000 people suffer SCA each year in the United States. Only seven percent survive. If communities could achieve a 20 percent survival rate, as many as 50,000 lives could be saved each year.

Delivering a Shock to the Heart

The AED's internal computer can tell if the heart is in ventricular fibrillation, a treatable condition in which the heart quivers rapidly but does not pump effectively. If the heart is in a treatable rhythm, a shock is delivered. Current models deliver shocks of 150 to 360 joules of energy and can be monophasic, low-dose biphasic or escalating energy biphasic. In monophasic devices, which generally use higher energy levels, the electrical current passes through the heart once. In biphasic devices, which generally use lower energy levels, the current passes through the heart twice.

A Race Against Time

When someone collapses from sudden cardiac arrest (SCA), damage to the brain and vital organs occurs in as little as four minutes if untreated. SCA occurs when a person's heart unexpectedly stops pumping blood. The heart can stop for a variety of reasons but most commonly it is due to a blockage in one of the blood vessels that supplies the heart itself. 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 if it is delivered in the first few minutes after collapse.
Pads Link Patient to AED
Electrode pads attached to the patient provide information to the device about the patient’s heart rhythm. An electric shock delivered through the pads stops the heart from quivering, canceling the deadly rhythm and giving the heart a chance to resume a normal heartbeat. The pads are positioned so the electric current will pass from one pad through the heart to the other.

Responders
Responders may be medical (physicians, nurses, EMS) or public safety personnel (fire, police), but increasingly include security guards, lifeguards, flight attendants, office personnel, fitness center staff, coaches—anyone likely to be on-site when an emergency occurs. The next decade will likely see more AEDs placed in homes of high-risk individuals and an increase in lay citizens seeking training.

Using an AED
If the victim is not showing signs of life, the responder:
1) Attaches the electrode pads to the victim’s chest.
2) Presses the analyze button or allows the device to analyze automatically.
3) Presses the shock button if advised. Sometimes victims do not need to be shocked but do need CPR. It’s important to undergo AED training to understand when to use the AED and when and how to provide CPR.

Training
AEDs are simple, safe and effective—and easy to use with a minimum of training. Two to four hour training programs are provided by organizations such as the American Heart Association, the American Safety and Health Institute, the American Red Cross, EMP International/Medic First Aid and the National Safety Council. The programs teach students how to recognize the signs of sudden cardiac arrest, the importance of quickly calling 911 to access the emergency medical system, how to do CPR (cardiopulmonary resuscitation), and how to operate the AED and care for the patient until professional help arrives.

Illustration by Wainwright Media.
For more information about this illustration contact the National Center for Early Defibrillation at 1-866-AED-INFO or info@early-defib.org.
Cardiac Science Inc.

Cardiac Science, Inc. (Nasdaq NM:DFIB) is a public US company that develops, manufactures and markets unique life-saving bedside cardiac monitor-defibrillator devices, AEDs, and proprietary disposable defibrillator electrodes that monitor and automatically treat patients who suffer life-threatening heart rhythms in hospitals and public areas. The merger of Cardiac Science and Survivalink Corporation, with its biphasic AEDs, will create innovations across the combined product lines, beginning with the new Powerheart® AED. The Powerheart AED incorporates an escalating, variable energy biphasic waveform, demonstrating 100 percent effectiveness in clinical trials. It is the only AED with patented, one-button operation and pre-connected, interchangeable electrodes, making it the easiest AED to use. Its patented RescueReady® feature also makes the Survivalink AED the most reliable and safest AED on the market today. The RescueReady feature ensures that the battery, circuitry and pre-connected electrodes are in working condition and ready for action. It is the only AED with this capability, ensuring first-time, every-time reliability and confidence when treating someone in cardiac arrest.

Laerdal Medical Corporation

Recognized as a global leader in the emergency care community, Laerdal Medical has been a leading manufacturer and provider of basic and advanced life support training solutions and emergency medical equipment for more than 40 years. Over that time, Laerdal’s Resusci® Anne and her family of training manikins have come to be recognized throughout the world and have helped train more than 200,000,000 potential responders in the lifesaving skills of CPR.

