



County equips volunteer firefighters with AEDs

Shenandoah County Fire & Rescue, Woodstock, Virginia

Challenge

A sprawling geography, a growing population, and an ever-increasing number of emergency medical-related calls had a county fire and rescue agency searching for ways to maintain its commitment to serve and protect the people.

Solution

Expand EMS services and shorten response times by convincing volunteer firefighters to carry and use Automated External Defibrillators (AEDs) as part of their first responder responsibilities.

Nestled against the backdrop of the Allegheny and Blue Ridge Mountains, Virginia's Shenandoah County covers 512 square miles. More than 40,000 residents call the quaint towns and unincorporated communities that dot the rural landscape home. As with most of the state, county residents are served by volunteer fire and rescue squads, adding to the small-town, neighbor-helping-neighbor feel. "We take our commitment to serve and protect our citizens seriously," says Tim Williams, Operations Chief with Shenandoah County Fire and Rescue (SCFR). "When we saw an upward trend in the number of medical emergency-related calls that were coming in, we knew we had to act fast."

Revising protocol

In 2005, SCFR went from an all-volunteer staff to a combination volunteer-career system where paid professionals augment volunteer staff to better serve citizens. Five years later, it was time for another change. "As we examined the correlation between our sprawling geography, a growing population and an ever-increasing Emergency Medical Services (EMS) call volume, we knew we needed to expand our reach and shorten our response time. We realized that in order to meet our goal, we would need to augment our existing EMS teams by enlisting the help of our volunteer fire suppression units in the towns that had the highest call volumes." Tim continues, "Our strategy was to equip them with Basic

Life Support (BLS) equipment, including Automated External Defibrillators (AEDs) so that they would be true first responders in case the ambulance and paramedics were tied up on another call or too far away to arrive on scene in a timely manner."

Tim approached the volunteer fire department officials in Woodstock, Edinburg, and Strasburg, the communities that were experiencing the greatest increase in EMS calls and the longest response times, to see if they would allow their volunteer firefighters to field EMS calls within their region and to carry AEDs. "There was initial concern from Edinburg, Strasburg, and Woodstock," says Tim, "so I decided to meet with the volunteers in order to hear their worries first hand."

Changing mindsets

"We were really concerned about the added responsibility and pressure this would put on our volunteers," says Jordan Highland, an EMT-E/Firefighter with SCFR and a volunteer with Woodstock Fire Department. "In addition to the extra training and certification required to deploy an AED, there was the issue of purchasing, licensing and maintaining the equipment."

Jordan says the Woodstock volunteers were also anxious about the expectation of responding to the 2,700-plus calls per year that come in. "It seemed like a huge burden

PHILIPS
sense and simplicity

“When we saw an upward trend in the number of medical emergency-related calls that were coming in, we knew we had to act fast.”

Tim Williams, Operations Chief for Shenandoah County Fire and Rescue, Woodstock, Virginia

for our firefighters to take on; they weren't so sure that they wanted to be involved on the EMS side of the equation.”

Doug Miller, Assistant Chief with the Strasburg Volunteer Fire Department, says his firefighters voiced similar concerns.

“Their initial reluctance stemmed from a misunderstanding that they would be required to respond to all EMS calls, not just cardiac events. Strasburg Fire also has a wide range of expertise on our staff, from seasoned career firefighters/paramedics to recently trained folks certified in CPR only. The volunteers with the least experience were apprehensive about learning another skill set. However, once Tim demonstrated the user-friendly nature of the Philips AED and the rest of his plan, all fears were put to rest.”

Tim says the open dialogue with the volunteers really opened his eyes. “It would be hard for a fire suppression service in Virginia to become a licensed EMS provider on its own so SCFR extended its umbrella to the three volunteer fire services. We agreed to purchase, license, and maintain the AEDs and provide the other EMS equipment the three fire agencies would need to meet Virginia's first responder requirements.” Tim continues, “We also agreed that the firefighters could decide whether or not they wanted to respond to any or all of the EMS calls within their district based on the availability of credentialed personnel.” Tim says that, in return, the volunteers would need to be certified in CPR and AED use and assign someone to periodically check the AED battery. “Ultimately, all three fire agencies stepped up to the plate.”

I thought he had tripped over a chair

Cindy Stultz watched in shock as friends performed CPR on her friend, Wayne Rinker. “Wayne and I were at the Woodstock American Legion Hall attending a benefit dance for one of our friends,” recalls Cindy. “We had just finished dancing and were on our way back to our table; I was a few steps ahead of him when I heard a crash. I turned around and saw Wayne lying face down on the floor. I thought he had tripped over a chair.”

Lynn Foley was standing nearby when she heard the commotion. “It sounded like someone had kicked over a bunch of chairs. And then I heard someone calling Wayne's name. I ran over to see if he needed help.” Lynn, a Licensed Practical Nurse (LPN), says she could see blood pooling around Wayne's head so she turned him over – that's when she knew he was in trouble. “Wayne wasn't breathing and I couldn't find a pulse. I started CPR, along with two other ladies. They took turns doing chest compressions; I did rescue breathing.” Wayne Rinker was in Sudden Cardiac Arrest (SCA).

