



Myths and Truths of CPR: Conversations Based on Evidence

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Objectives

- Describe the history and purpose of cardiopulmonary resuscitation.
- Recognize the lack of improvement in survival rates after in-hospital CPR despite steady increase in application of technology and techniques.
- Identify the effect of age and other risk factors as outcome predictors for patients who experience cardiac arrest in various settings.

Cardiopulmonary Resuscitation

- The purpose of cardiopulmonary resuscitation is the prevention of sudden, unexpected death.
- Cardiopulmonary resuscitation is *not* indicated in . . .cases of terminal irreversible illness where death is expected or where prolonged cardiac arrest dictates the futility of resuscitation efforts.

Cardiopulmonary Resuscitation

- For many people the last beat of their heart *should* be the last beat of their heart.
- These people simply have reached the end of their life. A disease process reaches the end of its clinical course and a human life stops.

Cardiopulmonary Resuscitation

- In these circumstances resuscitation is unwanted, unneeded and impossible. If started, resuscitative efforts for those people are inappropriate, futile and undignified.
- They are demeaning to both the patient *and* rescuers.

Cardiopulmonary Resuscitation

- Good ACLS requires careful thought about when to stop resuscitative efforts and- even more important- *when not to start.*

Cardiopulmonary Resuscitation

- Without oxygen, the human brain begins to suffer irreversible brain damage after about 5 minutes. The heart loses the ability to maintain a normal rhythm.
- Current standards reflect a more conservative view of the success of potential bystander CPR and stress the importance of rapid defibrillation.

Standards, American Heart Association, 2000

CPR: In-hospital

- 1960-introduction of closed cardiac massage
- Steady increase in application of technology and techniques
- However, no improvement in hospital survival rates of CPR in the past 40 years

Anesthesiology.2003 Aug;99(2): 248-50
CMAJ. 2002 Aug 20;167 (4):343-8

CPR: In-hospital Arrests

- Physicians overestimate the likelihood of survival to hospital discharge
- Literature
 - Survival 6.5%-32% - average 15%
- At least 44% of survivors have significant decline in functional status

Arch Intern Med 1993; 153:1999-2003

Arch Intern Med 2000; 160:1969-1973

CPR Good Outcomes: In-hospital

- Improved survival rates with good functional recovery
 - Duration of CPR shorter than 5 minutes
 - CPR in the ICU

CPR Poor Outcomes: All sites

- Unwitnessed Arrest
- Asystole
- Electrical-Mechanical Dissociation
- >15 minutes resuscitation
- Metastatic Cancer
- Multiple Chronic Diseases
- Sepsis

CPR and Elderly

- 22% may survive initial resuscitation
- 10-17% may survive to discharge, most with impaired function
- Chronic illness, more than age, determines prognosis (<5% survival)

Annals Int Med 1989; 111:199-205
JAMA 1990; 264:2109-2110
EPEC Project RWJ Foundation, 1999

CPR Outcomes: LTC

- Prospective cohort study reviewing EMS system characteristics and outcomes between nursing home (NH) and out-of-hospital cardiac arrest (OHCA)
- July 1989 to December 1993
- Variables
 - age, witnessed arrest, response intervals, AED use and arrest rhythms
- Outcomes
 - hospital admission and discharge

CPR Outcomes: LTC

- 2,348 arrests: 182 at NH; 2,166 at home
- NH patients
 - more likely to receive CPR on collapse
 - older (73.1 vs. 67.5 years $p<0.001$)
 - less likely AED use (9.9% vs 30.0%, $p<0.001$)
 - more likely bradycystolic (74.7% vs 51.5%)
 - less likely to survive to hospital admission (10.4% vs 18.5%, $p<0.006$)
 - less likely to survive to discharge (0.0% vs 5.6%, $p<0.001$)

CPR Outcomes

- | | |
|--|--------|
| 1. Average rate of success (overall) | 15% |
| 2. Ventricular fibrillation after myocardial infarction | 26-46% |
| 3. Drug reaction or overdose | 22-28% |
| 4. Acute stroke | 0-3% |
| 5. Bedfast patients with metastatic cancer who are spending fifty percent of their time in bed | 0-3% |
| 6. End stage liver disease | 0-3% |

