

Family Presence During Procedures and Resuscitation

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Objectives

- Describe potential benefits of family presence during resuscitation
- Identify potential negative consequences of family presence during resuscitation
- Describe effects of family presence on bereaved relatives
- Discuss best practices for a positive experience for family presence during resuscitation



Case

- A 68 year old woman presents to the Emergency Department with chest pain.
- She is escorted to a treatment room while her husband registers her.
- Immediately after arrival, she goes into full cardiac arrest.
- *Should the husband be told?*
- *Should the husband be brought back during the resuscitation attempts?*

Family Presence During Procedures and Resuscitation

- Resuscitation
- What do families want?
- What are the effects on families?
- Pediatric resuscitations and procedures
- Perspectives of health care providers
- Practical guidelines: How to effectively work with families to witness resuscitations and procedures

Cardiopulmonary Resuscitation

- 400,000 sudden deaths in the US annually
- 70% at home, 30% in public settings
- Variable survival rate (0-16%)
- Labor intensive
- High cost



Cardiopulmonary Resuscitation: Potential Benefits

- Restore circulation and life
- Time for communication
- Assurance to family that everything was done
- Resolution of guilt for survivors
- Time for acceptance of bad news.

Shout for Help/Activate Emergency Response



Improving Survival From Sudden Cardiac Arrest

The Role of the Automated External Defibrillator

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CARDIOVASCULAR DISEASE IS THE major cause of death in the United States, resulting in nearly 1 million deaths a year. Nearly half of these deaths (250 000 to 500 000) are sudden and unexpected.¹⁻³ Most sudden deaths from cardiac arrest occur outside the hospital, and survival rates have traditionally been poor—only 1% to 5% of these patients are estimated to survive to hospital discharge.^{4,5} When first-responders arrive early, ventricular tachycardia and ventricular fibrillation are the rhythms they most com-

Context Sudden cardiac death is a major public health problem in the United States, and improving survival after out-of-hospital cardiac arrest has been the subject of intense study. Early defibrillation has been shown to be critical to improving survival. Use of automated external defibrillators (AEDs) has become an important component of emergency medical systems, and recent advances in AED technology have allowed expansion of AED use to nontraditional first responders and the lay public.

Objectives To examine advancements in AED technology, review the impact of AEDs on time to defibrillation and survival, and explore the future role of AEDs in the effort to improve survival following sudden cardiac arrest.

Data Sources MEDLINE was searched for articles from 1966 through December 2000 (Medical Subject Headings: *electric countershock, heart arrest, resuscitation, emergency medical services*; keywords: *automatic external defibrillator, automated external defibrillator, public access defibrillation*). Reference lists of relevant articles, news releases, and product information from manufacturers were also reviewed.

Study Selection Initial MEDLINE search produced 4816 articles, from which 101 articles were selected for referencing based on having been published in a peer-reviewed journal and on relevance to the subject of the manuscript as determined by all 5 authors.

Data Extraction All studies were critically reviewed for relevance, accuracy, and quality of data and study design by all authors.

Data Synthesis Recent advances in AED technology and design have resulted in marked simplification of AED operation, improvements in accuracy and effectiveness,

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Induced Therapeutic Hypothermia in Post-Cardiac Arrest Care

The risk of death during the first 48 hours in post-cardiac arrest victims who have achieved return of spontaneous circulation (ROSC) is 2.26 times higher for each degree over a core body temperature of 37°C (OR 2.26; 95% CI 1.24-4.12).¹⁻² Although the cause of this in humans remains unknown, animal studies have shown that hyperthermia accentuates brain ischemia through the following pathophysiologic mechanisms: (1) the release of neurotransmitters such as ganglionic glutamate and aspartate; (2) the depletion of adenosine triphosphate; and (3) the formation of free radicals following reperfusion.³⁻⁷ In addition, irreversible neuronal injury is accelerated in hyperthermia due to the activation of a proteolytic enzyme called **calpain** that is responsible for the proteolysis of spectrin, a cytoskeletal protein of neurons, soon after reperfusion.⁸