As the growth in Public Access Defibrillation creates an increasing need for innovative and effective approaches to train and re-train the many new CPR-D responders, Laerdal continues its legacy as an innovative and high-quality manufacturer with the AED Little Anne™ Training System. The Laerdal AED Trainer 2 with remote control, combined with the AED Little Anne manikin, is the perfect link to realistic, cost-effective CPR-AED training. Now first responders, organizations and communities can learn defibrillation in a realistic, scenario-based training environment that allows the student to practice automated external defibrillation without compromise. In this way, Laerdal’s commitment to Helping Save Lives and the Chain of Survival grows even stronger.
Medical Research Laboratories, Inc.

Buffalo Grove, Illinois based MRL, Inc. (Medical Research Laboratories, Inc.) designs, manufactures and markets sophisticated stand-alone defibrillators, multi-parameter defibrillator / monitors and automated external defibrillators (AED) for the treatment of cardiopulmonary emergency events and SCA (sudden cardiac arrest), a leading cause of death worldwide. Since MRL's first defibrillator was released to market more than 30 years ago, MRL defibrillators have been used to save countless lives worldwide. Advanced defibrillation technologies and intuitive designs help make MRL “the first choice in resuscitation solutions.” All the features of the LifeQuest AED are essential for emergency resuscitation and in “Leading The Quest For Survival.”

When a life is on the line many turn to the MRL LifeQuest™ AED to deliver lifesaving performance - simply and dependably. The advanced MRL LifeQuest AED takes the guesswork and worry out of the event by providing very simple operation. Simplicity combined with concise voice prompts and a large, easy-to-view display are there to guide you throughout the event. MRL LifeQuest Automated External Defibrillator features:

1) Simple operation for quick response and “no-hesitation” resuscitation; 2) Fast charge for immediate response; 3) Compact, Lightweight, Design – only 4.5 pounds. LifeQuest is one of the lightest AEDs available; 4) Automated self-checks and battery status indicator; 5) Direct connect to most commercial printers without the need for dedicated software; 6) Field Upgradeable - helping to reduce cost of ownership; 7) Seamless Data Transfer to the MRL PIC, MRL PIC Rescuer or SmartView Data Management System; 8) Optional Monitoring and Manual Defibrillation capabilities for advanced users.

The LifeQuest AED is part of a complete “MRL AED Solution” which provides all the critical components needed for successful implementation of a PAD (public access defibrillation) program. From medical direction, legal indemnification, site selection, AED maintenance, training from a nationally accredited organization, integration with emergency medical services and the like, the program is designed to take the worry out of implementing the program. With MRL, “You Can Save A Life.”

Medtronic Physio-Control

Nearly 50 years ago Physio-Control pioneered the defibrillation technology that offers hope for the hundreds of thousands of people who experience sudden cardiac arrest each year. Hospitals, emergency medical services, targeted responders, and other trained providers rely on our LIFEPAK® products every day, in the most critical cardiac emergencies and the toughest situations.

Physio-Control joined forces with Medtronic, Inc. in 1998. Medtronic, the world leader in medical technology, provides lifelong solutions for chronic conditions such as heart disease, neurological disorders and vascular illness. One major product, the implantable defibrillator, helps protect patients from future cardiac events, enabling them to return to active and rewarding lives.

Many of our customers want a total, scalable and customizable solution, not just a device, so we offer a full range of services and complementary products that uphold a tireless commitment to quality, innovation, reliability and service. Because we share one passion with our customers—saving more lives.

The LIFEPAK® 500 automated external defibrillator is designed for use by first responders to cardiac emergencies. Intuitive operation makes it the ideal product for infrequent users. Offering the latest ADAPTIV™ biphasic technology, the 500 provides voice and visual prompts that guide users through operation. Preconnected QUIK-COMBO™ disposable defibrillation electrodes help save valuable time on-scene, and are compatible with the LIFEPAK products used by many U.S. emergency medical services. At only seven pounds, the LIFEPAK 500 AED is extremely portable. Automatic self-testing and an always-visible readiness display help ensure the device is ready to go.
Philips Medical Systems

Philips Medical Systems delivers a robust portfolio of medical systems for faster and more accurate diagnosis and treatment, including best-in-class technologies in general imaging and cardiac ultrasound, X-ray, CT, MR, nuclear medicine, catherization labs, patient monitoring and resuscitation, as well as information technology solutions that address your needs in a wide variety of clinical domains.