CPR Outcomes

7. Dementia requiring long-term care	0-3%
8. Coma (traumatic or non-traumatic)	0-3%
9. Multiple (2 or more) organ system failure with no improvement after 3 consecutive days in the ICU	0-3%
10. Unsuccessful out-of-hospital CPR	0-3%
11. Acute and chronic renal failure	0-10%
12. Elderly patients	Same as general population
13. Chronically ill elderly	0-5%

Public Perceptions

- 67% of resuscitations are successful on TV
- Educating patients
 - 371 patients, age >60yrs
 - 41% wanted CPR
 - After learning the probability of survival only 22% wanted CPR

NEJM 1996: 334:1578-1582

NEJM 1994: 330:545-549

Acad Emer Med 2000:7(1):48-53

DNR Discussions

- Physicians speak 75% of the time and use medical jargon
- After discussions
 - 66% did not know that many patients need mechanical ventilation after resuscitation
 - 37% thought ventilated patients could talk
 - 20% thought ventilators were O₂ tanks

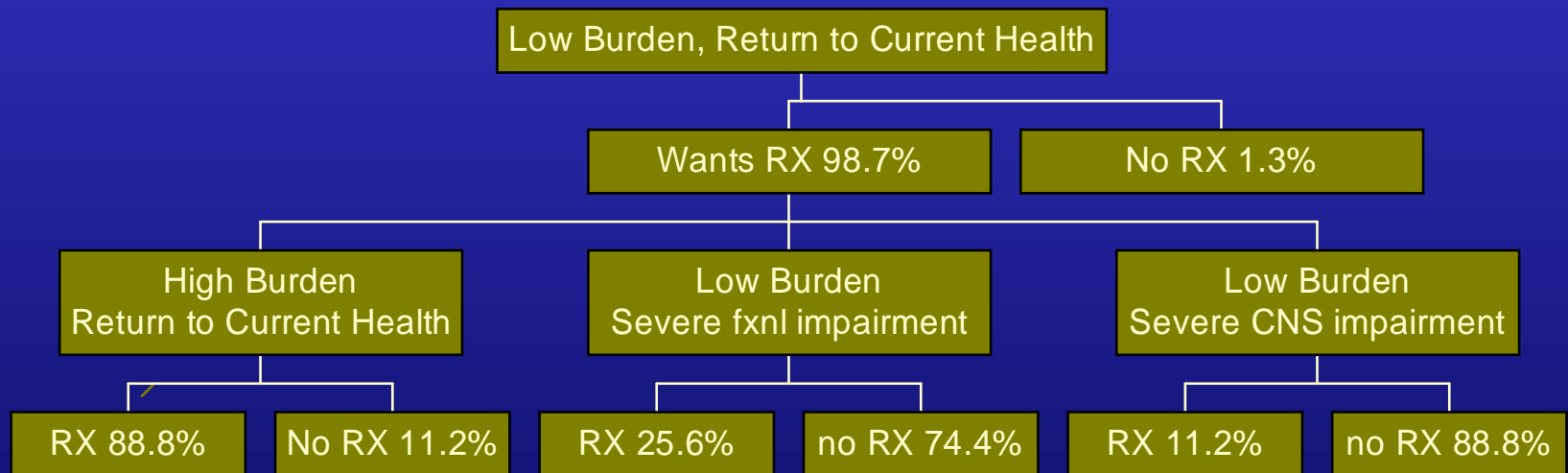
JGIM 1995; 10:436-442

JGIM 1998; 13:447-454

CPR: Functional Health Illiteracy

- Effect of a multimedia educational intervention on knowledge base and resuscitation preferences among lay public
 - 8-minute video
 - median estimates of predicted postcardiac arrest survival rate:
 - 50% before and 16% after video
 - series of hypothetical scenarios:
 - significantly more participants indicated that they would refuse CPR in scenarios involving terminal illness post video

Treatment Preferences Based on Burden of Treatment, Outcome



Barriers to DNR Discussion

- Personal discomfort with confronting mortality
- Fear of damaging the doctor-patient relationship
- Fear of harming the patient by raising the topic of death
- Limited time to establish trust
- Difficulty in managing complex family dynamics

Is this a case of medical futility?



- Unequivocal cases of medical futility are rare
- Miscommunication common
- Value differences common
- Case resolution more important than definitions

What Futility Is

- Cannot achieve the patient's goal
- Serves no legitimate goal of medical practice
- Ineffective more than 99% of the time
- Does not conform to accepted community standards

What Futility is Not

- Things that are impossible, implausible
 - Not just description, but operational
 - Distinguish from hopelessness
 - Not an argument to limit resources
-

Differential Diagnosis

- Inappropriate surrogate
- Misunderstanding
- Personal factors
- Values conflict

Care vs. Treatment

- Care is never futile.
- Certain treatments, under specific circumstances, may be inappropriate and futile.

