


Do Not Resuscitate in the Nursing Home

Cari Levy, MD, PhD, CMD
 University of Colorado and the Rocky Mountain Regional VA Medical Center
 CMDA Conference April 2023



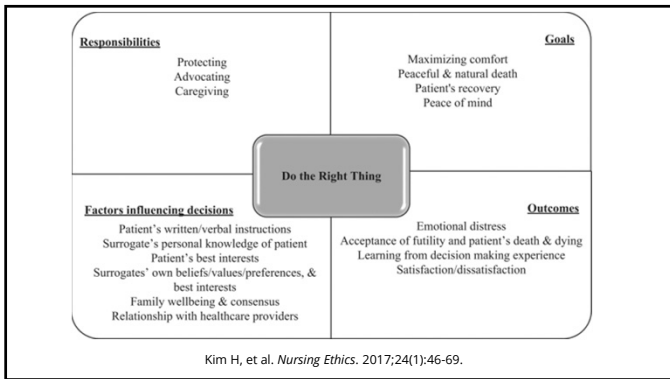
1

Objectives

Participants will understand:

- Prognostic implications of cardiac resuscitation
- Stability of DNR orders in nursing homes
- Proper use of DNR orders and MOST forms
- Utility of decision aids in determining preferences for CPR

2



3

Does this resident have capacity for CPR decision making?

- 1. **Communication.** Able to express a stable choice for or against CPR
- 1. **Understanding.** Recalls conversations about CPR to make the link between causal relationships, process and probabilities for outcomes
- 2. **Appreciation.** Able to identify options for care if heart stops and likely outcomes that will affect him or her directly
- 3. **Rationalization or reasoning.** Able to weigh the risks and benefits of the treatment options presented to come to a conclusion in keeping with their goals and best interests, as defined by their personal set of values

4

What is the overall survival for in-hospital cardiac resuscitation in a 75yo?

- A. 40%
- B. 20%
- C. 10%
- D. <10%



5

What is the overall survival for out-of-hospital cardiac resuscitation for an individual >70yrs?

- A. 30%
- B. 20%
- C. 10%
- D. <5%



6

In-hospital CPR Outcomes

- Systematic review of 29 studies
- ROSC in 38.6% of the resuscitated patients
- Overall survival rates based on age were:
 - ≥ 90 years (11.6%)
 - ≥ 80 years (15.4%)
 - 70-79 years (18.7%)
 - Long-term survival (6 mo-1 year) ≥70 yrs = 5.7- 21%
- Of those who survived until hospital discharge, 1-year survival 88%
- 63% of survivors were less functional upon hospital discharge compared to their state at the time of admission



van Giin Myke S, et al. April 2014 *Age and Ageing* 43(4). DOI: 10.1093/ageing/afu035

7

Out-of-Hospital CPR Outcomes

Meta-analysis for survival performed on 19 studies

Out-of-Hospital Arrest	70-79yrs	80-89yrs	>=90yrs
Survival until discharge	4-12%	2.8-8%	1.7-3.9%
One-month survival	5.4-5.7%	0.9-7%	0-2.4%
CPC 1-2 at discharge/1-month	10.5%	0.9%	0.5-1.8%
One-year survival	3.2-10%	0-6%	0%

Cerebral Performance Category (CPC) scores: 1, good cerebral function; 2, moderate cerebral disability (independent in activities of daily life); 3, severe cerebral disability (dependent on assistance); 4, coma; 5, death.

Zanders R, et al. *Eur Geriatr Med.* 2021 Aug;12(4):695-723. Epub 2021 Mar 8. PMID: 33683679

8

Prognosis following CPR among NH residents

Retrospective study of pre-hospital CPR data from the German Resuscitation Registry between 2011-2018

- N=2,900 patients, Mean age 83.7 years
 - 1880 patients (64.8%) died at the site of attempted resuscitation
 - 902 patients (31%) died in the hospital
 - 618 (21%) within 24 hours
 - 279 (10%) died between 24 hours-30 days
 - 118 patients (4.0%) discharged alive
 - 64 (2.2%) with a CPC of 1 or 2
 - 30 (1.0%) with unknown CPC
 - 24 (0.8%) with a CPC of 3 or 4
 - For only 1056 cases (36.4%) CPR was initiated before the arrival of the emergency medical services
- Conclusion:** CPR can lead to a good neurological outcome rarely in a nursing home.
- The large percentage of CPR attempts that were initiated only after a delay indicates that NH staff may often be uncertain how to proceed. Uncertainty among caregivers points to a potential for advance care planning.

