



March 2014 (updated May 2015)

# ELDER CARE

## A Resource for Interprofessional Providers

### Discussing CPR with Patients and Families

Joshua D. Uy, MD, Division of Geriatric Medicine, University of Pennsylvania

Cardiopulmonary resuscitation (CPR) is a medical procedure performed on people who have died, in an attempt to bring them back to life. The goal of CPR is to return patients to their previous state of health, but there are four possible outcomes for those who undergo CPR: (1) failure of CPR, (2) success followed by subsequent death in the hospital, (3) survival to hospital discharge with good neurological function, and (4) survival to hospital discharge with poor neurological function.

Using in-hospital CPR as an example, out of 30 patients who undergo CPR, 15 will never regain a pulse, 10 will regain a pulse only to die in the hospital, and 5 will survive to hospital discharge. Four (80%) of those surviving to hospital discharge will be about the same neurologically as before the CPR event. One (20%) will be significantly worse.

#### Is CPR Effective in Older Adults?

There is some decline in the rate of successful resuscitation with advancing age. For example, for inpatient CPR, the success rate is 19% for those 40-59, 17% for those 60-79, and 11% in those older than 80. Much of that decline is

attributed to comorbidities, not age alone. Other factors more important than age in predicting the likelihood of success include: where the cardiac arrest occurs; if it is witnessed; the initial heart rhythm; the time until advanced life support efforts begin; and the baseline functional status of the person. For example, resuscitating a patient with ventricular fibrillation is still very effective in older adults, whereas resuscitating asystole is largely ineffective in adults of any age.

#### What are the potential adverse effects of CPR?

When discussing CPR with older patients and their families, it is important to point out that cardiac arrest, usually due to an arrhythmia, results in no suffering. For those who survive the initial resuscitation, however, most will subsequently die in the hospital and during time between the initial resuscitation and death, they may experience and suffer from a variety of complications.

Besides medical complications like respiratory failure or heart failure, survivors of the initial resuscitation experience numerous potentially painful traumatic injuries.

Site of CPR	Do not survive initial resuscitation	Die in hospital	Survive to hospital discharge	Survival to hospital discharge with good neurological outcomes	Alive 1 year later
Inpatient (Data for older adults)	50%	32%	18% (for patients living independently at home prior to hospitalization) 9% (for dependent patients living in long-term care facilities prior to hospitalization)	8-14 %	5-8%
Outpatient (Data for all adults)	77%	15%	8%	3%	No good data
Nursing home	80-100%	10-20%	0-7%	No good data	No good data

#### TIPS FOR DISCUSSING CPR WITH PATIENTS AND THEIR FAMILIES

- A decision regarding CPR is a separate issue from the aggressiveness of care an individual would want while they are still alive, e.g., someone may want aggressive care treatment of pneumonia. However, if they were found dead, that individual might want to be left in peace.
- CPR is a bad choice for someone who cares about dying peacefully OR who cares mainly about comfort OR who has a low pain tolerance OR would not want to expose themselves to the risk of surviving with an impaired neurological status.
- CPR is a good choice for someone who cares more about longevity than dying peacefully AND is willing to accept the trauma of resuscitation AND accepts the possibility of surviving with an impaired neurological status.

# ELDER CARE

Continued from front page

For example, about 31% of those who survive the initial resuscitation will have rib fractures and 30% will have visceral complication including gastric distention and hepatic or splenic injury. Nearly a quarter will have sternal fractures, 20% will have damage to their upper airway, and 18% will have mediastinal hemorrhage.

Neurological outcomes, perhaps the most important issue when considering survival after CPR, are reported to vary widely in older adults and indeed, in adults of all ages. For witnessed cardiac arrests that occur in the hospital, as many as 80% of survivors will have a neurological status similar to their baseline status. But, the remainder will have a significant, and sometimes severe, decline in their neurological status.

For outpatient cardiac arrests, good neurological outcomes occur only in about 3-7% of resuscitations overall. For outpatient cardiac arrests that are witnessed with immediate institution of bystander CPR and ventricular fibrillation present when advanced life support becomes available, about 20% will survive with good neurological outcomes.

