Part 2: Ethical Issues

The goals of emergency cardiovascular care are to preserve life, restore health, relieve suffering, limit disability, and reverse clinical death. CPR decisions are often made in seconds by rescuers who may not know the patient or know if an advance directive exists. As a result, administration of CPR may sometimes conflict with a patient's desires or best interests.[1] This section provides guidelines to healthcare providers for making the difficult decision to provide or withhold emergency cardiovascular care.

Ethical Principles

Ethical and cultural norms must be considered when beginning and ending a resuscitation attempt. Although physicians must play a role in resuscitation decision making, they should be guided by scientifically proven data and patient preferences.

Principle of Patient Autonomy

Patient autonomy is generally respected both ethically and legally. It assumes that a patient can understand what an intervention involves and consent to or refuse it. Adult patients are presumed to have decision-making capability unless they are incapacitated or declared incompetent by a court of law. Truly informed decisions require that patients receive and understand accurate information about their condition and prognosis, the nature of the proposed intervention, alternatives, and risks and benefits. The patient must be able to deliberate and choose among alternatives and be able to relate the decision to a stable framework of values. When decision-making capacity is temporarily impaired by factors such as concurrent illness, medications, or depression, treatment of these conditions may restore capacity. When patient preferences are uncertain, emergency conditions should be treated until those preferences can be clarified.

Advance Directives, Living Wills, and Patient Self-Determination

An advance directive is any expression of a person's thoughts, wishes, or preferences for his or her end-of-life care. Advance directives can be based on conversations, written directives, living wills, or durable powers of attorney for health care. The legal validity of various forms of advance directives varies from jurisdiction to jurisdiction. Courts consider written advance directives to be more trustworthy than recollections of conversations.

A "living will" is a patient's written direction to physicians about medical care the patient would approve if he or she becomes terminally ill and is unable to make decisions. A living will constitutes clear evidence of the patient's wishes, and in most areas it can be legally enforced.

Living wills and advance directives should be reconsidered periodically because the desires of patients and their medical condition may change over time. The Patient Self-Determination Act of 1991 requires healthcare institutions and managed-care organizations to inquire whether patients have advance directives. Healthcare institutions are required to facilitate the completion of advance directives if patients desire them.

Surrogate Decision Makers

When a patient has lost the capacity to make medical decisions, a close relative or friend can become a surrogate decision maker for the patient. Most states have laws that designate the legal surrogate decision maker (guardian) for an incompetent patient who has not designated a decision maker through a durable power of attorney for health care. The law recognizes the following order of priority for guardianship in the absence of a previously designated decision maker: (1) spouse, (2) adult child, (3) parent, (4) any relative, (5) person nominated by the person caring for the incapacitated patient, (6) specialized care professional as defined by law. Surrogates should base their decisions on the patient's previously expressed preferences if known; otherwise, surrogates should make decisions on the basis of the patient's best interest.

Children should be involved in decision making at a level appropriate for their maturity and should be asked to consent to healthcare decisions when able. Although persons <18 years of age rarely possess the legal authority to consent to their own health care except under specific legally defined situations (ie, emancipated minors and for specific health conditions such as sexually transmitted diseases and pregnancy), the dissent of an older child should be taken seriously. If parents and an older child are in conflict about a treatment plan, every effort should be made to resolve the conflict. The use of force is rarely appropriate in the delivery of medical care to adolescents.

Principle of Futility

If the purpose of a medical treatment cannot be achieved, the treatment is considered futile. The key determinants of medical futility are length and quality of life. An intervention that cannot establish any increase in length or quality of life is futile.

Patients or families may ask physicians to provide care that is inappropriate. Physicians, however, are not obliged to provide such care when there is scientific and social consensus that the treatment is ineffective.[2] An example is CPR for patients with signs of irreversible death. In addition, healthcare providers are not obliged to provide CPR if no benefit from CPR and advanced cardiovascular life support (ACLS) can be expected (ie, CPR would not restore effective circulation). Beyond these clinical circumstances and in the absence of advance directives or living wills, resuscitation should be offered to all patients.