Philips Medical Systems is a customer-centric organization comprised of 17,800 people, 12 manufacturing sites, sales and service operations in 63 countries, and representatives serving more than 100 countries, to meet the product, service, educational and financial needs of its customers world-wide.

Philips resuscitation products, from our multi-function manual defibrillators to our easy-to-use AEDs, are designed and manufactured to enable caregivers to administer the best available treatment easily and effectively.

As breakthroughs in defibrillator technology, along with heightened public awareness of the prevalence of sudden cardiac arrest, broaden the demand for defibrillators by non-traditional users such as citizen responders, we respond with expert service and support. For example, Philips facilitates the efforts of those individuals and organizations planning and implementing Public Access Defibrillation (PAD) and Community Early Defibrillation programs so that emergency cardiac care is readily available in the places where we work, live and play. Our clinical specialists and consultants have helped launch several community programs, placing AEDs in office buildings, shopping malls, sports and recreation facilities, transportation terminals, and in the vehicles of public safety providers. Running on a mainte-

Heartstream FR2 automated external defibrillator

Heartstream FR2 is designed for long life and high-volume use. This lightweight, rugged and easy-to-use AED enables police officers, firefighters, EMS providers, and trained citizen responders to quickly begin treatment upon reaching an SCA victim. On-screen text prompts and easy to follow voice prompts guide caregivers through Heartstream FR2’s intuitive 1-2-3 operation. The FR2 features Philips’ patented SMART Biphasic waveform and the SMART Analysis™ system, which determines if a shock is required and protects against inappropriate shock delivery. The FR2 is also the first AED to be cleared for use on adults and children of any age. The FR2’s pediatric defibrillation pads reduce the AED’s delivered shock from 150 to 50 joules, and can be safely applied to infants and children.

Zoll Medical Corporation

ZOLL Medical manufactures automated and manual external defibrillators for all segments of the resuscitation market. Founded in 1982 by the late Paul M. Zoll MD, Professor of Medicine at Harvard University and “father of modern cardiac electrophysiology,” the organization has rapidly grown to become one of the leading companies in the area of defibrillation and external cardiac pacing. Its products are used by health care professionals and other emergency care responders throughout the world. Current sales exceed $100 million dollars and ZOLL employs more than 400 individuals in research, development, production, sales, marketing and support. It was recently named one of America’s 100 Fastest Growing Companies by Forbes Magazine.

ZOLL has designed and manufactured automated external defibrillators since 1995 focusing on combined manual and automated devices for physicians, nurses, paramedics and EMTs. In 1999 the company completed development and began sales of a unique new low energy rectilinear biphasic waveform in its devices. This new waveform is the only biphasic waveform with FDA approved superiority claims over conventional monophasic waveforms. It has demonstrated superior performance in high impedance patients in ventricular fibrillation, defibrillating some patients at low energies that monophasic devices were unable to convert with outputs as high as 360 joules. Recently the company announced development of a new automated external defibrillator, AED Plus™, specifically designed for the infrequent user, first responder and public access programs. The device provides a graphical interface incorporating all aspects of a rescue, a simplified one piece electrode, feedback on CPR rate and compression depth, and operates from consumer lithium batteries. FDA 510K clearance is expected in early 2002.
The Power of One
Leadership through Passion, Persistence

T

he photos of 24 sur-

vivors of sudden car-
diac arrest grace the
cover of this special sup-
lement. Their life—and death—
stories are as rich and varied as
the people who saved them:
Chief Lee Donohue, 57, of the
Honolulu Police Department,
saved by his own officers after
championing AEDs for his department;
Sean Morley, 13, saved by the quick pres-
ence of the Deerefield, Illinois Police
Department, after his heart stopped when a
baseball struck his chest; Christine
Hammond, 53, saved because of a remark-
able program that uses security personnel at
Bally’s Casino in Las Vegas. They repre-
sent the fortunate seven percent, the current
national average for survival from sudden
cardiac arrest. The Chain of Survival in
their communities was strong, with early
defibrillation quickly available. But statis-
tics reveal that for every survivor pictured
on the cover there are 15 people who were
not saved, 15 families who mourn. What
will it take to reach more victims with the
life-saving treatment of defibrillation
quickly enough to make a difference?
Sometimes, all it takes is one person—a
passionate, persistent person—to transform
a community.