## Goals of Care

Given the risks of suffering and impaired neurological outcomes, and the low overall survival rates after CPR, the key issues when counseling patients and their families are the goals of care. Even if initial resuscitation is successful, CPR can leave a person significantly worse off than they were before the event. Depending on the goals, therefore, CPR may be appropriate or inappropriate (Table 2).

CPR is a good choice for those who care more about longevity than about dying peacefully or being comfortable, and who are willing to accept (a) the traumatic injuries that occur with CPR, (b) the possibility of a prolonged death after the initial CPR with complications such as heart failure or respiratory failure, and (c) the possibility that even if they survive the initial resuscitation, they may have an impaired neurological status.

CPR is a bad choice for someone who cares mainly about comfort or dying peacefully. It may also be a bad choice for individuals who have a low tolerance for pain, and would not want to expose themselves to the risk of a prolonged death or having an impaired neurological status.

Goal	CPR Appropriate	CPR Not Appropriate
Longevity	<ul style="list-style-type: none"> <li>• Longevity is still a goal, regardless of medical condition</li> <li>• Dying peacefully is not a primary goal</li> <li>• Avoiding a prolonged death is not a primary goal</li> </ul>	<ul style="list-style-type: none"> <li>• Longevity is no longer a goal</li> <li>• Dying peacefully or naturally is a goal</li> <li>• Avoiding a prolonged death is a goal</li> </ul>
Comfort	<ul style="list-style-type: none"> <li>• Comfort is not a primary goal</li> </ul>	<ul style="list-style-type: none"> <li>• Comfort is a primary goal</li> </ul>
Function	<ul style="list-style-type: none"> <li>• Willing to tolerate or risk a decline in neurological status</li> </ul>	<ul style="list-style-type: none"> <li>• Not willing to risk or tolerate neurological impairment</li> </ul>
Pain Tolerance	<ul style="list-style-type: none"> <li>• High tolerance for trauma and pain</li> </ul>	<ul style="list-style-type: none"> <li>• Low tolerance for trauma and pain</li> </ul>
Risk Tolerance	<ul style="list-style-type: none"> <li>• A bad outcome would be acceptable because at least an attempt was made for longevity</li> </ul>	<ul style="list-style-type: none"> <li>• A bad outcome means that performing CPR was not worth it</li> </ul>

## References and Resources

Abbo ED, Yuen TC, Buhrmester L, et al. Cardiopulmonary resuscitation outcomes in hospitalized community-dwelling individuals and nursing home residents based on activities of daily living. *J Am Geriatr Soc.* 2013 Jan;61(1):34-9.

Larkin GL, Copes WS, Nathanson BH, Kaye W. Pre-resuscitation factors associated with mortality in 49,130 cases of in-hospital cardiac arrest: a report from the National Registry for Cardiopulmonary Resuscitation. *Resuscitation.* 2010 Mar;81(3):302-11.

Boyd TS, Perina DG. Out-of-hospital cardiac arrest. *Emerg Med Clin North Am.* 2012 Feb;30(1):13-23.

Tresch DD, Thakur RK, Hoffmann RG, Olson D, Brooks HL. Should the elderly be resuscitated following out-of-hospital cardiac arrest? *Am J Med.* 1989 Feb;86(2):145-50.

Van de Glind EMM, et al; Pre-arrest predictors of survival after resuscitation from out-of-hospital cardiac arrest in the elderly a systematic review. *BMC Geriatrics.* 2013; 13:68.

Wenger, NS, et al. Introduction to the assessing care of vulnerable elders-3 quality indicator measurement set. *Journal of the American Geriatrics Society,* 2007. 55: p.

## Interprofessional care improves the outcomes of older adults with complex health problems

Editors: Mindy Fain, MD; Jane Mohler, NP-c, MPH, PhD; and Barry D. Weiss, MD

Interprofessional Associate Editors: Tracy Carroll, PT, CHT, MPH; David Coon, PhD; Jeannie Lee, PharmD, BCPS;

Lisa O'Neill, MPH; Floribella Redondo; Laura Vitkus, BA

The University of Arizona, PO Box 245069, Tucson, AZ 85724-5069 | (520) 626-5800 | <http://aging.medicine.arizona.edu>

Supported by: Donald W. Reynolds Foundation, Arizona Geriatric Education Center and Arizona Center on Aging

This project was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number UB4HP19047, Arizona Geriatric Education Center. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.