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A careful evaluation of the patient's prognosis for both length and quality of life will determine whether CPR is appropriate. CPR is inappropriate when survival is not expected. In conditions for which the chance of survival is borderline, the morbidity rate is relatively high, and the burden to the patient is high, the patient's desires or (when the patient's desires are unknown) the legally authorized surrogate decision maker's preferences about initiation of resuscitation should be supported. Noninitiation of resuscitation and discontinuation of life-sustaining treatment during or after resuscitation are ethically equivalent, and in situations in which the prognosis is uncertain, a trial of treatment should be considered while further information is gathered to help determine the likelihood of survival and expected clinical course.

Withholding and Withdrawing CPR

Criteria for Not Starting CPR

Scientific evaluation shows that few criteria can accurately predict the futility of CPR (see Part 7.5: "Postresuscitation Support"). In light of this uncertainty, all patients in cardiac arrest should receive resuscitation unless

- The patient has a valid Do Not Attempt Resuscitation (DNAR) order
- The patient has signs of irreversible death (eg, rigor mortis, decapitation, decomposition, or dependent lividity)
- No physiological benefit can be expected because vital functions have deteriorated despite maximal therapy (eg, progressive septic or cardiogenic shock)

Withholding resuscitation attempts in the delivery room is appropriate for newborn infants when gestation, birth weight, or congenital anomalies are associated with almost certain early death and when unacceptably high morbidity is likely among the rare survivors. Two examples from the published literature include extreme prematurity (gestational age <23 weeks or birth weight <400 g) and anencephaly.

Terminating Resuscitative Efforts

The decision to terminate resuscitative efforts rests with the treating physician in the hospital and is based on consideration of many factors, including time to CPR, time to defibrillation, comorbid disease, prearrest state, and initial arrest rhythm. None of these factors alone or in combination is clearly predictive of outcome.

Witnessed collapse, bystander CPR, and a short time interval from collapse to arrival of professionals improve the chances of a successful resuscitation.

In many reports of pediatric resuscitation outcomes, survival falls as the duration of resuscitative efforts increases.[3] In many reports of resuscitation outcome, the patient's chance of being discharged from the hospital alive and neurologically intact diminishes as the duration of the resuscitation attempt increases.[4–7] The responsible clinician should stop the resuscitation attempt if there is a high degree of certainty that the patient will not respond to further ACLS.

For the newborn infant, discontinuation of resuscitation can be justified after 10 minutes without signs of life despite continuous and adequate resuscitative efforts. The prognosis for survival or survival without disability has been shown to be extremely poor when there is a lack of response to intensive resuscitative efforts of >10 minutes' duration.[8–11]

In the past, children who underwent prolonged resuscitation and absence of return of spontaneous circulation (ROSC) after 2 doses of epinephrine were considered unlikely to survive,[12] but intact survival after unusually prolonged in-hospital resuscitation has been documented.[13–15] Prolonged efforts should be made for infants and children with recurring or refractory VF or VT, drug toxicity, or a primary hypothermic insult.

In the absence of mitigating factors, prolonged resuscitative efforts are unlikely to be successful.[16] If ROSC of any duration occurs, however, it may be appropriate to consider extending the resuscitative effort. Other issues, such as drug overdose and severe prearrest hypothermia (eg, submersion in icy water), should be considered when determining whether to extend resuscitative efforts.

DNAR Orders

Unlike other medical interventions, CPR is initiated without a physician's order, based on implied consent for emergency treatment. A physician's order is necessary to withhold CPR. Physicians must initiate a discussion about the use of CPR with all adults admitted for medical and surgical care or with their surrogates. Terminally ill patients may fear abandonment and pain more than death, so physicians should also reassure the patient and family that pain control and other aspects of medical care will continue even if resuscitation is withheld.

The attending physician should write the DNAR order in the patient's chart with a note explaining the rationale for the DNAR order and any other specific limitations of care. The limitation-of-treatment order should contain guidelines for specific emergency interventions that may arise (eg, use of pressor agents, blood products, or antibiotics). The scope of a DNAR order should be specific about which interventions are to be withheld. A DNAR order does not automatically preclude interventions such as administration of parenteral fluids, nutrition, oxygen, analgesia, sedation, antiarrhythmics, or vasopressors unless these are included in the order. Some patients may choose to accept defibrillation and chest compressions but not intubation and mechanical ventilation.

