

SOUTHWESTERN NEWS

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AUTOMATED EXTERNAL DEFIBRILLATORS TO BECOME AS WIDESPREAD AS FIRE EXTINGUISHERS, UT SOUTHWESTERN RESEARCHERS SAY

DALLAS – Dec. 4, 2001 – Automated external defibrillators, portable 4-pound devices used to restore cardiac activity after sudden cardiac arrest, have the potential to save as many as 50,000 lives yearly and are expected to become as widespread as fire extinguishers, say researchers from UT Southwestern Medical Center at Dallas.

Developed in the early 1990s, automated external defibrillators (AEDs), unlike larger versions found in ambulances, clinics and hospitals, are designed to allow people with modest training to safely deliver effective cardiac defibrillation, said Dr. Jose Joglar, assistant professor of internal medicine at UT Southwestern and lead author of a review article regarding the clinical promise of AEDs. The article appears in today's issue of *Annals of Internal Medicine*.

"AEDs are somewhat like fire extinguishers, which are also placed in specific locations and are available for firefighters or lay people to use in case of a fire," Joglar said.

An initiative to place AEDs in strategic locations was spurred by the American Heart Association in 1994. The goal of the organization's Public Access Defibrillation initiative is to place AEDs in locations such as international airports, county jails, large shopping malls, public sports arenas and large industrial sites so that persons with minimal training could promptly defibrillate victims of cardiac arrest.

"Any lay person can use the device. The only limitation would be for the device to actually be available," Joglar said.

It's estimated that only three percent to five percent of the 250,000 Americans who experience out-of-hospital cardiac arrest actually survive. Once sudden cardiac arrest occurs, the chances of survival are reduced about 10 percent every minute after the arrest.

"Early defibrillation is the most effective treatment in patients experiencing cardiac arrest due to ventricular fibrillation, which is a leading cause of death in the United States. As

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AED's become widespread, more lives will be saved," Joglar said.

An operator of an AED is guided by an automated system that, after the power is turned on, instructs the operator to attach electropads. After the pads are attached the device analyzes the heart rhythm and, if the rhythm is ventricular fibrillation, a voice-activated prompt advises the operator to administer the shock.

In a 1997 study, conducted by researchers at UT Southwestern, devices placed aboard American Airlines aircraft were used on 200 passengers as monitors and to administer shock. Study results indicated that 40 percent of individuals treated with an AED survived during a two-year period. In a second study, AEDs were placed in selected casinos in Nevada and Mississippi. Results from the study showed that, of the 105 individuals who experienced ventricular fibrillation, 74 percent of those defibrillated in three minutes or less survived.

Both studies confirmed that AEDs were effective not only in delivering a shock when necessary, but also in identifying heart rhythms unrelated to sudden cardiac arrest and advising the operator of the AED not to deliver a shock, Joglar said.

"AEDs improve survival dramatically. If you can decrease the time to defibrillate a cardiac arrest victim, the difference in survival is very dramatic," he said.

The effectiveness of the AED recently prompted governmental agencies and Congress to pass laws regarding the availability and usage of the devices. In April, the Federal Aviation Administration ruled that all U. S. airlines be required to carry defibrillators and upgrade emergency medical kits within three years. In 2000, Congress passed the Cardiac Arrest Survival Act, which extends Good Samaritan protection to AED users in states that do not currently have protective legislation. Guidelines are currently being developed for placement of AEDs in all federal buildings.

Other review authors include Dr. Richard Page, professor of internal medicine, and Dr. Theodore Takata, a fellow in clinical cardiac electrophysiology.

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