

Save a life

by becoming a First Responder, EMT, or Paramedic

By Jeffrey Yago, P.E., C.E.M

Last fall my wife, Sharon, announced that she wanted to take a first aid course and asked if I was interested. I must admit that I have helped at more than my share of car wrecks and always worried about not knowing what I should and should not do during these emergencies. However, Sharon and I were both in our mid-50s with no prior medical training, and the thought of learning a totally new vocation seemed monumental. Like many readers, we live in a rural area, over 50 miles from the closest hospital, and although our children have left the nest, we are facing increased health risks for ourselves and our elderly parents.

Since we do not have any family members or close friends in the health care field, we were not sure where to begin. After many calls and some Internet surfing, we found that there are actually endless opportunities for anyone, regardless of age or disability, to become part of an emergency medical program for your county or town.

Prior to the advent of micro-electronics and radio communications, an ambulance was little more than an empty panel truck to transport an untreated patient to a distant hospital. Once hospital medical equipment could be miniaturized, and voice and data communication became possible from the field to hospital staff, an entirely new multi-level of emergency rescue services came into existence.

In case you have not noticed this gradual change, the interiors of today's ambulances look like emer-

gency rooms on wheels that can now stabilize most patients in transit and avoid driving 90 miles per hour rushing to the hospital. In fact, these vehicles contain all of the life support equipment, patient monitoring systems, and medications found in any modern hospital emergency room. The people you see riding in today's rescue vehicles have a very high level of emergency medical training, yet many are local volunteers, not paid medical staff.

In 1973, Congress passed the *National Emergency Medical*

Services Systems Act which established national standards for all ambulances and ambulance equipment, and defined the emergency medical training required for ambulance personnel. Today, any person you see in a 911 rescue vehicle, including the driver, has several levels of formal emergency medical training.

Levels of training

If you are interested in becoming the "medic" for your family or local community, the first thing you need to understand is that there are actually



Interior view of an ambulance showing patient monitoring and treatment equipment

(All photos courtesy of Goochland Fire/Rescue, Goochland County, Virginia.)



Ambulance to hospital data and voice communication equipment

four recognized levels of volunteer medical training and certification. From basic to advanced skills, these are:

- First Responder
- Emergency Medical Technician — Basic (EMT-B)
- Emergency Medical Technician — Advanced (Cardiac)
- Paramedic

With the exception of Paramedic, which requires some college and in-hospital courses, the other three medical courses can be taken as evening classes at most local volunteer fire and rescue stations, and at some Red Cross offices and community colleges. Although these are not degree programs, you will hold a state license to practice and will be under both liability and injury insurance protection.

If you agree to volunteer several days per month after completing your training, most counties will pay all costs for you to attend these classes including books, uniforms, and on-call pager. Some students taking the *First Responder* and *EMT* courses plan to eventually become volunteer firemen, while others choose ambulance rescue. There are even special volunteer positions that accommodate persons with physical handicaps.

First Responder: The *First Responder* is the most basic level of emergency training and is available at little or no cost. This training is usually given to a designated safety person at many businesses, schools, health clubs, and churches. It is assumed that this will be the first person on scene while waiting for an ambulance to arrive.

You can learn the *First Responder* CPR procedures and the ABCs of initial patient assessment in a single 8-hour class. This is the starting point for working with any volunteer fire/rescue association and will be your first level of emergency medical training.

Human brain cells start dying 4 to 6 minutes after a person stops breathing and their heart stops beating, and clinical death usually occurs in 10 minutes. It should be obvious that it is difficult for emergency personnel to arrive this fast in many rural areas, and even limited medical assistance during those first few minutes prior to the arrival of a 911 team can significantly improve patient survival rates.

First Responder training teaches the ABCs of what needs to be done immediately to delay the onset of irreversible brain cell damage or death until advanced medical care arrives. Cardiac Pulmonary

Resuscitation, or CPR, is an easy-to-learn medical procedure used to provide artificial breathing and manual heart blood pumping for a patient and is included in this ABC training:

A—Airway: When most people suddenly become unconscious, their tongue will become extremely relaxed and settle back into their throat and block air flow to the lungs. Knowing how to simply reposition the victim's head may correct this life threatening problem.

B—Breathing: Falls, electrocution, near-drowning, and choking can cause a person to stop breathing. If not corrected immediately, the heart will also stop beating soon after breathing stops. Providing temporary rescue breathing can keep the blood oxygenated and the heart pumping.

C—Circulation: Circulation is the flow of blood throughout the body. If the body's cells do not receive adequate blood flow, the body will soon shut down and go into shock. This can be the result of a heart attack, high blood loss from an injury, or drug overdose. CPR can maintain blood circulation when the heart stops beating until a defibrillator and advanced help arrives.

Emergency Medical Technician—Basic (EMT-B): The next level of emergency medical training is the *Emergency Medical Technician - Basic*, or *EMT-B*, which is the minimum level of training for all ambulance personnel.

Now returning to our own story. Sharon noticed a sign in front of our local volunteer fire station last August indicating that *EMT-B* classes were starting soon, and she signed us both up. However, after receiving a copy of the textbook syllabus and a brief description of the hands-on training required for an *EMT-B* certificate, we needed CPR ourselves.

I didn't want to go to medical school, I just wanted to know the "basics." We both still had full time jobs and all the familiar professional

and family obligations that always seem to fill up each day. The time it takes to complete the *EMT-Basic* program will vary depending on instructor and class hours per night, but will require taking between 140 and 180 hours of classroom instruction over a four to six months period.

