



Saving Lives on Rail

Automated external defibrillators are used by airlines and in airports to help save lives during sudden cardiac arrest. Frances Penwill-Cook looks at how, following some key deployments, the technology is saving lives within rail.

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Last year Defibtech's vice president Greg Slusser announced that making his company's Lifeline automated external defibrillators (AEDs) accessible in public venues would provide the greatest benefit to sudden cardiac arrest (SCA) victims. Since then Defibtech's Lifeline has been deployed onto public commuter trains in the US and is now reaching out to Europe since laws are being passed to encourage the use of AEDs.

In this Q&A Frances Penwill-Cook catches up with Slusser to find out why the Lifeline model is so popular, how effective it is for deployment has been across the US and Europe and where the company is headed next.

Frances Penwill-Cook: Are there figures and case studies to prove how effective AEDs are on public transport?

"Estimates say that AEDs save 10,000 to 15,000 lives per year in the US alone."

Greg Slusser: It's difficult to add up the thousands of life saves with AEDs into one number, with reports of these saves coming from many different sources. However, Chris Chiames, executive director of the Sudden Cardiac Arrest Association, estimates that AEDs save 10,000 to 15,000 lives per year in the US alone. Also, if you enter "AED saves" into a Google search, page after page of stories about people saved with AEDs will appear.

For example, just weeks after deploying AEDs on Boston area commuter rail trains and stations, three Good Samaritan rescuers in Boston used a Defibtech AED to save the life of a man who collapsed from SCA at the North Station rail platform.

A number of studies have documented the benefits of community-wide AED programmes that have dramatically increased SCA survival rates in US cities. With the national survival rate for SCA at less than 5%, the cities of Seattle, Washington and Rochester, Minnesota, have been able to increase their survival rates to 46%. The single biggest factor in each case is improved "time to shock" through widely deployed and accessible AEDs.

Airlines and airports were the pioneers of AED deployment and have the most impressive life save statistics. As trains and other transport modes begin to match the deployment history of airlines, similar life save statistics are expected.

Perhaps the best example of lives saved with AEDs on public transportation is the experience of American Airlines, which reported 76 life saves between 1997 and 2007. In addition, 36 lives were saved in Chicago airports between 2000 and 2006, and the Phoenix Sky Harbor International Airport reported 20 life saves using AEDs between 2000 and 2008.



Sue Kastenson conducts a training session using the Defibtech AED for cardiac arrest with the Trans International response team.



Deployment of the Defibtech AED could save many more lives, saving those who suffer a sudden cardiac arrest.

FP-C: What do you know about the future locations that will embrace AEDs on public transport in the US and Europe?

GS: Laws encouraging or mandating the placement of AEDs in public transportation areas are being passed across Europe. Defibtech is now deploying 65 units at Madrid's Barajas airport, which serves 50 million travellers a year, and has placed more than 50 AEDs in airports throughout France.

The Madrid deployment also will involve the AED/CPR training of up to 700 staff and a sophisticated, computer-aided maintenance system. Defibtech also has equipped Martek UK with 250 AEDs for use on commercial vessels around the world and the SNCF train system in France with 50 training AEDs. Ferry boats connecting Italy with Corsica and Sardinia also have Defibtech AEDs.

"All Good Samaritan laws have helped mitigate liability fears and have greatly aided in AED adoption."



US Senator Susan Collins (Maine) announces the donation of 25 AEDs by Defibtech to the state of Maine. Defibtech CEO, Dr Glenn W Laub, is on her right.

FP-C: What needs to change in the Good Samaritan laws in certain states to give people the confidence to save lives?

GS: Good Samaritan laws should protect untrained users in all states, not just some jurisdictions. These laws were originally instituted to protect individuals who act in good faith to save a life. In some states, however, in an attempt to encourage AED/CPR training, lawmakers decided to protect only rescuers who have received this training, not all rescuers.

