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Policy statements: do not resuscitate, care of the hopelessly ill, and brain death

DO NOT RESUSCITATE

The Ethics Committee recognizes the diversity of patients, illnesses and therapies at The Cleveland Clinic Foundation. This diversity requires that recommendations on the Do Not Resuscitate (DNR) order be adaptable to specific circumstances. However, some issues remain constant. These constants are: the definition of DNR, both the identity of the participants in DNR decision making and the process by which a DNR order should be made, communication of the DNR decision, and reassessment of the DNR order.

A survey of The Cleveland Clinic Foundation's Patient Care Committees indicates that the DNR order may not be uniformly interpreted. The Ethics Committee's definition of DNR is "no cardiopulmonary resuscitation" (CPR). However, the options in treating a terminally ill patient are broader than CPR and also may include intensive care, antibiotic therapy, hydration and nutritional support. Therefore, discussions concerning DNR orders should include discussion of other life support systems.

THE DNR ORDER

Definitions

"Resuscitation" means a standard cardiopulmonary resuscitation procedure (CPR) with full cardiac, pharmacologic and respiratory intervention when cardiopulmonary arrest occurs. "Do Not Resuscitate" (DNR) means no resuscitation is to be done when cardiopulmonary arrest occurs. "Slow codes," and "walk, don't run" codes are not acceptable.

Participants and process

Although the DNR order may be given only by a licensed physician, a generally accepted ethical principle acknowledges the primacy of patient autonomy. Generally speaking the person most affected by the health care decision is the patient. Ideally, the physician sensitively should discuss the DNR option with the patient and family while the patient is competent. However, not infrequently the DNR order will be considered for comatose or mentally incompetent patients with whom this discussion has not or cannot occur. In these cases, DNR should be discussed with a surrogate. A surrogate may be selected by a patient or by a patient's advanced directives such as a "living will." (Since "living will" legislation has not been enacted in Ohio, physicians who wish to follow "advanced directives" such as "living wills" do so voluntarily. The patient's medical care should be based on the physician's medical judgments as influenced by the patient's previously expressed wishes.) Frequently, a surrogate has a close relationship to the patient. In all cases, the primary physician should discuss the DNR order with the patient if possible, and the surrogate(s) if appropriate.

Communication of such decisions

The DNR order *along with the specifications and limitations of therapy* must be given by the "primary physician"

who, at The Cleveland Clinic Foundation, is generally the first physician listed on the patient's data card. The authority to write a DNR order may be delegated to house officers. The progress notes written at the time of the DNR order should include the *date* and the *time* of consultation as well as the names of the persons involved, i.e., the primary physician, the patient, family members, and/or others.

A decision to write the DNR order should lead to discussion and decisions about intensive care, nutrition, hydration, ventilatory support, dialysis, and medication. The decisions must be transmitted clearly to those caring for the patient and must be documented in the chart following the DNR order. Abandonment of the patient must neither occur nor be perceived.

Reassessment

The DNR order should continue to be reassessed as part of the usual ongoing evaluation of a patient. The condition of the patient may change at any time. Cancellation or affirmation of a DNR order should be made only after discussion between the primary physician, the patient if possible, and the surrogate(s) if appropriate. Reassessment should be done at least daily and more often when conditions warrant it.

If a patient under a DNR order might benefit from a surgical procedure, the DNR order should be reassessed. The risks of surgery and anesthesia need to be discussed with the patient if possible, and the surrogate(s) if appropriate. If the DNR order is reaffirmed preoperatively, it is understood that intraoperatively and immediately postoperatively the DNR order means no internal or external cardiac massage or defibrillation.

If there are any concerns regarding the appropriateness of the DNR order for a specific patient, consultation is available from the Office of Bioethics or the Ethics Committee.

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CARE OF THE HOPELESSLY ILL

One of the most difficult times in the care of the sick is when the doctor realizes that the patient will never recover; that a fatal illness is clearly established. It may be difficult to make a diagnosis, to discuss and then to choose a course of treatment, to put the course of treatment into effect, to wait anxiously for evidence of a cure or a reprieve, to talk with the patient and the patient's family when the news isn't good, and to stand the vigil as death approaches. The ability to face up to any of these difficulties will draw upon experience and knowledge, and upon wisdom and compassion; and fortitude is needed often in taking care of persons who are not well. It is not a simple thing to face the hopelessly ill—those persons who may not be destined to die for months, perhaps for a year or more, as well as those individuals in whatever sad condition who are at the very end of life. They may be relatively comfortable from day to day, and yet there is a certainty about their condition that gives rise to ethical issues that are the subject of this discussion.

