

# Time is of the essence with cardiac arrest patients

By Robert Davis, USA TODAY

When it comes to saving victims of sudden cardiac arrest, time is critical.



Seattle paramedic Dirk Halliwill, right, helps prepare to transport a 911 call victim.

By Jack Gruber, USA TODAY

Two studies in Thursday's *New England Journal of Medicine* show a sharp difference in survival when help comes quickly — especially when fast-thinking bystanders do CPR, and when they have an automated external defibrillator (AED) available and are able to deliver a shock within eight minutes. (**Related story:** [CPR, defibrillators as good as medics, research suggests](#))

About 60,000 people a year collapse in sudden cardiac arrest, in need of a shock to restore the quivering heart to a healthy rhythm. When a shock is not immediately available, the patient needs CPR in the meantime.

A USA TODAY investigation published last year found that even eight minutes is too long to wait for intervention, that lives are lost or saved within six minutes.

"Eight minutes is not adequate," says Roger White, a Mayo Clinic researcher and medical director for the early defibrillation program in Rochester, Minn. His city has measured to the second how much time passes between a 911 call and the instant a shock is delivered to a cardiac arrest patient.

His data show that victims shocked within six minutes almost always live; those shocked after six minutes almost always die.

The newspaper's investigation showed that most of the cities that have made major strides to save more of these victims have focused on ways to cut their response time from the time a 911 call is received to the delivery of the first shock.

Cities that continue to rely on outdated measures of response time, from the time a call is received and crews begin to drive toward the victim to the moment their rescue rig stops at the curb, most often have dismal survival rates.

"If you are looking at wheels rolling and wheels stopping as your marker, it's a mistake," says Robert O'Connor, who heads the EMS committee for the American College of Emergency Physicians.

One of the studies out today, the Ontario Prehospital Advanced Life Support study, shows how many minutes are spent between call and shock:

- Telephone call to crew notification: .6 minutes
- Crew notification to arrival at scene: 4.2 minutes.
- Arrival to reaching patient's side: .9 minutes.
- Patient's side to heart analysis: 1.6 minutes.
- Analysis to first shock delivered: .3 minutes.
- Total time from call to shock: 7.6 minutes.

Cities that scrutinize the time it takes to reach victims of cardiac arrest find holes in their system. And fixes are particularly easy with modern technology.

But the best outcomes occur when bystanders intervene immediately instead of waiting for paramedics. When bystanders manage to shock a person with an AED before emergency crews arrive, survival rates double, according to the second study published today.

"We had a cardiac arrest in an athletic club and it took eight minutes (for help to arrive)," White says. "The fire, police or ambulance just couldn't get there faster. We put an AED in there."

Experts caution that it might not be cost-effective to put AEDs, which cost about \$1,800, into every building or public place, although many cities have put the devices in museums, parks and on golf courses, saving lives.

First, experts say, cities should make sure that all first responders, including police officers, firefighters and public park personnel, have AEDs and are ready and willing to rush to the aid of cardiac arrest victims.

Also, more cities should launch massive public CPR training programs so more bystanders can intervene while waiting for the lifesaving shock.

"Look at the systems already in place," White says. "Taxpayers are paying for them. Exploit them to the max."