Studies have shown that cooling the body to between 32°C and 34°C within minutes after return of spontaneous circulation (ROSC) improves neurological outcomes in out-of-hospital cardiac arrest secondary to ventricular fibrillation (VF).⁹⁻¹² The benefits of therapeutic hypothermia in patients who achieved ROSC after cardiac arrest from ventricular fibrillation (VF) showed that, in patients receiving induced therapeutic hypothermia, the risk of mortality was decreased by as much as 74% (RR 0.74; 95% CI, 0.58-0.95).¹³⁻¹⁴ In addition, a significant improvement in neurologic outcomes is 1.4 times more likely if these patients undergo therapeutic hypothermia (RR 1.40; 95% CI, 1.08-1.81).¹⁵⁻¹⁶ As for non-VF cardiac arrest, there are non-randomized studies that have reported possible benefits from induced therapeutic hypothermia after in- or out-of-hospital cardiac arrests that have achieved ROSC. A systematic review of these non-randomized studies showed that in patients with non-VF cardiac arrest rhythms, there was a reduction in risk of mortality of 84% in patients who underwent therapeutic hypothermia (RR 0.84; 95% CI 0.78-0.92).¹⁷ The results of neurologic outcomes were not statistically significant (RR 0.95; 95% CI 0.90-1.01).¹⁷

Indications

Induced hypothermia is indicated for comatose patients who achieved ROSC after suffering a cardiac arrest who are unable to follow verbal commands and/or have purposeful movements. Absolute contraindications include active non-compressible bleeding and patients with a “do not resuscitate” order. Good outcomes have been

Survival after Cardiopulmonary Resuscitation

- Down time (time since arrest)
- Presenting rhythm
- Underlying medical condition
- Response to prehospital ACLS
- Age
- Long-term care
- Presence of respirations.

Cardiopulmonary Resuscitation: Survival Rates

- Survive to hospital discharge : 0-34%
 - (Mehra, 2007; Ko, 2015; Browrer, 2015)
- Survival among unwitnessed arrests : 0.5%
 - (Vayrynen, 2008)
- Japan 8%
 - (Tsugawa, 2015)
- Saudi Arabia 4%
 - (Bin Salleah, 2015)
- Lay public estimate of survival : 54% (Marco, 2008)

Cardiopulmonary Resuscitation: Benefits

- Restore circulation and life
- Time for communication
- Assurance to family that everything was done
- Resolution of guilt for survivors
- Time for acceptance of bad news

Cardiopulmonary Resuscitation: Risks

- Resuscitation to suboptimal quality of life (PVS, anoxic brain injury, etc.)
- High resource investment
- Reduced time and energy available to family
- Reduced time and energy available to other patients

Where do patients want to die?

- 90% of respondents to NHO Gallup survey in the U.S. want to die at **home**
- 70% of patients in the US die in **institutions**

Less tangible benefits of clinically nonbeneficial interventions

- Benefits for patients (empathy, communication, positive outlook, placebo effect)
- Benefits for family (resolution of guilt, reduced anxiety, trust in the medical profession)

American Heart Association 2000 guidelines for emergency cardiovascular care and cardiopulmonary resuscitation

- Advocates family-witnessed resuscitation
- Recommends family member presence be
- allowed during CPR attempts

Family-witnessed resuscitation growing trend

Some sites developing policies

BY SHARON KIRKEY, POSTMEDIA NEWS AUGUST 7, 2014

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STORY

PHOTOS (1)



Resuscitations can be chaotic, but a trend is growing to allow family to stay for the last moments of a loved one's life.

Photograph by: Scott Olson, Getty Images Files , Postmedia News

Should hospitals allow family members to watch as medical teams work furiously to save a loved one's life? For years families have been shut out of the room during resuscitation attempts in adult hospitals. Real-life resuscitations can be almost violent and the thought was that it would be too psychologically harrowing to allow families to watch.

But a controversial trend known as family presence during resuscitation

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Family Presence at the End of Life

- Family presence (FP)
- Family witnessed resuscitation (FWR)
- Family presence during resuscitation (FPDR)









Family Presence During Resuscitation: Debunking Myths

- Do families want to be present during resuscitations?
- Do families want the opportunity to be present?
- Are families negatively affected by witnessing resuscitations?
- Do families interfere with resuscitative efforts?
- Is there an increased medicolegal risk?