Oral DNAR orders are not acceptable. If the attending physician is not physically present, nursing staff may accept a DNAR order by telephone with the understanding that the physician will sign the order promptly. DNAR orders should be reviewed periodically, particularly if the patient's condition changes.

The attending physician should clarify both the DNAR order and plans for future care with nurses, consultants, house staff, and the patient or surrogate and offer an opportunity for discussion and resolution of conflicts. Basic nursing and comfort care (ie, oral hygiene, skin care, patient positioning, and measures to relieve pain and symptoms) must always be continued. DNAR orders carry no implications about other forms of treatment, and other aspects of the treatment plan should be documented separately and communicated to staff.

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DNAR orders should be reviewed before surgery by the anesthesiologist, attending surgeon, and patient or surrogate to determine their applicability in the operating suite and postoperative recovery room.

Initiation of CPR in Patients With DNAR Orders

Studies about DNAR orders suggest that healthcare providers who respond to those in cardiac or respiratory arrest who do not exhibit signs of irreversible death (listed below) should promptly provide resuscitative measures to the best of their ability unless or until they receive legally valid instructions (interpretable advance directives, DNAR orders, or valid surrogate directives) not to intervene. Out-of-hospital DNAR orders apply to the patient with no signs of life.[17,18]

Withdrawal of Life Support

Withdrawal of life support is an emotionally complex decision for family and staff. Withholding and withdrawing life support are ethically similar. A decision to withdraw life support is justifiable when a patient is determined to be dead, if the physician and patient or surrogate agree that treatment goals cannot be met, or if the burden to the patient of continued treatment would exceed any benefits.

Some patients do not regain consciousness after cardiac arrest and ROSC. In most cases the prognosis for adults who remain deeply comatose (Glasgow Coma Scale Score <5) after cardiac arrest can be predicted with accuracy after 2 to 3 days.[19] Specific physical findings or laboratory tests may be helpful to assist with this process. A meta-analysis of 33 studies of outcome of anoxic-ischemic coma documented that the following 3 factors were associated with poor outcome:

- Absence of pupillary response to light on the third day
- Absence of motor response to pain by the third day
- Bilateral absence of cortical response to median nerve somatosensory-evoked potentials when used in normothermic patients who were comatose for at least 72 hours after a hypoxic-ischemic insult (see Part 7.5: "Postresuscitation Support")[20]

A recent meta-analysis of 11 studies involving 1914 patients[21] documented 5 clinical signs that were found to strongly predict death or poor neurologic outcome, with 4 of the 5 predictors detectable at 24 to 72 hours after resuscitation:

- Absent corneal reflex at 24 hours
- Absent pupillary response at 24 hours
- Absent withdrawal response to pain at 24 hours
- No motor response at 24 hours
- No motor response at 72 hours

Withdrawal of life support is ethically permissible under these circumstances.

Patients in the end stage of an incurable disease, whether responsive or unresponsive, should have care that ensures their comfort and dignity. Care is provided to minimize suffering associated with pain, dyspnea, delirium, convulsions, and other terminal complications. For such patients it is ethically acceptable to gradually increase the dosage of narcotics and sedatives to relieve pain and other symptoms, even to levels that might concomitantly shorten the patient's life.

Issues Related to Out-of-Hospital Resuscitation

Withholding CPR Versus Withdrawing CPR

BLS training urges the first-arriving lay responder at a cardiac arrest to begin CPR. Healthcare providers are expected to provide BLS and ACLS as part of their duty to respond. There are a few exceptions to this rule:

- A person lies dead, with obvious clinical signs of irreversible death (eg, rigor mortis, dependent lividity, decapitation, or decomposition).
- Attempts to perform CPR would place the rescuer at risk of physical injury.
- The patient/surrogate has indicated with an advance directive (DNAR order) that resuscitation is not desired.

