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Dispatcher-assisted CPR increases survival among children

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Children who suffer cardiac arrest outside the hospital are more likely to survive and have good brain function if dispatchers instruct bystanders on CPR, according to a large Japanese study published in *Journal of the American Heart Association*.

"Dispatcher-assisted bystander CPR increased bystander CPR delivery rate and was associated with improved one-month favorable neurological and overall outcome compared to no bystander CPR," said Yoshikazu Goto, M.D., Ph.D., the study's lead author and director of the section of Emergency Medicine at Kanazawa University Hospital in Kanazawa, Japan. "Survival rates increased from 8 percent to 12 percent with bystander CPR and dispatcher instruction, a significant difference."

In a prospective, population-based study conducted over three years, researchers analyzed 5,009 children (infancy to 18 years) who received CPR. The children were divided into three groups: 2,019 who received bystander CPR with dispatcher instruction; 703 who received bystander CPR without dispatcher instruction; and 2,287 who didn't receive bystander CPR.

The study found one-month favorable neurological outcomes increased, compared to those who received no bystander CPR:

- 81 percent in those who received bystander CPR with dispatcher instruction (a significant difference);
- 68 percent in those who received bystander CPR without

dispatcher instruction.

"Expectant mothers should learn how to perform bystander CPR before they give birth," said Goto, who is also associate professor of Emergency Medicine at Kanazawa University School of Medicine. "It is very important for parents, teachers and other adults who deal with children to learn how to deliver CPR to children."

The study findings also confirm that conventional CPR is preferred to chest compression-only CPR in children.

Many causes may be responsible for a child's heartbeat and breathing to stop, according to the U.S. National Institutes of Health: choking, drowning, electrical shock, excessive bleeding, head trauma or serious injury, lung disease, poisoning and suffocation.

Children under age 1 are at high risk of cardiac arrest from respiratory problems. Older children are at higher risk due to cardiac causes. In children under 10, risk may be due to respiratory failure or to trauma or external causes, researchers said.

The 2010 American Heart Association Guidelines for CPR and ECC recommend CPR with a combination of breaths and compressions for infants (up to age 1) and children (up to puberty).

For bystanders, the first most important signs that a child may be experiencing cardiac arrest are abnormal or irregular breathing and loss of consciousness or responsiveness, researchers said.

Bystanders need to initiate CPR urgently until the child's heartbeat or breathing returns or until emergency medical help arrives. Permanent brain damage or death can occur within minutes if blood flow from the heart stops.

The American Heart Association estimates brain damage begins if the brain is without oxygen for four to six minutes. The association also estimates that only about forty percent of those who experience cardiac arrest receive CPR from a bystander.

Provided by American Heart Association