

For cardiac arrest CPR performed by laypersons, chest compression-only may lead to better outcomes

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In a comparison of outcomes in Arizona for out-of-hospital cardiopulmonary resuscitation (CPR) for cardiac arrest performed by bystanders, patients who received compression-only CPR were more likely to survive to hospital discharge than patients who received conventional CPR or no CPR, according to a study in the October 6 issue of *JAMA*.

Out-of-hospital cardiac arrest is a major public health problem, affecting approximately 300,000 individuals in the United States annually. Although [survival rates](#) vary considerably, outcomes can be improved with bystander CPR. In 2005, a statewide program was established in Arizona aimed at improving survival. "These efforts included changes in the approach to the care provided by both bystanders and [emergency medical services](#) (EMS) personnel and were based on the increasing evidence in favor of minimizing interruptions in chest compressions during CPR," the authors write. A multifaceted effort was launched to encourage bystanders to use compression-only CPR (COCP) because this approach is easier to teach, learn, remember, and perform than conventional CPR with rescue breathing, according to background information in the article.

Bentley J. Bobrow, M.D., of the Arizona Department of Health Services, Phoenix, and colleagues evaluated whether widespread endorsement of COCP for adult [sudden cardiac arrest](#) would be associated with an increased likelihood that lay rescuers would perform CPR and an increased likelihood of survival to hospital discharge compared with no bystander CPR and conventional CPR. The study included patients at least 18 years old with out-of-hospital cardiac arrest between January 2005 and December 2009 in Arizona. A total of 4,415 adults with out-of-

hospital cardiac arrest met all inclusion criteria for analysis, including 2,900 who received no bystander CPR, 666 who received conventional CPR (15.1 percent), and 849 who received COCP (19.2 percent).

The researchers found that rates of survival to [hospital discharge](#) were 5.2 percent for the no bystander CPR group, 7.8 percent for conventional CPR, and 13.3 percent for COCP. The annual rate for lay rescuers providing any type of bystander CPR increased significantly over time, from 28.2 percent in 2005 to 39.9 percent in 2009. "Among patients who received bystander CPR, the proportion with COCP increased significantly over time, from 19.6 percent in 2005 to 75.9 percent in 2009. Overall survival also increased significantly over time: from 3.7 percent in 2005 to 9.8 percent in 2009." Further analysis indicated that COCP was associated with an approximately 60 percent improved odds of survival compared with no [bystander CPR](#) or conventional CPR.

The authors add that there are multiple reasons COCP may have advantages over conventional CPR techniques, including the rapid deterioration of forward blood flow that occurs during even brief disruptions of chest compressions, the long ramp-up time to return to adequate blood flow after resuming [chest compressions](#), the complexity of conventional CPR, the significant time required to perform the breaths, and the critical importance of cerebral and coronary circulation during arrest.

More information: *JAMA*. 2010;304[13]:1447-1454.

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