DNR IN THE 21ST CENTURY: 
WHO’S CHOICE AND WHEN?

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Objectives

- Review the history of cardio-pulmonary resuscitation (CPR)
- Discuss the current challenges to using and not attempting CPR (Do Not Resuscitate- DNR)
- Describe the BWH DNR policy regarding decisions to withhold resuscitation
- Apply the policy to a case

The Components:

- Airway
  - 1568 Belgian anatomist, Andreas Vesalius, conducted experiments on animals to support breathing with hollow reed (but relevance to humans not understood)
  - 1744 Dutch Humane Society trained to aid drowning victims by holding them upside down and rolling over a barrel
  - 1895 Alfred Kirstein invented laryngoscope for visualization of trachea
  - 1950’s Peter Safar methodically investigated ways to optimize airway (“jaw thrust”) in daring experiments in which he paralyzed volunteers to demonstrate that optimal patency was achieved when neck extended, mandible supported

- Breathing
  - 1500’s Paracelsus writes about using bellows-to-nostril resuscitation
  - 1700’s Discovery of oxygen led to discrediting of effectiveness of exhaled air and barotrauma often resulted from use of bellows
  - 1950’s negative pressure “ventilators” (iron lung) in insufficient supply in Copenhagen polio epidemic led to use of positive pressure ventilation, initially with tracheostomy tube and rubber bag
  - 1960’s standard use of positive pressure ventilators in beginning of ICU’s
The History of CPR, con’t

Circulation
- 1874: Moritz Schiff noted carotid pulsation after manually squeezing canine heart, leading to “cardiac massage”
- 1892: Friedrich Maas cited first closed chest cardiac massage in human, but his contribution was forgotten for 70 years
- 1901: Dristian Igelsrud performed first successful open-chest massage in anesthesia-induced arrest.
- 1958: William Kouwenhoven reintroduced external cardiac massage, which quickly eclipsed open-chest method


The History of CPR, con’t

Defibrillation
- 1947: Claude Beck performed first successful open human defibrillation in 14 yr old boy in surgery for repair of sternal deformity – during wound closure, his pulse stopped, chest was reopened, and he was found to be in ventricular defibrillation. Open cardiac massage was performed for 70 minutes and after 2 series of electric shocks delivered to the heart, regular pulse restored.
- 1955: Paul Zoll recorded first successful closed-chest human defibrillation on a man with recurrent syncope and ventricular defibrillation
- 1979: first portable automatic external defibrillator developed


The History of CPR, con’t

- 1930’s: Drs. Beck and Leighninger formed and trained one of the first in-hospital resuscitation teams at Case Western
- 1960’s: mobile intensive care unit ambulances proven by Dr. Pantridge to be effective in patients with sudden cardiac death after acute MI
- 1966: First CPR guidelines published and teaching laypersons in community encouraged

What’s the Problem?

- 1974 AMA issued recommendation that code status be documented in medical record
- 1976 first hospital policies on DNR were begun, heralding a new era in which CPR became a default standard of care in cardiac arrest unless DNR was written with consent of the patient
  - DNR only order that requires consent to prevent a medical procedure from being performed

CPR and its cousin, ACLS, became the intervention performed when anyone stopped breathing or their heart stopped beating…and it was very successful in some situations.

But no one dies (except for Brain Death Criteria which is <1% of deaths in US annually) without stopping breathing and heart beating.

So when should we use CPR? On everyone? Only on those who request it not be used — DNR?

How did patients decide to say “Yes” to resuscitation? MEDIA!!


- Responsible, shared decision making on the part of physicians and patients about the potential use of cardiopulmonary resuscitation (CPR) can only occur when both are well informed about CPR and the patient. We analyzed how three popular television programs depict CPR.

METHODS
- We watched all the episodes of the television programs ER and Chicago Hope during the 1994–1995 season and 50 consecutive episodes of Rescue 911 broadcast over a three-month period in 1995. We identified all occurrences of CPR in each episode and recorded the causes of cardiac arrest, the identifiable demographic characteristics of the patients, the underlying illness, and the outcomes.