Jay Frederick, of Columbus, Indiana, is
one such community champion. As a
detective with the Bartholomew County
Sheriff Department Frederick learned of the
lifesaving potential of AEDs. He
approached the sheriff about getting
devices for all patrol cars. “He said if I
could get the funding, I should just go for
it,” said Frederick, and so he
did. He approached leaders
from the police department, sheriff department, fire
department and the hospital-
ated ambulance service
vice to form a community
action task force. “It was
easy to get their support,”
said Frederick. “Once you
know what AEDs can do, it’s kind of hard
to think it’s a bad idea.” They formed a non-
profit organization, Bartholomew County
(BC) HeartSavers, Inc., making donations
tax deductible, critical for fundraising.
They launched a website (www.bcheart
savers.org) along with a PR campaign
which gained extensive media coverage.

A widow presented the first donation,
explaining she didn’t have much, but want-
ed to contribute to a cause she considered
important. It was followed by generous
donations from local civic organizations,
area residents and businesses. In two years
the group raised $100,000, enough to train
61 deputies and equip all road patrolmen,
seven volunteer fire departments and the
town marshall.

On November 1, 2000, Wayne
Fleetwood, 56, pictured on our cover,
became the first save from the program,
after collapsing in his home. Sgt. T.A.
Smith, an 18-year veteran of the BC Sheriff
Department, was first on the scene and used
his new AED to deliver the lifesaving
shock. As his wife and daughter looked on,
Fleetwood regained consciousness. When
paramedics arrived, he was alert and talk-
ing. Just days later he went home from the
hospital.

Project Heartbeat
One-Stop Shopping
in San Diego

A highly publicized save on the golf course
at La Jolla Country Club in San Diego in
March 2001 sent the message home that
AEDs save lives. It came just nine months
after the club purchased a device and
trained several staffers. The 75-year-old
patient fully recovered and in a bit of under-
statement his wife told the local newspaper
that the purchase of the AED was “well
worth the investment.”

Paramedic Kevin Lyon of the San Diego
Fire and Life Safety Service agrees. He’s a
vigorous champion of the AED effort here
and his informal role just became official.
He was recently made Public Access
Defibrillation Coordinator for Project
Heartbeat, the community AED consortium
that represents the San Diego Fire
Department, Rural Metro Ambulance
Service, the city, the county and the AHA.
Project Heartbeat negotiated a marketing
agreement with Cardiac Science Inc, a
defibrillator manufacturer, allowing users to
purchase a device at a highly discounted
price. In addition, the manufacturer also
agreed to provide $100,000 in funding to
help pay for Lyon’s position and to support
the marketing arm of the consortium, called
the Metropolitan Marketing Partnership
Program. Now any group in San Diego
County that wants an AED, training and
medical direction can come to them for
one-stop shopping. Lyon estimates that
each AED unit, including training, would
have cost $3,500. Purchases through
Metropolitan Marketing brings that cost
down to $2,140. “Plus,” says Lyon, “Once
225 units are purchased, $100 from each
additional unit sold goes back to Project
Heartbeat to offset training costs.”

Their goal is to raise $650,000 to estab-
lish programs in city buildings and business
centers. One city councilman allocated
$100,000 from funds he controls to pur-
chase 40 units for parks, libraries, senior
centers and public pools (and challenged
other council members to do the same). The
San Diego County Supervisors gave
$250,000 from tobacco funds to purchase
100 units for public health buildings, coun-
ty courts, and purchased $100 from each
additional unit sold. In all, 400 devices are
now in the county.

Their next goal is to purchase 100
AEDs for the city of Oceanside, which is
working with Lyon to train firefighters,
paramedics and other public safety
personnel in all 14 fire stations.