Physicians, nurses, and society increasingly face complex decisions and ethical dilemmas regarding the care of the hopelessly ill. The total care of such patients must ensure that patients' wishes are respected and that maximum individual benefit is achieved. The following guidelines are intended to serve as a framework for analysis of the care provided to these patients.

Hopelessly ill patients have an irreversible disease where death will be the outcome. Curative therapy has failed. Will further aggressive treatment extend comfortable life, or will it prolong suffering prior to death? Such patients may generally best be served with care that strives to palliate rather than to cure. It is an obligation that rests squarely upon the physician in charge to monitor the course of patients. Inherent in this obligation is to recognize when they have become hopelessly ill so that discussions concerning future care can take place. It is important that this critical time be recognized as soon as possible so discussions with the patients may occur when they are best able to give informed consent regarding their wishes. Many ethical dilemmas are a result of a delay whereby patients are too ill to do so. Surrogates, usually close family members, then must make such decisions, and these decisions may not be in accord with what patients would have wished.

The physician should provide information to patients so that their decisions constitute informed consent. Critical to informed consent are three prerequisites:

1. The patient must be capable of understanding information and rendering a decision.
2. The patient must have received information regarding the risks and the benefits of future care.
3. The patient voluntarily makes a decision.

The patient's decision will be the primary guide to the physician in delivering future care. The decision of surrogates shall be avoided if possible. As long as patients are competent and have given informed consent, their decisions are usually ethically valid. In the face of mortal disease, two patients may choose differently regarding further aggressive treatment; each choice is valid.

Communication between the primary physician and the patient is essential to informed consent. The patient's decision prevails, but it is advisable that patients discuss the issues with their family prior to rendering a decision. It is wise for the primary physician to ensure through further discussion that the patient's family has a full understanding of the decision. It is the obligation of the primary physician to communicate this decision to other doctors involved in consultation and care. In the patient's clinical record should be notations regarding:

1. The plan for future care.
2. The clinical status that leads to the decision.
3. The informed consent provided by the patient.

To avoid unwanted and overly aggressive interventions, the nursing staff must be aware of the treatment plan. Hospital personnel should be aware of the patient's status when, for whatever reason, the patient may be in other areas of the hospital.

It is mandatory that there be periodic review of the patients' clinical status and of decisions concerning their care. These must be discussed with patients when a significant change occurs. Patients have the right to maintain flexibility and to rescind their own earlier decisions. Should patients become incompetent to provide informed consent regarding their care, the physician and family should be guided as much as possible by the previously expressed wishes of the patients.

There are four levels of care (Wanzer et al):

1. Emergency resuscitation: The decision to forego emergency resuscitation constitutes a "do not resuscitate" order (see DNR policy).
2. Advanced life support: Care at this level consists of invasive physiologic and nutritional support generally provided in an intensive care setting.
3. General medical care: At this level of care belong antibiotic therapy, drugs, surgical operations, chemotherapy, hydration, and nutrition. Shifts in clinical status may be expected to influence the appropriateness of each mode of treatment. Plans should be made accordingly, anticipating shifts whenever possible.
4. Supportive care: Care at this level includes standard palliative therapy, aiming to provide comfort, hydration, and nutrition as they may be needed.

Patients at the fourth level of care are generally in the late stages of a terminal illness. Routine laboratory tests and vital sign determinations may be discontinued. Procedures and medications should be employed only when they are likely to relieve distress. The care provided at this level must continually be assessed to determine if it is truly palliative.

Invasive procedures on behalf of the hopelessly ill demand careful consideration. The major goal is to achieve comfort and palliation. Any invasive procedure, particularly one requiring a general anesthetic, calls for reassessment of the clinical status of the patient and plans for future care. These patients are at risk of complications and have limited physiologic reserves. Iatrogenic problems that arise during or immediately after these procedures should be treated. It is the primary physician's obligation to consider the possibilities of iatrogenic complications in discussions with the patient or surrogate.