Günther A, et al. 2020 Nov 6;117(45):757-763. PMID: 33533330

9

Prognosis following CPR in NHs (2)

- Aged ≥65 years who experienced cardiac arrest in a NH or private residence from the population-based registry of out-of-hospital cardiac arrests in Tokyo, Japan, from 2014 to 2018
- 37,550 patient records (NH = 6,271; Home = 31,279)
- Patients in the NH group were significantly older and more often had witnessed arrest, bystander CPR, and shock delivery using an automated external defibrillator
- 1-month survival was significantly higher in the NH (2.6% vs 1.8%, P < .001)
- Best scenario (daytime emergency call, witnessed arrest, bystander CPR provided), 1-month survival in the NH group = 8.0% (95% CI 6.4-9.9%)
- 0% survived if not witnessed, no bystander CPR

Shibahashi K, Sakurai S, Sugiyama K, Ishida T, Hamabe Y. J Am Med Dir Assoc. 2022 Aug;23(8):1316-1321. doi: 10.1016/j.jamda.2021.09.009. Epub 2021 Oct 8. PMID: 34627752.

10

Stability of DNR Orders in LTC

No. Changes*	N (%)	
	CPR at Admission	DNR at Admission
0	31,036 (55.43)	57,372 (92.16)
1	22,541 (40.25)	2179 (3.50)
2	1196 (2.14)	2383 (3.83)
3	1022 (1.83)	128 (0.21)
4	98 (0.17)	151 (0.24)
5	84 (0.15)	21 (0.03)
6	10 (0.02)	15 (0.02)
7	8 (0.01)	1 (0.00)
9	1 (0.00)	0 (0.00)
12	0 (0.00)	1 (0.00)
Total	55,996 (100.00)	62,251 (100.00)

Mukamel DB, et al. Med Care. 2013 Aug;51(8):666-72. PMID: 23685402

11

Stability of DNR/Full Code Orders (2)

- The most important factors influencing change from CPR to DNR were hospitalizations and nursing home transfers
- Race and ethnicity with black race (relative to white) predicted no change from CPR to DNR
- Those who enter with full-code preference have a high probability of changing their status to DNR during their stay.
- Offer the opportunity to revisit choices periodically, documenting changes in end-of-life choices when they occur

12

Misinterpretation of DNR Orders

- 26.8% of staff nurses and 30% of PCPs surveyed believed that a patient with a DNR order could not receive any/at least one of a list of simple treatments (antibiotics, PT, IV fluids, pain relief, oxygen, nasogastric feeding or airway suctioning)
- A higher percentage of staff nurses (26.8%) and primary care physicians (22.5%) believed that a patient with a DNR order could not be referred to hospital from home/a nursing home, when compared with other healthcare groups (p<0.001).

O'Brien H, et al. J Med Ethics. 2018 Mar;44(3):201-203. doi: 10.1136/medethics-2016-103986. Epub 2017 Nov 3. PMID: 29101301.

13

Acute Myocardial Infarction in Nursing Home Residents: Adherence to Treatment Guidelines Reduces Mortality, But Why Is Adherence So Low?

Carl R. Levy, MD, Tiffany A. Rackliff, PhD, Elizabeth T. Williams, MS, and Evelyn Hunt, MD

Table 2. Acute Myocardial Infarction Guideline Adherence for "Ideally Eligible" Patients by Admission Status from Nursing Home and Community

Guideline	Overall Study Sample		Admitted from Nursing Home (NH)		Admitted from Community (C)		Difference (NH - C)
	Sample Size, n	% Adherence	Sample Size, n	% Adherence	Sample Size, n	% Adherence	
Ideally Eligible for:							
Aspirin	82,384	85.0	4370	68.7	78,014	85.9	-17.2*
Beta blocker	35,056	60.8	1214	43.8	33,842	61.5	-17.6*
Reperfusion	16,770	60.3	214	30.4	16,506	60.7	-30.3*

* P < .001.

14

- 30-day mortality for NH patients who were ideally eligible for aspirin but did not receive aspirin was significantly higher compared with NH patients who were ideally eligible but did receive aspirin
 - **49.2% versus 26.0%**, p<0.001
- Mortality was significantly higher for NH patients who were ideally eligible for beta-blockers but did not receive a beta-blocker
 - **35.3% versus 18.6%**, p<0.001

15

Do Orders Limiting Aggressive Treatment Impact Care for Acute Myocardial Infarction?

Tiffany A. Radcliff, PhD, Aram Dobalian, PhD, JD, and Cari Levy, MD

Table 3. Probit Regression (Model 2) Results with LAT as a Covariate

Guideline	LAT Coefficient, (dF/dx) [§]	Overall Predicted Probability*		Predicted Difference: LAT - No LAT
		LAT Order	No LAT Order	
Aspirin	-0.063†	0.65	0.84	-0.19
Beta blockers	-0.086†	0.30	0.51	-0.21
Reperfusion	-0.040†	0.19	0.38	-0.19

* Results are adjusted for all covariates listed in Table 1 other than mortality and include the eligible sample (all cases), with a covariate to adjust for ideal eligibility.
 † P < .01.
 § dF/dx represents the discrete change in LAT status from not having one to having one in place.