One-Stop Shopping
Project Heartbeat
San Diego

“Community AED Champions” Forum Debut
September 2002 Event to Feature Best Practices in Implementation
The National Center for Early Defibrillation in cooperation with the Citizen CPR Foundation is spon-
soring a special forum highlighting the work of early defibrillation champions in the community,
to be held on September 5th at a pre-conference workshop prior to the Emergency Cardiovascular
Care Update in Washington, D.C. The event will feature “best practices” from community programs
and provide a forum for AED advocates to share tips for success. There will be presentations from
selected model programs and NCED will present awards for “Achieving Excellence in AED
Response.” For more information on attending, presenting or award nominations see www.early-
defib.org or call 1-866-AED-INFO. Information on the ECCU conference September 5th-8th, spon-
sored by the Citizen CPR Foundation, can be found at www.citizencpr.org.
Deployment Guide

Where's the best spot to place an AED? The National Center for Early Defibrillation created a comprehensive and practical guide. Here's a summary:

Are some locations at higher risk?
The on-going multi-site clinical trial called the Public Access to Defibrillation Study is designed to provide this answer. In the meantime, research indicates SCA occurs most often in the home—thus, the increasing interest in AED placement in the homes of high-risk individuals. When SCA occurs in public places, it is often a singular, isolated event, making it difficult to predict types of high-risk locations and supporting a focus on first responder defibrillation. Despite this, research shows a higher incidence in airports, golf courses, gyms, private businesses, large industrial sites or shopping malls, sports events, nursing homes and other places where high-risk people gather or live.

Should AEDs be placed at this site?
If you can answer “yes” to one or more of the questions below, an on-site program should be strongly considered:
1) Is it unlikely that the existing EMS system would be able to reliably achieve a “call-to-shock” interval of five minutes or less at this site?
2) Has an SCA incident occurred at this site in the past five years and have the demographics of the population served by this site remained constant?
3) Do 10,000 or more persons regularly gather at this location?
4) Does this site have a large concentration of persons over 50 years old?
5) Is there a high probability of SCA at this site? (See formula at http://www.early-defib.org.)

Where at the site is the ideal spot?
AEDs should be placed in easily accessible, well-marked locations, near telephones, fire extinguishers, exits, elevator or on the wall in a front lobby. Consider using mobile units (e.g., golf carts) when available. Ideally, AEDs should be located so that the response interval (time from collapse to arrival of the AED) is no more than three minutes and the call-to-shock interval (the time it takes responders to be notified, access the device, reach the victim, apply the electrodes and deliver the first shock) is no more than five minutes.

Is AED placement enough?
No. It's critical to identify a medical director coordinate with local EMS, develop an on-site AED response plan, train designated responders and conduct periodic AED response drills.

To Download the Complete Guide:
http://www.early-defib.org

Kansas City Aspires to be Nation’s Model

M arcia McCoy, Community Coordinator with the Mid America Heart Institute, working with David M. Steinhaus, MD, launched a comprehensive AED program after a community assessment showed 96 percent of those surveyed did not understand the treatment options for sudden cardiac arrest. With initial funding provided by a grant from The Medtronic Foundation, she worked hard to build consensus for an AED program, drawing support from business leaders, the mayor, the media and EMS. Her vision is no less than to make her city’s “Heart Safe Community” program a model for the nation. Her recommendations to other aspiring champions:

✔ First explore the legal and political climate; address potential obstacles as you identify and cultivate key relationships.
✔ Spend the time to educate all team members—building and energizing the internal team is key.
✔ Be creative in seeking funding opportunities.
✔ Build public awareness; one way to draw attention is to donate an AED in a media event involving political leaders.

For more information on Kansas City’s program, you can reach Marcia McCoy at the Mid America Heart Institute at 816/932-5784; email: mmccoy@saintlukes.org.

The Power of One continued from s-13

Like most community champions, Frederick does not like to be singled out and is quick to credit others. Frederick, now with the Columbus Police Department and a volunteer firefighter, says the rewards for his efforts come from seeing survivors able to enjoy the small pleasures of life, like the time he was invited to the Fleetwood home for cake and ice cream—on the one-year anniversary of Wayne’s new life.