At the end of these classes you will be required to take a written state exam at a regional testing center. The state testing also includes the completion of three different live “scenarios” requiring demonstration of patient assessment and treatment on a live patient in the presence of state certified instructors.

Stage makeup is used to make any “wounds” appear more realistic, and you are not told what the injury or medical problem is before entering the testing room. Our particular training would take place several nights per week for four months, and include 10-hours of emergency room work at a local hospital. The standardized *National EMT-B* training course was going to teach things I couldn’t imagine myself learning in just four months including:

- How to move a patient and scene size-up
- Spinal immobilization and back boarding
- Initial patient assessment and taking vital signs
- The “ABCs”: Airway, Breathing, Circulation
- Human body systems and general pharmacology
- Inserting oropharyngeal and nasopharyngeal airways
- Administering oxygen and patient suctioning
- Treating pediatric, adolescent, and geriatric patients
- How to apply bandages, splints, and head restraints
- Heart defibrillator operation and CPR techniques
- Respiratory and cardiac emergencies
- Diabetic and allergic emergencies

- Poisoning and overdose emergencies
- Snake and insect bite emergencies
- Treating smoke, fire, and chemical burns
- Obstetrics and gynecological emergencies
- Treating bleeding and shock emergencies
- Treating frostbite and near drowning
- Soft tissue and musculoskeletal injuries
- Treating head and spinal injuries
- Ambulance operation and safety
- Multiple casualty situations and car wrecks

Although I think you will agree it would be very useful for all of us to know how to administer these emergency treatments, when we read this list we were ready to quit before we started. To make matters even more traumatic, when we went to our first class, we were at least 30 years older than most of the other students and 15 years older than our two instructors.

Modern building construction techniques and materials have significantly reduced the severity and frequency of structure fires, and over 75% of today’s 911 calls are for medical or accident emergencies, not fires. To respond to this changing trend, most state governments now require all firemen to complete the *EMT-B* level of emergency medical training. If you want to be a volunteer fireman, in many areas you will need to be an *EMT-B* first. Since being a fireman is high on the list of volunteer activities for many rural teenagers, it will not be unusual if many of your

EMT-B classmates are still in high school.

Emergency Medical Technician—Advanced (EMT-Advanced): There are several add-on courses you can take after completing the *EMT-Basic* certification depending on your own interests and goals. These include advanced cardiac, helicopter rescue, rope rescue, vehicle extraction, water rescue, and wilderness rescue.

Paramedic: The highest level of volunteer emergency medical training is the *Paramedic*. In most larger cities, at least one person on any three-person ambulance crew will be a *Paramedic*. Although not a medical doctor or nurse, a *Paramedic* has advanced emergency medical training and is licensed to administer drugs, intravenous infusions, perform emergency tracheotomies, intubations, and will know endless techniques to keep a person alive until they can reach a trauma center. Although you can also become a volunteer *Paramedic*, most *Paramedics* today are full-time paid positions due to the extensive training and constant retesting needed to maintain this certification.

Many rural counties and sparsely populated states cannot afford to have paid emergency ambulance personnel who have this advanced *Paramedic* level of emergency medical training, and will rely entirely on *EMT-B* volunteers for all emergency medical services.



Modern emergency rescue ambulance

Helpful references and web sites

Emergency Care, 9/e by O'Keefe, Limmer, Grant, Murray, Jr., and Bergeron
www.prenticehall.com

National Registry of Emergency Medical Technicians
www.nremt.org/about/nremt_news.asp

American Red Cross Sponsored Training www.crossnet.org

National Association of Emergency Medical Technicians www.naemt.org/

On-Line CPR Training www.emsadvocate.com

First Aid Instruction Locator by State www.rescuebreather.com

Emergency Medical Bookstore www.hultgren.org/books/index.htm

Over the next four months of our *EMT-Basic* classes, Sharon and I soon found ourselves becoming very close to what had been a room full of strangers. We studied together, tested together, bound one another to back boards together, took turns bandaging and splinting each other, and sweated out the state exams together. We quickly learned that medical treatment is hands-on personal and that means touching others—something most day jobs do not involve.

After completing the course and passing our exams, we are now working with our local rescue squad several days per month, alternating our time with other local volunteers. Sharon and I have found a wonderful opportunity to give something back to our community, and we have already experienced how very rewarding it is when you save someone's life.

We no longer stand around when someone in a crowd suffers a heart attack or pass a car accident and wonder why someone doesn't do something. It has taken away our feeling of helplessness and is providing a higher level of confidence for our family members and neighbors. I hope you will make the decision to help your own local volunteer fire/rescue station. Since the terrorist attacks of September 11, I think the need for your help today is far greater than at any time in our history.

Although we actually signed up for the classes several months before the World Trade Center and Pentagon attacks, the number of volunteers for many fire and rescue agencies has actually been declining since September 11. If you do not have the time for the more intensive *EMT-Basic* certification, please consider at least becoming a *First Responder* for your family or neighborhood.

If you have teenagers wanting to help their community, I encourage you to let them participate in this emergency medical program. We know several students who took their training in high school, and continued to volunteer when they went away to college. This gave them a second home away from home, a maturity beyond their peers, and added piece of mind for their parents. If you are unable to donate some time with your volunteer fire/rescue squad, at least stop by the station to make a cash donation during their next fund raiser to buy a new ambulance, and be sure to take cookies. Δ

(Jeff and Sharon Yago live in their solar powered home located in a rural county in Virginia. When not riding around in an ambulance, Jeff is a licensed Professional Engineer and a regular contributor to *Backwoods Home* for solar and energy related issues. His book, *Achieving Energy Independence-One Step At A Time*, is available from *BHM*—see page 95.)