RESULTS
- There were 60 occurrences of CPR in the 97 television episodes — 31 on ER, 11 on Chicago Hope, and 18 on Rescue 911. In the majority of cases, cardiac arrest was caused by trauma; only 28 percent were due to primary cardiac causes. Sixty-five percent of the cardiac arrests occurred in children, teenagers, or young adults. Seventy-five percent of the patients survived the immediate arrest, and 67 percent appeared to have survived to hospital discharge.

CONCLUSIONS
- The survival rates in our study are significantly higher than the most optimistic survival rates in the medical literature, and the portrayal of CPR on television may lead the viewing public to have an unrealistic impression of CPR and its chances for success. Physicians discussing the use of CPR with patients and families should be aware of the images of CPR depicted on television and the misperceptions these images may foster.
INTRODUCTION:
Patients' preferences for cardiopulmonary resuscitation (CPR) relate to their perception about the likelihood of success of the procedure. There is evidence that the lay public largely base their perceptions about CPR on their experience of the portrayal of CPR in the media. The medical profession has generally been critical of the portrayal of CPR on medical drama programs although there is no recent evidence to support such views.

OBJECTIVE:
To compare the patient characteristics, cause and success rates of cardiopulmonary resuscitation (CPR) on medical television drama with published resuscitation statistics.

METHOD:
88 episodes of television medical drama were reviewed (26 episodes of Casualty, 25 episodes of City, 23 episodes of Grey's Anatomy and 14 episodes of ER) screened between July 2008 and April 2009. The patient's age and sex, medical history, presumed cause of arrest, use of CPR and immediate and long term survival rate were recorded.

MAIN OUTCOME MEASURES:
Immediate survival and survival to discharge following CPR.

RESULTS:
There were a total of 76 cardio-respiratory arrests and 70 resuscitation attempts in the episodes reviewed. The immediate success rate (46%) did not differ significantly from published real life figures (p=0.48). The resuscitation process appeared to follow current guidelines. Survival (or not) to discharge was rarely shown. The average age of patients was 36 years and contrary to reality there was not an age related difference in likely success of CPR in patients less than 65 compared with those 65 and over (p=0.72). The most common cause of cardiac arrest was trauma with only a minor proportion of arrests due to cardio-respiratory causes such as myocardial infarction.

CONCLUSIONS:
Whilst the immediate success rate of CPR in medical television drama does not significantly differ from reality the lack of depiction of poorer medium to long term outcomes may give a falsely high expectation to the lay public. Equally the lay public may perceive that the incidence and likely success of CPR is equal across all age groups.

What does CPR look like in the popular media?

https://youtu.be/9j9b31POXKk

What’s the Problem?

What evolved in US, where autonomy is a strong driver to decision making, is patient-requested DNR orders.

But what happens when clinicians and patients (or surrogates) disagree??

- Initially, attempts that were not ethically acceptable:
  - “slow codes” and “show codes”
  - Decisions not to resuscitate not shared with patients

How do we decide who benefits from CPR and who does not?
The Community Ethics Committee (CEC) is a group of fifteen members living in the general Boston area who are representative of the population served by the Harvard teaching hospitals.

- Members are diverse as to socio-economic status, religious affiliations, cultural and language groups, age, gender, and educational and professional backgrounds.

- We came to the topic of “unilateral DNRs” with the assumption that CPR is a uniformly effective treatment that will be provided automatically to someone presenting with cardiac arrest.

- We learned that it is rarely effective and is sometimes an incredibly invasive and violent procedure that leads to broken ribs, brain injury and other harms. For patients who are actively and irrevocably dying, CPR may only increase suffering and prolong the dying process.

- We were faced with the realization that all deaths involve cardiac arrest and that death is a sacred process which should be protected.

- We struggled with defining what medical treatments patients and families are entitled to expect, and gravitated to an approach which took into account the patient’s overall goals of care, as agreed upon after discussions with an informed patient and family.
In conversation with medical ethicist Dr. Robert Truog, we learned that focusing on goals of care rather than futility might be a more productive way to approach this issue.