Neither lay rescuers nor professionals should make a judgment about the present or future quality of life of a cardiac arrest victim on the basis of current or anticipated neurologic status. Such snap judgments are often inaccurate. Quality of life should never be used as a criterion to withhold CPR, because conditions such as irreversible brain damage or brain death cannot be reliably assessed or predicted.[22–37]

Out-of-hospital DNAR protocols must be clear to all involved (eg, physicians, patients, family members, loved ones, and out-of-hospital healthcare providers). Advance directives can take many forms (eg, written bedside orders from physicians, wallet identification cards, identification bracelets, and other mechanisms approved by the local emergency medical services [EMS] authority).

The ideal EMS DNAR form should be portable if the patient is transferred, and in addition to including out-of-hospital DNAR orders, the form should provide direction to EMS about whether to initiate or continue life-sustaining interventions in the patient who is not pulseless and apneic.

Advance Directives in the Out-of-Hospital Setting

A significant number of patients for whom 911 is called because of cardiac arrest are also chronically ill, have a terminal illness, or have a written advance directive (DNAR order). States and other jurisdictions have varying laws about out-of-hospital DNAR orders and advance directives.[38] In some cases in which a DNAR order exists, especially where there are differing opinions among family members, it may be difficult to determine whether resuscitation should be initiated. EMS professionals should initiate CPR and ACLS if there is reason to believe that

- There is reasonable doubt about the validity of a DNAR order or advance directive
- The patient may have changed his or her mind
- The best interests of the patient are in question

Sometimes within a few minutes of the start of a resuscitation attempt, relatives or other medical personnel will arrive and confirm that the patient had clearly expressed a wish that resuscitation not be attempted. CPR or other life support

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measures may be discontinued with the approval of medical direction when further information becomes available.

In situations in which the EMS professional cannot obtain clear information about the patient's wishes, resuscitative measures should be initiated.

Family members may be concerned that EMS personnel will not follow advance directives written in the hospital if an out-of-hospital arrest occurs. This should be dealt with by asking the physician to write an out-of-hospital DNAR order on the appropriate form used in the jurisdiction where the patient would be potentially attended by EMS. The DNAR order should be available and provided to EMS responders as soon as they arrive on the scene of an emergency involving the patient. In situations in which a DNAR order is not provided to EMS personnel, resuscitative efforts should be attempted. The key to preventing such dilemmas rests with the patient's regular physician who has been providing prearrest care.

Terminating a Resuscitation in a BLS Out-of-Hospital System

Rescuers who start BLS should continue until one of the following occurs:

- Restoration of effective, spontaneous circulation and ventilation.
- Care is transferred to a more senior-level emergency medical professional who may determine that the patient is unresponsive to the resuscitation attempt.
- Reliable criteria indicating irreversible death are present.
- The rescuer is unable to continue because of exhaustion or the presence of dangerous environmental hazards or because continuation of resuscitative efforts places other lives in jeopardy.
- A valid DNAR order is presented to rescuers.

Defibrillators are required standard equipment on ambulances in most states, so the absence of a "shockable" rhythm on the defibrillator after an adequate trial of CPR can be the key criterion for withdrawing BLS in the absence of timely arrival of ACLS. State or local EMS authorities must develop protocols for initiation and withdrawal of BLS in areas where ACLS is not rapidly available or may be significantly delayed. Local circumstances, resources, and risk to rescuers should be considered.

Transport of Patients in Cardiac Arrest

If an EMS system does not allow nonphysicians to pronounce death and stop resuscitative efforts, personnel may be forced to transport to the hospital a deceased victim of cardiac arrest who proved to be refractory to proper BLS/ACLS care. Such an action is unethical.

This situation creates the following dilemma: if carefully executed BLS and ACLS treatment protocols fail in the out-of-hospital setting, then how could the same treatment succeed in the emergency department? A number of studies have consistently observed that $<1\%$ of patients transported with continuing CPR survive to hospital discharge.

Delayed or token efforts, a so-called "slow-code" (knowingly providing ineffective resuscitation), that appear to provide CPR and ACLS are *inappropriate*. This practice compromises the ethical integrity of healthcare providers and undermines the physician-patient/nurse-patient relationship.