There are many such community champions...Dr. Leon Anderson in Lancaster, Pennsylvania, who overcame initial skepticism among police in his area (“we’re not doctors”) to launch a highly successful and popular program there...Vincent Jones, III, emergency management coordinator in Atlantic County, New Jersey, who worked with a variety of police, medical and political partners to train more than 1,110 police officers in the use of AEDs and provide at no cost two defibrillators for every patrol unit in their county...Dr. Ed Racht, EMS Director in Austin, Texas who promoted the use of AEDs and already has seen four saves at the airport there, (including his colleague Gary Terry—pictured on the cover—former chair of the Texas Affiliate of the American Heart Association, who worked for the placement of AEDs in public places in Texas)...Susie Martenson, RN and Dr. Pat Tinker, a cardiologist with the Blue Stem Medical Clinic, who created one of the earliest public access programs in Bartlesville, Oklahoma...Wayne Currie, who’s taken AED implementation to new levels with an innovative neighborhood watch program in Windsor, Ontario...Scott Ben and Chief Lamonte Wilson, who led efforts for AED placement at Pittsburgh International Airport and saw the program produce two saves within three months of deployment...Dr. David Persse, EMS director, in Houston, a persistent champion for integrating the community’s AED program with the EMS system...Dr. Randall Wolff of Palm Beach County Florida, whose passion resulted in AEDs throughout his community and in one third of the high schools there...Richard Hardman, PhD, EMT-P, EMS coordinator for the Clark County (NV) Fire Department, whose efforts resulted in AED placement in casinos throughout Clark County, including Las Vegas, and the training of thousands of security guards with dozens of saves.

This list goes on—and continues to grow. New champions are emerging every day to find new ways to spread a simple message: Sudden cardiac arrest kills far too many. There is a simple cure. Let us tell you about AEDs.

Keith Griffiths is the founding editor of JEMS (Journal of Emergency Medical Services) and has been an observer of the emergency care scene for 25 years. He is a senior partner with KGB Media, LLC, a public safety consulting and publishing firm and serves as advisor on several boards, including the National Academies of Emergency Dispatch and the National Center for Early Defibrillation. Mary Newman and Rick Minerd contributed to this report.
From Pantridge to Smith, Jones and You

I
n 1967 in Belfast, Northern Ireland, Dr. Frank Pantridge became the first to show that victims of sudden cardiac death could be successfully resuscitated outside of the hospital environment. He did so by initiating a unique program that sent an ambulance staffed with a resuscitation team to the scene of those suffering chest pain. An AC defibrillator, powered by two 12-volt car batteries using a converted static inverter, weighed 150 pounds and was mounted in the ambulance. The first ten patients suffering cardiac arrest while in this experimental vehicle were all successfully resuscitated. As the project continued and greater numbers were available for study, the Belfast investigators took note that the time it took from onset of cardiac arrest to first defibrillation attempt was the single most significant factor in determining a successful resuscitation.

The innovative Belfast program was the catalyst for the development of ALS systems throughout the United States. But despite this legacy, over the past three decades EMS systems have struggled to optimize sudden cardiac arrest survival rates. The national average remains well below ten percent and in many large cities below two percent. The advent of automatic defibrillators provided a potential solution. The new technology allowed defibrillation to be performed by a wide variety of individuals with diverse backgrounds and training. First EMT-Ps, then firefighters and now police have all shown they can improve sudden cardiac arrest survival rates using well-designed systems. More recently, improved survival rates on airlines and in casinos demonstrate that non-traditional responders can be effective. All the successful programs reconfirm Pantridge’s original observation: time to defibrillation is the most important factor in improving save rates.

What’s next? Since the majority of cardiac arrests occur in the home, the obvious new frontier is home defibrillation. As defibrillators become smaller, less expensive and even easier to use, the once futuristic idea of having defibrillators as common as fire extinguishers is no longer idle fantasy.