Family Presence During Resuscitation: Positive Aspects

- Families believe their presence was beneficial to the dying patient
- Families report better adjustment to death and grieving
- Most families report desire to be present
- Families want the right to choose
- *Boie, 1999, Doyle, 1987, Eichhorn, 1996, Meyers, 2000, Jabre, NEJM 2013*

Family Presence During Resuscitation: Negative Aspects

- Family may be negatively affected by aggressive interventions
- Family may physically interfere with medical care
- Emotional reactions of family may be distracting to health care providers
- Family presence may interfere with candid language and behavior.

What do Families Want?

Do Families Want to be Present?

- Telephone survey of 25 families of recently deceased
- 80% would have wanted to be present in the resuscitation room
- 96% believe families should be able to be with loved ones
- 68% believe FP may have helped patients
- (*Meyers, 1998*)

Perspectives of Families of Recently Deceased

- Survey of 35 families of recently deceased
- 11% were offered the option to be present during the resuscitation
- 69% would have liked the option
- (Barratt, 1998)

Patient's Attitudes

- 72% desire a family member's presence during resuscitation
- 56% wanted only certain family members present
- 20% specifically did NOT want family present (older, white respondents)
- (Benjamin, 2004)

What are the effects on families
who witness resuscitation?

Effects on Bereaved Relatives

- Interviews with 39 family members who witnessed resuscitations
- 98% would repeat the experience
- 95% said presence helped them comprehend the seriousness of the situation
- 95% believed that the visit helped the patient.
- (Meyers, 2000)

Health care providers' evaluations of family presence during resuscitation

- Family members were able to emotionally tolerate the situation (59%)
- Families did not interfere with the care being provided to the patient (88%)
- Team communication was not negatively affected (88%).
- A family facilitator was present 70% of the time, and it was usually a registered nurse (41%).
- *Ohman, 2010*

Descriptions by Family Members of Witnessed Resuscitations

- *“Powerful”*
- *“Natural”*
- *“Frightening”*
- *“Difficult”*
- *“Scary, but I’d still rather be there”*

ORIGINAL ARTICLE

Family Presence during Cardiopulmonary Resuscitation

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ABSTRACT

Family Presence during Cardiopulmonary Resuscitation (Jabre, NEJM, 2013)

- 570 relatives of patients who were in cardiac arrest and were given CPR
- Random assignments to witness CPR or control group
- Control group had higher anxiety, depression, and PTSD
- Family-witnessed CPR did not affect resuscitation characteristics, patient survival, or the level of emotional stress in the medical team and did not result in medicolegal claims.

Table 2. Characteristics and Outcome of Advanced Resuscitation According to the Presence or Absence of a Family Member.

Characteristic or Outcome	Family Member Present (N = 342)	Family Member Absent (N = 228)	P Value
Resuscitation procedure			
Duration of advanced resuscitation — min			0.58
Median	30	30	
Interquartile range	23–40	20–40	
No. of shocks delivered — median (interquartile range)	3 (1–5)	4 (1–6)	0.56
Epinephrine administration — mg			0.86
Median	7	7	
Interquartile range	5–10	5–10	
Additional drugs administered — no. (%)			
Amiodarone	44 (13)	29 (13)	0.96
Fibrinolytic drug	7 (2)	10 (4)	0.11
Lidocaine	0	1 (0)	0.40
Sodium bicarbonate	21 (6)	10 (4)	0.37
Other	26 (8)	13 (6)	0.38
Survival			
Return of spontaneous circulation — no. (%)	94 (27)	58 (25)	0.59
Survival to hospital admission — no. (%)	63 (18)	36 (16)	0.42
Survival to day 28 — no. (%)	11 (3)	9 (4)	0.64

Table 3. Psychological Assessment of Family Members Enrolled in the Study at 90 Days (Observed-Cases Population).*