Many EMS systems authorize the termination of a resuscitation attempt in the out-of-hospital setting. Protocols for pronouncement of death and appropriate transport of the body by non-EMS vehicles should be established. EMS personnel must be trained to focus on dealing sensitively with family and friends.

Providing Emotional Support to the Family

Despite our best efforts, most resuscitations fail. Notifying family members of the death of a loved one is an important aspect of a resuscitation attempt that should be done compassionately, with care taken to accommodate the cultural and religious beliefs and practices of the family.[39,40]

Family members have often been excluded from being present during the attempted resuscitation of a child or other relative. Surveys have suggested that healthcare providers hold a range of opinions about the presence of family members at resuscitation attempts.[41–51] Several commentaries have noted the potential for family members to become disruptive or interfere with resuscitation procedures, the possibility of family member syncope, and the possibility of increased exposure to legal liability.

However, several surveys administered before observation of resuscitative efforts showed that the majority of family members wished to be present during a resuscitation attempt.[45–49] Family members with no medical background have reported that being at a loved one's side and saying goodbye during the final moments of life was comforting.[45,46,50] Family members also have reported that it helped them adjust to the death of their loved one,[50,51] and most indicated they would do so again.[50] Several retrospective reports note positive reactions from family members,[41–43] many of whom said that they felt a sense of having helped their loved one and of easing their own grieving.[44] Most parents surveyed wanted to be given the option to decide whether they would want to be present at the resuscitation of their child.[43,52]

Thus, in the absence of data documenting harm and in light of data suggesting that it may be helpful, offering select family members the opportunity to be present during a resuscitation seems reasonable and desirable (assuming that the patient, if an adult, has not raised a prior objection. Parents and other family members seldom ask if they can be present unless encouraged to do so by healthcare providers. Resuscitation team members should be sensitive to the presence of family members during resuscitative efforts, assigning a team member to the family to answer questions, clarify information, and otherwise offer comfort.[49]

Ethics of Organ and Tissue Donation

The ECC community supports efforts to respond to the need for organ and tissue donations. Medical directors of EMS agencies should discuss the following issues with the organ procurement program in their region:

- Need for tissue from donors pronounced dead in the field

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- How permission for organ and tissue donations will be obtained from the patient's relatives
- How clearly defined guidelines for organ and tissue procurement will be available to all healthcare providers both in the hospital and out of the hospital
- Possible differences between applicable laws and societal values in procedures for organ procurement

Research and Training Issues

The use of newly dead patients for training raises important ethical and legal issues. The consent of family members is both ideal and respectful of the newly dead but not always possible or practical at the time of cardiac arrest. Research advocates argue that presuming consent in these situations serves a "greater good" that will benefit the living. Others claim that consent is unnecessary because the body is "non persona" and without autonomy or interests. These arguments, however, do not consider the potential for harm to surviving family members who may oppose using a recently deceased loved one for the purpose of training or research. This view also ignores significant cultural differences in the acceptance or nonacceptance of the use of cadavers.

Clinical research in patients with cardiorespiratory arrest is challenging. In general, research involving human subjects requires the consent of the subject or, in some cases, a legally authorized surrogate. This has proved to be a challenge for research involving patients in cardiac arrest because research interventions must frequently be implemented at a time when obtaining consent may be impossible. After much public discussion and in recognition of the value of this type of human research, the government, through the Food and Drug Administration and the National Institutes of Health, adopted regulations that allow an exception for the need to obtain informed consent in certain limited circumstances. Stringent preresearch directives require that researchers consult with experts plus representative laypersons who might be study patients and to make full public disclosure of the details of the study methodology. Investigators must engage in candid public discussion of the need for resuscitation research, acknowledge the lack of an evidence-based foundation for many current practices, and describe the many potential benefits of the research.

In 1996 Congress passed the Health Insurance Portability and Accountability Act, commonly referred to as HIPAA. As its name suggests, one of the primary goals of the HIPAA legislation was to ensure the availability and continuity of health insurance coverage, but it has been amended over the past few years to include provisions that protect the privacy of patients' health information and their medical records. For details see *http://www.hhs.gov/ocr/hipaa/finalreg.html*. Healthcare providers involved in training and research must be careful to protect patient privacy and the confidentiality of patient data.

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