The initial programs in home defibrillation actually began more than 15 years ago. In 1985 Mickey Eisenberg, MD, PhD, renowned researcher from the University of Washington, wrote an editorial “Automatic External Defibrillation: Bringing It Home.” In this editorial and a subsequent one published in 2000, he raised many insightful questions. He concluded his 1985 editorial by asking “Will this sort of defibrillation be in the hands of everyone, or will only a few wield its power?” Small, easy-to-use automatic defibrillators will soon rival the cost of home computers. And just as it becomes increasingly rare to find a household without a computer, eventually it may be equally difficult to find a household that does not consider a defibrillator a basic first-aid tool—no less important than a smoke detector or fire extinguisher.

We know with certainty that defibrillators save lives when properly applied soon after the onset of ventricular fibrillation. There are still important academic questions to be answered with evidence-based research: What is the cost-benefit ratio compared to other health interventions? How do we optimize training, education, and continuing education? What locations and methods of deployment bring the greatest benefits at the lowest cost?

But with or without additional research, market forces and media attention are already prompting adoption of this new, exciting technology. Individuals can now buy a defibrillator online and they will soon become available at your local discount store. Commercial messages espousing their value are starting to appear in targeted markets and will begin to proliferate, particularly as the emergence of less expensive units make personal defibrillators an affordable option. It’s conceivable that many individuals will own their own defibrillator before these devices become routinely available at shopping malls, restaurants, churches, physicians’ offices, health clubs, golf courses and other high-risk locations. While academic issues are debated, the next frontier is clear. What started from the ideas of Pantridge will soon be adopted by the Smiths, the Joneses—and perhaps you.

As teacher, researcher, author and clinician, Dr. Paris has set the precedent for advancing emergency medicine through research, education, quality patient care and administrative leadership. He is the Chairman of the Department of Emergency Medicine, University of Pittsburgh School of Medicine.

For the references to this article, NCED’s position paper on home defibrillation and a report on a recent panel discussion on the topic featuring top experts in the field, visit www.early-defib.org.
The Life You Save ...

Supported by educational grants from the following companies

[Images of logos for different companies]

Police LT. Mark Vollmar, 45
Saved January 31, 1998
On public street
Delaware County (IN)
Sheriff Department

Trapper John Lauck, 51
Saved July 5, 2001
At police barracks
Greensburg (PA)
Pennsylvania State Police

Abdulwahab Mohamad, 48
Saved July 17, 2000
At fitness center
Martinsville (IN)
Phelps Petroleum AED Team

Rollis McDaniel, 76
Saved July 8, 1998
In restaurant
Shelby County (IN)
EMS

James Seder, MD, 51
Saved November 1, 2000
At home
Batholomew County (IN)
Sheriff Department

Wayne Fleetwood, 56
Saved January 4, 1999
At local home store
Austin (TX)
EMS

Dolores Lamana, 70
Saved April 5, 1993
At home
Baldwin Borough (PA)
Police Department

Gary Terry, 54
Saved March 19, 2001
At Austin (TX) Bergstrom
International Airport
Airport security

John Delorso, 67
Saved May 23, 2001
On public street
Chartiers Township (PA)
Police department

Henry Sibbling, 57
Saved January 24, 2001
In student union building
University of Wisconsin
(Whitewater) Campus Police

Barbara Tibbitts, 71
Saved November 22, 1999
In parking lot
Sun City West (AZ)
EMS

Terry Artman, 54
Saved November 6, 2001
At school
Glenbard High School (IL)
AED response team

Wayne Fleetwood, 56
Saved November 1, 2000
At home
Batholomew County (IN)
Sheriff Department

James Seder, MD, 51
Saved January 4, 1999
At health club
Westborough (MA)
Fire Department

Joe Meyer, 72
Saved February 26, 2001
In municipal building
Adams Township (PA)
Police Department

Julie Lyckand, 52
Saved February 6, 1998
At restaurant
Suffolk County (NY)
Police Department

Sebastian Hillig, 29
 Saved October 20, 1996
At health club
Los Angeles (CA)
F.D. Rescue (Venice)

H. Woodruff Turner, 55
Saved January 3, 1998
While fighting house fire
(volunteer firefighter)
Forswall (PA) EMS

Julie Lyckand, 52
Saved February 6, 1998
At restaurant
Suffolk County (NY)
Police Department

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