While Defibtech recognises the value of this training, we also have created an AED that untrained users will find easy to use in a rescue situation. Lawmakers should not be promoting AED/CPR training within the context of a law that in any way discourages the involvement of untrained rescuers.

Nonetheless, I can say with confidence that all Good Samaritan laws have helped mitigate liability fears and have greatly aided in AED adoption. As a result, courts in several jurisdictions have recognised AEDs as a required "standard of care" in many public settings, and the legal tides have shifted so that you may be potentially liable for not having an AED.

FP-C: Is there the same fear of being sued in Europe, or is there a different mentality?

"The Defibtech AED has audible voice prompts that speak instructions to the user, guiding him or her through a rescue."

GS: In almost all cases, people do the right thing in an emergency situation. They try to help the victim. That's true all over the world. Having said that, European civil law systems generally recognise a more extensive duty to rescue than laws in the US. In Europe, you have a general duty to help a person in peril while in the US, you don't.

However, in both Europe and the US, we see organisations carefully considering the legal ramifications of AED deployment prior to committing to implementation. We advise these organisations to properly train staff and maintain the AEDs to avoid potential legal pitfalls. Organisations also understand that there are legal risks to not deploying AEDs.

FP-C: Why is Defibtech's Lifeline AED the choice of train and other public transport bodies?

GS: Mainly for its ease of use, affordability and durability. Because of the nature of public transportation, with millions of people passing through large stations and airports each day, the chances of an AED being used by a bystander or Good Samaritan are high. As most people haven't received AED/CPR training, it's important that the AEDs are extremely simple to use. The Defibtech AED has audible voice prompts that literally speak instructions to the user, guiding him or her through a rescue.



The impressive life save statistics from using AEDs on airlines has prompted their installation on other means of transport.

In addition, adequately equipping large train stations and airports with AEDs often requires the purchase of a large number of these devices. With a price per unit of less than \$1,500, the Defibtech AED makes the purchase of many units more affordable - and they are built to last. Not only do they meet US military "shock and drop" specifications, they can be easily updated with new software as researchers gain insights into SCA and resuscitation techniques. This feature enables Defibtech AEDs to stay current with new guidelines and reduces maintenance costs.



The Defibtech AED is easy for the general public to use, affordable and durable, making it an ideal solution for use on rail.

FP-C: What does the training involve?

GS: AED/CPR training involves learning how to operate an AED and to provide cardiopulmonary resuscitation (CPR), with participants rehearsing on mannequins. Training focuses on the four-step "chain of survival": calling 911, early CPR, early AED treatment and early advance care.

Training focuses on the importance of teamwork. For example, while one rescuer is getting the AED, another can begin administering CPR while another can be calling 911. AED CPR trainers also acquaint individuals with Good Samaritan laws that protect first responders from liability in emergency situations.

FP-C: What other markets (public access or otherwise) does Defibtech have its sights set on for the future?

GS: Evidence is accumulating that AEDs can be used more effectively than crash carts to save SCA victims in hospitals and other medical environments. For example, if a patient in a hospital room suffers SCA, staff working near that room can use an AED to defibrillate the victim faster than waiting for a crash cart team to arrive from another part of the hospital.

Defibtech sees clinical settings being more receptive to AEDs, especially as they begin to have advanced life support (ALS) functions. Another large market is the private sector workplace. Many employers want to do all they can to rescue employees who may suffer SCA.

"Our scheme increases the chances that an AED will be available and used successfully in an emergency."

FP-C: How does Defibtech stay ahead of its competition in this incredibly competitive market?

GS: As I stated earlier: technical innovation, ease of use, affordability and durability. Customers want an AED that's very easy to use at a fair price. They also don't want to have to replace them every few years. The Lifeline is the only unit on the market that fits well in all deployment settings - from basic life support response vehicles, to hospitals and finally to all public and private deployments. Our scheme increases the chances that an AED will be available and used successfully in an emergency.