Patients who are not competent need a surrogate to make decisions on their behalf. Surrogates generally will be the immediate family. Previously stated wishes, either communicated to the family or via "living wills," are fundamental. (Since "living will" legislation has not been enacted in Ohio, physicians who wish to follow

"advance directives" such as "living wills" do so voluntarily. The patient's medical care should be based on the physician's medical judgment as influenced by the patient's previously expressed wishes.) Surrogates should always ask, what would the patient have desired? When there is significant conflict among the surrogates, aggressive care should generally be provided until resolution occurs. When unresolved conflicts exist, the Office of Bioethics or the Ethics Committee can provide an opinion concerning the ethics of therapeutic choices.

Informed consent remains the legal and ethical cornerstone of future treatment planning. Early recognition of hopeless illness in patients who are still competent allows them to direct their future care. Periodic reassessment of the levels of care should reflect changes in clinical status. The primary physician is obliged to make a record of all decisions and to communicate this information to all caregivers. Implementation of the above will lead to improved patient care during the course of a hopeless illness and minimizes ethical dilemmas and conflicts. Care of the hopelessly ill is least complicated when an informed patient and an understanding physician decide together the course of treatment.

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BRAIN DEATH

Brain death results from brain damage that is so severe and extensive that the brain has no potential for recovery. Respiration has irreversibly ceased, owing to structural brain damage, but the circulation is still maintained because of artificial ventilation. Ventilatory and circulatory support may preserve the peripheral organs for a time under such circumstances, but the heart will stop within a few days or, rarely, after several weeks.

There is general agreement in the medical profession that death of the brain is an appropriate determination of death of a human being. There is justification for making this determination and withdrawing life support systems in order to prevent excessive financial burdens on society and emotional suffering on family members. In specific cases, a rapid determination of brain death will allow for organ donation.

The concept that death can be determined on the basis of irreversible cessation of all functions of the brain is recognized through statutes or judicial decisions in over half of the states, including Ohio. Ohio adopted the Uniform Determination of Death Act in 1982. This act has also been endorsed by the American Academy of Neurology, the American Electroencephalographic Society, the American Bar Association, the American Medical Association, the National Conference of Commissioners on Uniform State Laws, and the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research. The Ohio Statute provides:

"An individual is dead if he has sustained either irreversible cessation of circulatory and respiratory functions or irreversible cessation of all functions of the brain, including the brain stem, as determined in accordance with accepted medical standards. If the respiratory and circulatory functions of a person are being artificially sustained, under accepted medical standards a determination that death has occurred is made by a physician by observing and conducting a test to determine that the irreversible cessation of all functions of the brain has occurred.

"A physician who makes a determination of death in accordance with this section and accepted medical standards is not liable for damages in any civil action or subject to prosecution in any criminal proceeding for his acts or the acts of others based on that determination.

"Any person who acts in good faith in reliance on a determination of death made by a physician in accordance with this section and accepted medical standards is not liable for damages in any civil action or subject to

TABLE 1
GUIDELINES FOR THE DETERMINATION OF BRAIN DEATH

When the requirements of criteria 1, 2, and 3 are fulfilled, the patient may be pronounced brain dead by a licensed physician.

1. **Coma of established irreversible cause or exclusion of reversible causes of coma**
   - The patient must have a known irreversible structural of systemic disease causing coma.
   - There must be no chance of drug intoxication or significant hypothermia (core temperature less than 33° C) contributing to the cause of coma.
   - A six-hour period of observation during which test of cerebral and brain stem function are performed and documented is sufficient when the nature and duration of coma are known.
   - Longer periods of observation and more testing may be necessary under some circumstances and when the nature and duration of coma are not known.
2. **Absence of cerebral function**
   - There must be no behavioral or reflex response to noxious stimuli indicative of function above the level of the foramen magnum.
   - Although not a requirement, an isoelectric electroencephalogram (performed according to the criteria of the American EEG Society) for 30 minutes is confirmatory of brain death.
3. **Absence of brain stem function**
   - The pupils must be fixed, unreactive to bright light.
   - There must be no oculovestibular response to 50 cc ice water caloric tests in both ears.
   - There must be apnea for 10 minutes during apneic oxygenation or when $PaCO_2$ is greater than 60 mmHg in the absence of metabolic alkalosis. These tests of absent breathing should be performed following hyperoxygenation on mechanical ventilation.