While Lynn and her team performed CPR, Danny Funkhouser, an EMT-B/ Firefighter with Shenandoah County Fire Department (SCFD), Woodstock, VA, and also a volunteer with the Woodstock Volunteer Fire Department, was driving Rescue Engine 12 when the 9-1-1 ring tones came over the radio. “We were just coming off a motor vehicle accident outside of town when dispatch reported a cardiac arrest,” recalls Danny. Our ambulance and volunteer EMS providers were en route to the hospital with the car accident victim. The Shenandoah County Fire and Rescue ambulance was at least 10 minutes away. We knew the call was in our hands.”

Two minutes later, Danny and his crew arrived at the American Legion Hall. “Bystander CPR was in progress,” says Danny. “The victim was unresponsive;

we couldn't find a pulse and he was not breathing. We opened the AED case, turned it on, and placed the pads on the victim's chest. The AED went into analyze mode and then indicated 'shock advised'. We delivered the shock. We couldn't find a pulse and Mr. Rinker wasn't breathing. We performed another round of CPR. Ultimately, the AED delivered three shocks before we found a pulse.” According to Danny, it took the county ambulance approximately 10 minutes to arrive on scene.

In total, Wayne received six life-saving shocks from an AED, including two at the local emergency department and one during transport to another hospital equipped to provide more specialized care. “I don't remember anything about that evening at the benefit or the first week or so that I was in the hospital,” says Wayne. “The cardiologist told me that a blockage in one of my arteries had caused the fatal arrhythmia.” Wayne continues, “She also told me that I was one of a handful of people who survive SCA with no brain damage. She says I owe it to quality CPR and the quick use of an AED.”

“I've been a nurse for 30 years, and this is the first time I've ever had to rely on my CPR skills,” says Lynn. “I have no doubt that CPR combined with the shocks from the AED saved Wayne's life that night.” Danny agrees, “It was truly a team effort. However, if we had not had that AED with us that night, Mr. Rinker would not be here today.”

As for Wayne, a stonemason and bricklayer by trade, he's back to work and enjoying a newfound passion for gardening. His friends recently organized a celebration of life benefit for him, with proceeds going to the American Heart Association. “The best thing that has come out of this ordeal is that it has made casual acquaintances friends and has brought close friends even closer.



During its 2nd Annual Heroes Reception, the Shenandoah County Chapter of the American Red Cross honored Woodstock Volunteer Fire Department's Rescue Engine 12 first responders with the Firefighter Hero award for their actions which helped save the life of Wayne Rinker, a Woodstock resident who suffered Sudden Cardiac Arrest on February 20, 2010. Honorees include, left to right, John Redman, Kelly Dykes, Wayne Rinker, Adam Bowers, Jordan Highland, Aaron Bowers, and Danny Funkhouser.

Securing funds

Because SCFR is a government agency, traditional fundraising events to cover the cost of the AEDs and BLS equipment were out of the question. "Our main source of funding comes from our taxpayers," notes Tim. "We also apply for grants as they become available." In this particular case, Tim applied for and received a grant from Virginia's Office of Emergency Medical Services Assistance (OEMS) Grant Program. "The grant process was competitive and needs-based," says Tim. "We were thrilled to discover that OEMS, through its Rescue Squad Assistance Fund, would cover the purchase of eight AEDs and the required BLS equipment for our three fire agencies."

Making the choice

With funds in hand and buy-in from the volunteer firefighters, Tim considered a number of AED vendors. Philips was the clear choice. "We chose the Philips HeartStart FRx AED for two reasons," says Tim. "Our volunteer fire and rescue personnel have varying levels of experience and skills. The FRx is extremely easy to operate. Once you open the case, turn it on, and apply the pads, the voice coaching walks



Lynn Foley credits effective CPR and early defibrillation as the reasons her friend Wayne Rinker survived sudden cardiac arrest. "He's been given a second chance and is making every moment count," says Lynn (R), pictured here with Wayne (C), Ginger Meadows (L), and Sheila Strosnider, his cardiac rehabilitation therapist.

you through the entire process. Secondly, most of the county's ALS providers and EMS transport agencies use the Philips HeartStart MRx ALS Monitor/Defibrillator."

According to Tim, the MRx units were purchased a couple of years prior to the purchase of the Philips HeartStart FRx AEDs. "We had an aging fleet of competitive ALS monitors on the two county staffed ALS trucks as well as two county owned EMS transport units. As we considered ALS monitor options, our medical director suggested that we look at the MRx units – we're happy we followed his advice," says Tim. "The 12-lead technology, ease of use, and long battery life helped seal the deal. Today, the familiarity and seamless data transfer from the FRx to the MRx creates an efficient and cost-effective solution."

Predicting the inevitable

A total of eight Philips HeartStart FRx AEDs were purchased in late fall 2009. SCFR presented Woodstock with three units, Strasburg with three units, and Edinburg with two. Six months later, Tim's prediction came true.