When the focus is on goals of care, the discussion changes to include the patient and family’s values, whereas when the focus is on medical procedures, the medical team’s expertise controls the discussion.

In order to change the dialogue, Dr. Truog suggested that conversations with the patient and family begin with, “What are you hoping for?”

This places a discussion about CPR in its rightful context - a physiological evaluation of whether it will be effective in meeting the patient’s overall goals of care. The determination of goals of care is rightly within the patient’s (or surrogate’s) decision-making control, while the physiological evaluation remains within the doctor’s purview.

The CEC focused on 3 questions which arose in connection with this topic:

1. What is the language that should be used to frame this area of medical decision-making?
2. How should this area of medical decision-making be presented to patients and their families? Or, in the alternative, should it be left entirely to the medical team, with no discussion with the patient and family expected or required?
3. Should a medical team perform CPR when the patient or family demands it, even when it is deemed not medically appropriate or therapeutic?

The phrase “unilateral DNR” was felt to be “draconian and offensive” and easily misunderstood.

The phrases “medically inappropriate CPR” and “medically futile CPR” seemed to involve value judgments that extended beyond medical evidence.

“CPR not medically indicated” or “non-therapeutic CPR” were deemed most appropriate based on our view that the only acceptable criteria for deciding not to perform CPR must be in the context of a patient’s goals of care.
2. How should this area of medical decision-making be presented to patients and their families? Or, in the alternative, should it be left entirely to the medical team, with no discussion with the patient and family expected or required?

- CPR falls into a unique category of medical decision-making. Patients must “opt out” of this treatment through the use of a DNR Order; otherwise, the public’s general expectation is that CPR will be done.
- This expectation overlooks the fact that CPR is more likely than not ineffective in resuscitating a patient suffering from cardiac arrest and that CPR may not be appropriate to the context of the patient’s goals of care.
- Moreover, requiring medical professionals to participate in a procedure that sometimes involves physical violence can violate their mandate to “do no harm” and cause moral distress.
- Given these circumstances, a physician could reasonably determine that CPR would not accomplish the patient’s goals of care as determined by the patient or surrogate and should therefore be a non-therapeutic medical treatment.
- The physician must fully disclose this medical conclusion to the patient and/or family. The discussion should include a thorough explanation of the benefits and burdens of CPR; as well as the option to transfer to another facility that would provide CPR.
- This decision must not be based on individual characteristics of the patient such as age, race or medical fragility, but rather on identifiable physiological criteria.
- The CEC recognized that patients coming from different ethnic, racial or cultural backgrounds are especially vulnerable to decision-making that limits their therapeutic options.

3. Should a medical team perform CPR when the patient or family demands it, even when it is deemed not medically appropriate or therapeutic?

- In considering this question, the CEC was particularly focused on the good of the patient – meaning each patient’s dying process should be as dignified and respectful as possible.
- There was a sense that, once a patient and/or family understood the repercussions of going forward with CPR when it would not provide the hoped-for benefit, they would agree to withhold CPR as a therapeutic option.
- The CEC concluded that medical staff could withhold non-therapeutic CPR even when the patient and/or family demanded it, when that decision was supported by the context of the goals of care given the patient’s particular medical history and likely outcomes.

BWH DNR Policy

Section IV(I)

Patients Imminently Dying or Unlikely to Survive Attempted CPR

A common source of disagreement is whether, for a particular patient, attempted resuscitation will provide enough of a benefit to justify its use. As with any other therapy, clinicians and patients or their surrogates must carefully assess the potential benefits and harms of resuscitation, and make a judgment about whether resuscitation should be attempted.

The relevant harms and benefits of any therapy should be assessed from the patient’s perspective, but clinicians’ expertise and experience are essential in assessing the likelihood of success of the therapy, and the nature of the expected outcomes. For this reason, professional judgment plays a legitimate role in the decision-making process, and in certain circumstances resuscitation can be withheld despite a patient or a surrogate’s insistence on it. Whenever there is significant or persistent disagreement about whether attempts to resuscitate would be appropriate, Ethics Consultation should be requested.
BWH DNR Policy, con’t

Situation 1: When the patient is imminently dying and resuscitation is judged by the responsible physician not to be beneficial to the patient, the physician should consider not exposing the patient to the harms of CPR given the minimum benefits, and enter the appropriate orders. A second opinion from an appropriate attending physician may be valuable.