(Note: Systemic circulation may be intact. Spinal reflexes and some limb movements may be intact.)

prosecution in any criminal proceedings for his actions."

The Uniform Act refers to "accepted medical standards" without specifying what these standards may be. Accepted medical standards may vary from state to state. Most of the published guidelines for determining brain death have relied upon the findings of prospective clinical studies. The most important findings are those from the Report of the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death and from the Collaborative Study of the National Institutes of Neurological Diseases and Stroke. These studies indicate that a patient will not survive with irreversible coma, apnea, absence of brain stem reflexes, and an isoelectric EEG that persists for six hours after the onset of coma and apnea.

Following these guidelines assures that a patient who is still alive will not be misdiagnosed as brain dead. The patient in coma with some remaining brain-related bodily functions is *not* brain dead. Either behavioral or brain stem responses indicate that total death of the brain has not occurred. *A patient in a chronic vegetative state may remain in a prolonged coma indefinitely and yet fail to meet the criteria for brain death.*

TABLE 2
SOME POSSIBLE CAUSES OF CLINICAL SIGNS THAT MIMIC BRAIN DEATH

Signs	Possible cause
Pupils fixed	Anticholinergic drugs
	Ganglionic blockers, e.g., trimethaphan
	Pre-existing disease
	Dopamine or other sympathomimetics
Absent oculovestibular reflexes	Ototoxic agents
	Vestibular suppressants
	Pre-existing disease
	Obstructed ear canals
Apnea	Posthyperventilation apnea
	Neuromuscular blockers
	Respiratory depressants
Absent motor activity	Neuromuscular blockers
	"Locked-in" state
	Sedative drugs
Isoelectric EEG	Sedative drugs in toxic levels
	Hypothemia <33°C
	Shock or profound hypotension

CLINICAL ASSESSMENT

Guidelines for the determination of brain death are shown in *Table 1*. Some possible causes of clinical signs that mimic brain death are shown in *Table 2*. An assessment of *coma*, *cerebral function*, and *brain stem function* is essential. The clinical guidelines for this assessment are summarized:

Coma

Essential to the diagnosis of brain death is that the cause of coma be known. Hypothermia and drug intoxication are among the reversible causes of coma and must be ruled out—*they can mimic brain death, and recovery can occur*. The period of observation required to confirm the diagnosis of brain death will vary according to specific clinical circumstances. A minimum of six hours is recommended, except when the cause of coma is not known or the potential for recovery is uncertain.

Absence of cerebral function

Clinical testing must reveal no evidence of cerebral function. Recent clinical reports indicate that spinal reflexes, various spontaneous movements, and specific posturing may persist in patients with brain death.

An isoelectric EEG confirms cerebral death, but it is not mandatory. When used in conjunction with the clinical criteria for brain death, an isoelectric EEG provides confirmatory evidence of brain death. (The American Electroencephalographic Society has proposed specific criteria for the appropriate technical recording

of electrocerebral silence.) Since hypothermia or drug intoxication can also produce an isoelectric EEG, this test cannot be used as the sole criterion for the diagnosis of brain death. (A committee of the American Electroencephalographic Society has reviewed 2,650 cases of isoelectric EEGs; only three recovered cerebral function. Two of the three had barbiturate-induced coma, and one had a meprobamate overdose.) Confirmation of brain death by an isoelectric EEG is recommended when patients are considered potential organ donors.

Absence of brain stem function

Clinical testing must also confirm the absence of brain stem function. An earlier criterion of fixed and dilated pupils has recently been modified because of reports of small or mid-sized fixed pupils in brain death. The complete absence of oculovestibular responses to cold caloric tests, performed bilaterally, is clinical evidence of the lack of brain stem function. Although the most appropriate method for the determination of persistent apnea remains controversial, tests for apnea should be performed only after hyperoxygenation with 100% oxygen for 10 minutes to minimize the risk of hypoxia to the brain.

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