Variable	Intervention Group (N=233)	Control Group (N=242)	P Value†	Family Member Present (N=289)	Family Member Absent (N=186)	P Value†
IES score — median (interquartile range)‡	22 (12–33)	24 (13–35)	0.26	21 (11–32)	26 (15–36)	0.007
Presence of PTSD-related symptoms — no. (%)§	64 (27)	90 (37)	0.01	78 (27)	76 (41)	0.01
HADS score — median (interquartile range)¶	10 (6–16)	11 (6–19)	0.44	9 (5–16)	12 (7–19)	0.02
Symptoms of anxiety — no./total no. (%)	34/230 (15)	55/239 (23)	<0.001	46/287 (16)	43/182 (24)	<0.001
Symptoms of depression — no./total no. (%)	39/230 (17)	50/239 (21)	0.13	42/287 (15)	47/182 (26)	0.009
Saw a psychologist after resuscitation of the patient — no./total no. (%)	20/232 (9)	18/242 (7)	0.83	25/289 (9)	13/185 (7)	0.23
Received newly prescribed psychotropic drugs after resuscitation of the patient — no./total no. (%)	64/230 (28)	77/238 (32)	0.22	72/287 (25)	69/181 (38)	<0.001
Made a suicide attempt after resuscitation of the patient — no./total no. (%)	2/227 (1)	3/238 (1)	—	5/285 (2)	0/180	—

* PTSD denotes post-traumatic stress disorder.

† P values were calculated with the use of generalized estimating equations for categorical variables and mixed-model analysis of variance for continuous variables, with emergency medical services unit as a random effect and the relative's relationship to the patient as a fixed effect.

‡ Scores on the Impact of Event Scale (IES) range from 0 (no PTSD-related symptoms) to 75 (severe PTSD-related symptoms).

§ The presence of PTSD-related symptoms was defined by an IES score higher than 30.

¶ Scores on the Hospital Anxiety and Depression Scale (HADS) range from 0 to 42, with higher scores indicating greater anxiety and depression.

Family presence during trauma resuscitation: ready for primetime?

- *Family members present during trauma resuscitation suffered no ill psychologic effects and scored equivalent to those family members who were not present on anxiety, satisfaction, and well-being measures. Quality of care during trauma resuscitation was maintained. ...all the family members would repeat experience again*
- *Pasquale, 2010*



What about Pediatric cases?

Pediatric Resuscitations

- 90% of resuscitations are for adult patients
- Emergency physicians feel inadequately prepared to cope with pediatric resuscitations
- Communications with children's families is more difficult than adult's families

Role of Health Care Professionals in Pediatric Arrests

- Medical interventions
- Support of family
- Survivors clearly remember staff reactions
- Communication with family
- Multidisciplinary approaches

Family presence During ED Procedures

- Families and ED personnel surveyed following FP during ED procedures
- 127 procedures on 96 pediatric patients
- 91% of FM favored presence
- 93% of ED staff favored presence
- 5% of ED staff felt increased anxiety during FP
- (Sacchetti, 1996)

Family Presence During Invasive Procedures in the PICU

- Survey of parents of children who underwent invasive procedures in the PICU
- Reduced parental anxiety about procedures
- Presence helpful to family
- Presence perceived helpful to medical staff
- Presence perceived helpful to child
- 94% would repeat their choice to be present
- 72% of nurses believed family presence was appropriate
- (Powers, 1999)

*“Because I am the mother, I have
the right to decide to leave or go.
If I wouldn't be in the way, I'd
want to stay”*

Parental Presence During Procedures in an Emergency Department

- Parents indicated they should stay with children for these procedures:
- Laceration repair (66%)
- Venipuncture (58%)
- IV (48%)
- ABG (32%)
- Suprapubic aspiration (20%)
- Lumbar puncture (14%)
- (*Bauchner, 1991*)

Should FP vary by Type of Procedure?

- 91% of physicians believe that parents should be present for peripheral IV
- 93%: laceration repair
- 83%: conscious sedation
- 66%: lumbar puncture
- 32%: major resuscitation
- (Beckman, 2002)

How do health care providers feel
about family presence?