Conflict over Treatment

- Unresolved conflicts lead to misery
 - most can be resolved
- Try to resolve differences
- Support the patient / family
- Base decisions on
 - informed consent, advance care planning, goals of care

Shared Medical Decision Making

- Will treatment make a difference?
- Do burdens of treatment outweigh benefits?
- Is there hope of recovery?
 - If so, what will life be like afterward?
- What does the patient value?
 - What is the goal of care?

Patient Care Categories: Rationales for Decision-Making

- Poor chance CPR will be successful (no medical benefit)
- Poor outcome expected following CPR
- Poor quality of life currently, according to the patient/surrogate

Language Issues

- How we talk about DNR orders is important
 - “The message behind the term ‘do not resuscitate’ is predominantly negative, suggesting an absence of treatment and care. The reality is that comfort care and palliative care are affirmative and, for these patients, more appropriate interventions”.

Discussing DNR

- A 53 year old woman is admitted to the hospital because of lower extremity swelling and pain. She has a history of breast cancer, metastatic to bone and liver. She has been treated with several different courses of combination chemotherapy. There is no record of existing advance directives or evidence of any discussion about advance care planning in the medical record. The diagnostic workup reveals an extensive DVT.

DNR Discussion: Scenario 1

A resident physician, looking preoccupied, enters the room.

MD: Mrs.. B, according to hospital rules, I need to discuss your code status with you. Do you wish to be a full code or a no code?

Mrs. B: (looking pensive) Oooh, I don't know...I've never thought about this before...I don't want to die. I still have relatively young children.

MD: So you want to be a full code?

Mrs. B: Yes, I guess so...

MD: OK

The physician leaves the room.

DNR Discussion: Scenario 2

A resident physician, looking uneasy, enters the room.

MD: Mrs. B, umm, uhhh, if anything were to happen, do you want us to do everything?

Mrs. B: *(tentatively, after a pause)* I don't understand.

MD: *(speaking quickly)* Well, if your heart and lungs were to stop, would you want us to use shocks to start your heart and put you on a breathing machine?

Mrs. B: Yes, I guess so...

DNR Discussion: Scenario 2

MD: *(with increased volume and forcefulness)* You mean you want us to jump up and down and break your ribs and put in a big plastic tube down your throat and do a lot of aggressive and invasive measures only to die in the intensive care unit?!

Mrs. B: *(meekly and seeming a bit frightened)* Oh, I guess not.

MD: *(in original tone)* OK, so you want DNR status.

The physician leaves the room.

Listen through the Patient/ Family Ears

- He's "stable"
 - Pt on pressors, vent, dialysis, no changes
- Do you want us to do CPR?
- Do you want to "trach" him?
- He is getting better
- She has a chance of surviving if we do CPR
- He has a chance of coming off the ventilator and going home

Language with Unintended Consequences

- Do you want us to do everything possible?
- Will you agree to discontinue care?
- I think we should stop aggressive/ curative therapy.
- There is nothing more we can do.

Language Issues

- Do you want us to do “everything”?
- Will you agree to discontinue care?
- It’s time we talk about pulling back
- I think we should stop aggressive/ heroic therapy
- Despite trying these treatments for several days, and around the clock, expert care, he is unfortunately too sick to respond.
- We will change goals of care to respect her wishes
- We will intensify care; his comfort and dignity are our highest priorities
- Let’s discontinue treatments that are not providing benefit.

8-Step Protocol

1. Prepare for discussion
 - Understand the patient and family
 - Understand the patient's condition and prognosis
 - Retrieve completed Advance Care Directives
 - Determine “Agent” (Spokesperson) or responsible party
2. Determine what the patient and family know
 - re: condition, prognosis
3. Explore goals, hopes and expectations

Developed for NYS MOLST, Bomba, 2005

8-Step Protocol

4. Suggest realistic goals
5. Respond empathetically
6. Use MOLST to guide choices and have patient/family share wishes
 - Shared medical decision making
 - Conflict resolution
7. Complete and sign MOLST
8. Review and revise periodically



Questions?

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“Knowing is not enough; we must apply.
Willing is not enough; we must do.”

Goethe