

Studies examine use of bystander interventions for out-of-hospital cardiac arrest

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Two studies in the July 21 issue of *JAMA* find that use of interventions such as cardiopulmonary resuscitation and automated external defibrillators by bystanders and first responders have increased and were associated with improved survival and neurological outcomes for persons who experienced an out-of-hospital cardiac arrest.

Out-of-hospital cardiac arrest (OHCA) is an increasing health concern worldwide, with poor prognoses. Shinji Nakahara, M.D., Ph.D., of the Kanagawa University of Human Services, Yokosuka, Japan, and colleagues examined the associations between bystander interventions and changes in neurologically intact survival among patients with OHCA in Japan. The researchers used data from Japan's nationwide OHCA registry, which started in January 2005. The registry includes all patients with OHCA transported to the hospital by [emergency medical services](#) (EMS) and recorded patients' characteristics, prehospital interventions (including defibrillation using public-access automated [external defibrillators](#) [AEDs] and chest compression) and outcomes.

The study included 167,912 patients with bystander-witnessed OHCA between January 2005 and December 2012. The researchers found that during this time period, the number of these events increased and the rate of bystander chest compression, bystander-only defibrillation, and bystander defibrillation combined with EMS defibrillation also increased. In addition, likelihood of neurologically intact survival

improved (age-adjusted proportion, 3.3 percent to 8.2 percent), but remained quite low. The increase in neurologically intact survival was associated with bystander defibrillation and [chest compressions](#).

The authors write that further increases in use of chest compression by bystanders should be promoted. "In Japan it is used in just 50 percent of patients and is increasing slowly. Simplifying the basic life support procedure by omitting mouth-to-mouth breathing may have reduced hesitancy and increased its use. Facilitating chest compression has an economic advantage over deployment of expensive public-access AEDs. Fire departments provide training to more than 1,400,000 citizens every year to increase the prevalence of skills in basic resuscitation procedures, including chest compression and AED use. This effort should be further strengthened."

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