"The number one reason we do what we do is to protect life. Having immediate access to AEDs helps us succeed in doing just that."

Doug Miller, Assistant Chief, Strasburg Volunteer Fire Department, Strasburg, Virginia

"Any vehicle involved in public service should have an AED on board. It truly is a life-saving tool that in the hands of first responders – career and volunteer – can make a difference in someone's life."

Jordan Highlander, EMT-E/Firefighter, Shenandoah County Fire Department and Woodstock Volunteer Fire Department

"On February 20, 2010, Woodstock Rescue Engine 12 responded to a cardiac event at the local American Legion Hall," recalls Tim. "Danny Funkhouser, an EMT-B/Firefighter with SCFR and a volunteer with Woodstock, responded to a cardiac arrest call. His crew arrived some 10 minutes ahead of the county ambulance, pulled out their new AED, and used it to save a fellow citizen's life." According to Danny, Engine 12 had just left the scene of a car accident and was heading back into town. "Our volunteer ambulance and paramedics were transporting the accident victim to the hospital when dispatch reported a cardiac arrest." Danny says they arrived to find long-time Shenandoah resident, Wayne Rinker unconscious and not breathing – a victim of sudden cardiac arrest. "I had no doubt that the AED would do what it was supposed to do," says Danny. "I'm just thankful that Chief Williams convinced us to include an AED in our toolkit and that we got to Mr. Rinker in time to deliver the life-saving shocks."

Making a case for AEDs

Often brought on by ventricular fibrillation, a condition in which the heart's electrical activity malfunctions, Sudden Cardiac Arrest (SCA) can happen to anyone at anytime, anywhere.

- For the best chance of survival from the most common cause of SCA, a shock from a defibrillator should be delivered within the first few minutes of collapse²
- A victim's chances of survival are reduced by 7 to 10 percent with every minute that passes without CPR and defibrillation³
- In cities where defibrillation is provided within 5 to 7 minutes, the survival rate is as high as 45 percent⁴

“We've been a volunteer fire department since the 1800s, and we've always had an experienced EMS team. Our folks didn't think they could respond to the volunteer fire calls and EMS calls, too. But then Chief Williams explained his plan.”

Danny Funkhouser, EMT-B/Firefighter, Shenandoah County Fire Department and Woodstock Volunteer Fire Department

Answering the call

According to the American Heart Association, an estimated 40,000 more lives could be saved annually in the U.S. alone if AEDs were more widely available and could reach victims more quickly.¹ “We have a little over 40,000 people in our county,” says Tim.

“And while we have used one of the new AEDs to save one of our neighbors, I hope we never have to use it again, or any of them for that matter. But if we do, I have no doubt that we'll answer the call with confidence.”

Doug agrees, “We've had the AEDs on our rigs for a couple of months now and have never had to deploy them. That's a good thing. However, it's comforting to know that they're there if and when the need arises.”

When asked what they would say to convince other volunteer fire departments to implement an AED program, Tim says it's simple. “At some point, a resident, a visitor, someone who works in your town, or someone simply passing through is going to experience a cardiac event and your ALS team is going to be too far away or out on another call. What is your back-up plan?”

Tim continues, “Our County has made it a priority to arm our emergency response teams, including our volunteer firefighters, with AEDs. It's the only technology available designed to shock the heart back to a normal rhythm. We also chose a unit that anyone can pick up and use; it's that easy.”

Doug agrees, “The number one reason we do what we do is to protect life. And it's not just the lives of our citizens.” Doug explains, “The media is full of stories about firefighters and police officers suffering Sudden Cardiac Arrest on the job or during training exercises. Having an AED in our toolkit could mean the difference between life and death.”

1 American Heart Association Online, “Cardiac arrest: AHA recommendation,” <http://www.americanheart.org/presenter.jhtml?identifier=4481> (accessed 29 December 2010)

2 Cummins R.O., et al. Improving survival from sudden cardiac arrest: The ‘Chain of Survival’ concept. A statement for health professionals from the Advanced Cardiac Life Support Subcommittee and the Emergency Cardiac Care Committee, American Heart Association. *Circulation* 1991;83:1832-1847.

3 American Heart Association Online, “Cardiac arrest: AHA recommendation,” <http://www.americanheart.org/presenter.jhtml?identifier=4481> (accessed 29 December 2010).

4 American Heart Association Online, “Cardiac arrest: AHA recommendation,” <http://www.americanheart.org/presenter.jhtml?identifier=4481> (accessed 29 December 2010).

Please visit www.philips.com/www.philips.com/lawenforcement



© 2011 Koninklijke Philips Electronics N.V.
All rights are reserved.

Philips Healthcare reserves the right to make changes in specifications and/or to discontinue any product at any time without notice or obligation and will not be liable for any consequences resulting from the use of this publication.

Philips Healthcare is part of Royal Philips Electronics

www.philips.com/healthcare
healthcare@philips.com
fax: +31 40 27 64 887

Printed in The Netherlands
4522 962 79261 * OCT 2011