Situation 2: When the patient is not imminently dying but has no reasonable chance of surviving CPR to the point of hospital discharge, the responsible physician may also consider not attempting resuscitation. In this case, if, after careful discussion with the patient or surrogate, the patient or surrogate does not want to be resuscitated, the patient or surrogate should not be resuscitated, unless otherwise stated. The family should be advised that the patient is not resuscitated and that CPR will not be attempted. The responsible physician should notify the Ethics Service and the Ethics Service should be involved in this discussion. In some clinical circumstances, there is reasonably stable professional consensus that resuscitation should not be attempted, because the benefits are few or nonexistent. These currently include (but are not limited to) patients in a so-called permanent vegetative state and patients who have widespread metastatic cancer or advanced dementia.

In either circumstance, the responsible physician who decides not to offer CPR should inform the patient or surrogate of this decision and its rationale and assure that the patient will continue to receive the highest possible quality of care.

BWH Policy Applied to a Case

- BWH Encounter 9/5/2015 – 11/14/2015
- 75 y.o. female with history of AF, pHTN, lupus, HFpEF, CAD, CKD
  - 9/5/2015 – 9/14/2105 MICU admit
    - Acute respiratory failure, hypotension, AKI, rapid AF
    - Intubated, pressors
    - Dr UTI
  - 9/21/2015 – 9/22/2015 MICU readmission
    - Altered MS
  - 9/26/2015 MICU readmission
    - Hematochezia, hypotension and recurrent acute respiratory failure, renal failure

MICU Attendings

- 9/5/2015 (A)
- 9/12/2015 (B)
- 9/21/2015 (C)
- 9/26/2015 (D)
- 9/28/2015 (E)
- 10/3/2015 (F)
- 10/5/2015 (G)
- 10/10/2015 (F)
- 10/17/2016 (H)
- 10/19/2015 (I)
- 10/24/2015 (J)
- 10/2/2015 (I)
- 10/26/2015 (M)
- 11/02/2015 (K)
- 11/7/2015 (L)
- 11/9/2015 (K)
- 11/14/2015 (M)
Early November 2015
- Treated for recurrent infections
- s/p Trach / PEG
- Chronic renal failure – CVVH “not able to tolerate HD”
- Low dose pressor dependent
- Not interactive
- Full code but discomfort from care team that this was not appropriate for patient

Patient Care Conference documentation
- 9/10/2015
- 9/11/2015
- 10/1/2015
- 10/25/2015
- 11/8/2015
- 11/12/2015
- 11/13/2015

10/25/15 Patient Care Conf Note
- We discussed Ms. X respiratory failure as well, and that she has been able to stay on Trach collar during the day for the past two days. We plan to extend her time on trach collar. Overall I expressed our teams opinion that while improving slowly, Ms. X remains tenuous. To this end, I also recommended that she would not benefit from CPR were her heart to stop. Daughter/HCP agent expressed her firmly held belief that her mother would want to be resuscitated no matter her outcome.
- We plan to move forward with long term dialysis, trach collar and transfer to rehab facility as soon as she can tolerate consistent
11/8/2015

- Had a long conversation with the health care proxy re: her long hospital course here and this most recent setback. Daughter/HCP agent expressed stress as well as worry/fear about the current situation and lack of trust in the medical team. She expressed some frustration about her care and her worry that her mother was not receiving the best, most aggressive care, as she has often felt that interventions have been performed that do not make sense to her and she has also felt pressure from the medical team to withdraw care.

Approach

- Getting to know patient
  - Baseline functional status
  - Elements in life most important to patient
- Focus on goals / not Code Status
- Develop trust
  - Stated up front we were not going to discuss code status
  - Get insight decision for code status
- Ethics Consultation
- Updates to family
  - No bedside updates / consults input as part of MICU team updates
- Recommendation after knowing patient