16

Medical Orders for Scope of Treatment (MOST/POLST) Forms

JAMA 22 (2021) 1672-1677



JAMDA

journal homepage: www.jamda.com



Special Article

POLST Is More Than a Code Status Order Form: Suggestions for Appropriate POLST Use in Long-Term Care

[Check for updates](#)

Susan E. Hickman PhD^{a,b,h,*}, Karl Steinberg MD, CMD^c, John Carney MEd^d, Hillary D. Lum MD, PhD^{e,f}

^aIndiana University School of Nursing, Indianapolis, IN, USA
^bIndiana University Center for Aging Research, Regenrief Institute, Indianapolis, IN, USA
^cCalifornia State University, Institute for Palliative Care, Oremville, CA, USA
^dCenter for Practical Bioethics, Kansas City, MO, USA
^eUt Eastern Colorado Geriatric Research Education and Clinical Center, Aurora, CO, USA
^fDivision of Geriatric Medicine, University of Colorado School of Medicine, Aurora, CO, USA

17


MOST ⇌ DNR Order

- In the absence of additional information, code status is sometimes erroneously assumed to represent preferences for other kinds of treatments.
- Code status alone is not predictive of preferences for other kinds of interventions.
- MOST forms address this limitation of code status orders by including a broader range treatments that are highly relevant to long-term care residents with advanced serious illness or associated with end of life, such as preferences for hospitalization
- The potentially inappropriate group includes a growing population of younger residents with chronic mental illness and/or physical disability, and residents who are admitted for short stay, post-acute rehabilitation following a hospitalization or procedure such as joint replacement.
- Although some of these residents may be POLST appropriate, many are not.

18

CPR

Decision Aid




What is CPR?
CPR (Cardio-Pulmonary Resuscitation) is an attempt to restart a person's heart when the heart has stopped beating or cannot pump blood.

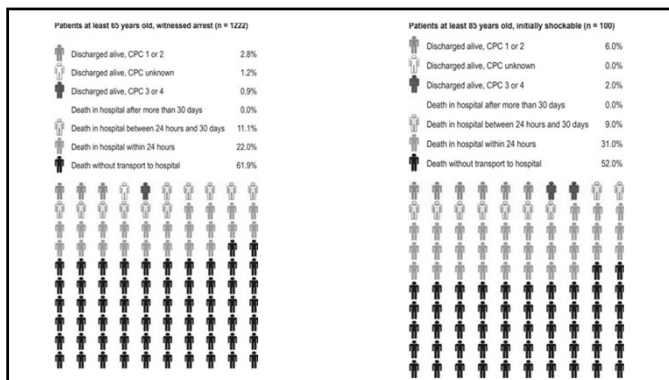
How is CPR done?
Many people have seen CPR on television. TV often makes CPR look quick and easy. But it is not.

During CPR:

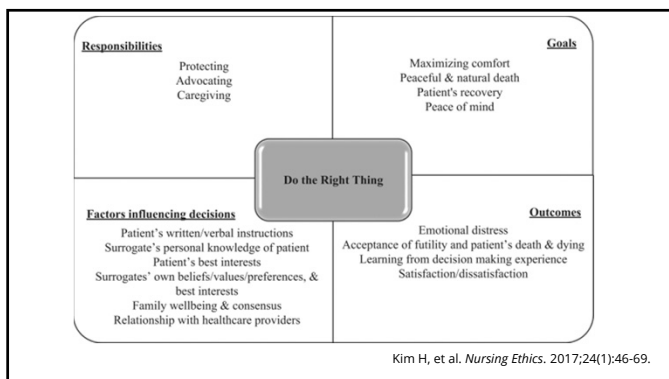
- The chest is pushed down two (2) or more inches many times each minute to make the heart pump.
- Strong electrical shocks may be given through the chest to make the heart beat at a normal rate.
- Medicine may be given, usually through an IV (intravenous) line.
- A mask may be placed on the face or a tube in the windpipe (trachea). These are often used to assist with breathing.



19



20



21

What is the overall survival for in-hospital cardiac resuscitation in a 75yo?

- A. 40%
- B. 20%**
- C. 10%
- D. <10%



22

What is the overall survival for out-of-hospital cardiac resuscitation for an individual >70yrs?

- A. 30%
- B. 20%
- C. 10%
- D. <5%**



23

Take Home Points

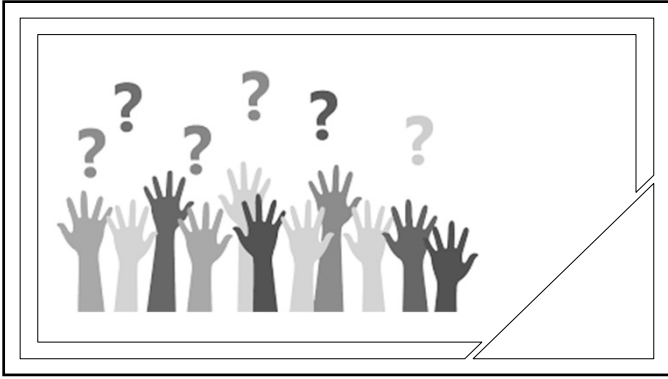
Out-of-hospital CPR \approx In-Hospital CPR

DNR \approx Do Not Treat

MOST \approx DNR Order

An informed decision is a person-centered decision

24



25