Attitudes of Health Care Providers

- Survey of 96 HCPs with experience with FP
- Overall, 76% support FP
- 97% of nurses support FP
- 79% of attending physicians support FP
- 19% of residents support FP
- 57% concerned that families might misinterpret activities
- 15% offered more aggressive treatments, even in futile situations
- (Meyers, 2000, Fein, 2004, Waseem, 2003, Beckman, 2002)

Health Care Provider Perspectives

- 76-97% of HCP favor family presence
- (Meyers, 2000 Fein, 2004, Beckman, 2002, Wascem, 2003, Boudreaux, 2002)

Attitudes of Residents in Training

- 45% reported concerns regarding procedure or resuscitation failure
- (Bradford, 2005)

Attitudes of Nursing Staff

- Nurses in general highly approve
- Education and specialty certification associated with positive attitudes
- (Ellison, 2003, Fulbrook, 2004, MacLean, 2003)

Family Presence During Resuscitation: Debunking Myths

- Do families want to be present during resuscitations? YES
- Do families want the opportunity to be present? YES
- Are families negatively affected by witnessing resuscitations? NO
- Do families interfere with resuscitative efforts? NO
- Is there an increased medicolegal risk?
- NO

Guidelines for Family Witnessed Resuscitation

1. Educate health care providers
2. Consider FP for all procedures and CPR
3. Assess family readiness and offer FP
4. Ensure staff safety
5. Assign a facilitator for communications
6. Attend to the family
7. Involve the family
8. Declaration of death and aftercare
9. Promote research to develop evidence based best practices
10. Develop institutional guidelines and policies.

Curley 2012, Kantrowitz-Gordon 2012, Chapman 2013, Pankop 2012, AAP 2006, EPEC 2011.





Resources

- American College of Emergency Physicians
 - Ethical Issues at the End of Life
 - Patient- and Family-Centered Care and the Role of the Emergency Physician
- American Academy of Pediatrics
 - Recommendations on Family Presence During Pediatric Procedures and Cardiopulmonary Resuscitation
- American Heart Association
 - 2000 guidelines for emergency cardiovascular care and cardiopulmonary resuscitation

Death of a Child in the ED

Joint Statement by ACEP, AAP and ENA

- The ED health care team uses a patient-centered, family-focused, and team-oriented approach when a child dies in the ED.
- The ED health care team provides personal, compassionate, and individualized support to families while respecting social, spiritual, and cultural diversity.
- The ED health care team provides effective, timely, attentive, and sensitive palliative care to patients with lifespan-limiting conditions and anticipated death presenting to the ED for end-of-life care.
- The ED health care team clarifies with the family the child's medical home and promptly notifies the child's primary care provider and appropriate subspecialty providers of the death and, as appropriate, coordinates with the medical home and primary care provider in follow-up of any postmortem examination.

Death of a Child in the ED

Joint Statement by ACEP, AAP and ENA

Written protocols regarding:

- family member presence during and after attempted resuscitation
- preterm delivery resuscitation
- end-of-life care/anticipated death in the ED of a child with a lifespan-limiting condition
- collaboration with law enforcement staff to address forensic concerns while providing compassionate care
- institutional position on permitting the practice of procedures involving the newly deceased
- best practice-outlining procedures after the death of a child (eg, a “death packet” with guidelines for completion of a death certificate, organ donation, etc)

Death of a Child in the ED

Joint Statement by ACEP, AAP and ENA

- Processes for notification of primary care and subspecialty providers and medical home of the impending death or death of their patient
- Identification of resources, including other individuals and organizations, that can respond to the ED to assist staff and bereaved families, such as child life, chaplaincy, social work, behavioral health, hospice, or palliative care staff
- Identification and notification of medical examiner/coroner regarding all deaths, as directed by applicable law
- Routine offering of postmortem autopsy to families for all non-medical examiner-coroner cases
- Clear processes for organ and tissue procurement
- Identification and reporting of cases of suspected child maltreatment
- Formal voluntary support and programs for ED staff and trainees, out-of-hospital providers, and others who are experiencing distress
- Support of child death review activities to understand causes of preventable child death

American Heart Association 2000 guidelines for emergency cardiovascular care and cardiopulmonary resuscitation

- Advocates family-witnessed resuscitation
- Recommends family member presence be
- allowed during CPR attempts

Case

- A 68 year old woman presents to the Emergency Department with chest pain.
- She is escorted to a treatment room while her husband registers her.
- Immediately after arrival, she goes into full cardiac arrest.
- *Should the husband be told?*
- *Should the husband be brought back during the resuscitation attempts?*

Role of Health Care Professionals in Supporting Families

- Communication
- Counseling
- Consider allowing family presence
- Allow viewing of the body
- Consider organ donation
- Post-resuscitation guidance and counseling



