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The recent debate over new medical and legal definitions of death has given the perennial mind-body discussions among philosophers a new relevance and urgency. By mid-1977, at least 18 states had already enacted brain-death statutes in response to public and judicial requests for updating the traditional definition of death. In this paper I propose to set forth some of the philosophical issues involved in the adoption of brain-related criteria for death by briefly reviewing the medical developments leading to brain-death definition, and by analyzing some of the leading philosophical questions involved in conflicting concepts of death implied in the new definitions. As the discussion progresses, it will become clear that fundamental mind-body questions are being explored anew in the contemporary debate.

Medical Background

The traditional definition of death, understood and accepted by the medical and legal professions as well as the general public, is set forth in the oft-cited Black’s Law Dictionary: death is “the cessation of life, the ceasing to exist; defined by physicians as the total stoppage of the circulation of the blood, and a cessation of the animal and vital functions consequent thereon, such as respiration, pulsation, etc.” Thus, the absence of pulse and respiration has constituted the traditional criterion for death, easily recognized by the layman and confirmed by the physician.

In the past decade, however, demands for modification of this traditional definition of death have resulted from advances in modern medicine: 1) the advent of organ transplantation, where the most suitable donor organs come from patients dead from injury or disease of the brain, whose circulation has been artificially maintained after death so that needed organs can be removed with minimal ischemic damage; and 2) the development of sophisticated new technology making breathing and heartbeat insufficient signs of life. Traditionally, an end to heartbeat and spontaneous respiration always brought almost immediate brain destruction, while brain death resulted in cessation of breathing and circulation. But today, heartbeat can be stimulated electronically and breathing can be maintained by mechanical respirators. Modern medicine can, on the one hand, sustain brain function without spontaneous pulse and respiration, and on the other, maintain circulation and respiration even though the brain is completely destroyed. Thus, physicians and the public have been increasingly forced to ask whether “patients” whose brains are totally destroyed may be reasonably called “alive”; whether the organs of such “patients” may be morally assigned to the hospital’s waiting transplant team; and whether national resources should continue to be allocated to the care of such “patients.”

From a decade-long effort of physicians, moralists and lawyers to answer such practical difficulties there has emerged a consensus around the new concept of “brain death.” Brain death is defined as a state in which the brain “no longer functions and has no possibility of functioning again.” The new definition asserts both that total brain destruction has occurred (cerebrum, midbrain and brainstem), and that this occurrence should constitute a relevant determinant in pronouncement of death.

The first generally recognized indication that the medical community was rethinking its definition of death came with publication of the landmark report of the Harvard Medical School Committee to examine The Definition of Brain Death, published in The Journal of the American Medical Association in 1968. Composed of an interdisciplinary group of scholars and physicians, the Committee concluded that a permanently nonfunctioning brain could be determined on the basis of four criteria:

1) irreceptivity and unresponsivity to externally applied stimuli and inner need;
2) absence of spontaneous movements or breathing;
3) absence of reflexes (later clarified to exclude purely spinal column reflexes) and fixed dilated pupils;
4) flat electroencephalogram (EEG), to be used as a confirmatory and not mandatory test.

All tests are to be repeated at least 24 hours later and show no change. The criteria do not apply in cases of hypothermia (where bodily temperatures are below 90°F) or where depressants (barbit-
urates) have been used. A persistently isoelectric EEG over the 24-hour period should confirm the clinical examination.

Continued refinement of the criteria followed the Harvard Committee's Report. Their validity has been established in several ways; there is substantial morphological evidence that when the criteria have been fulfilled, there is widespread destruction of the brain. In patients fulfilling the Harvard criteria, isotopic techniques indicate the absence of any significant intracranial blood flow which, occurring over a 10- to 15-minute interval, is uniformly associated with subsequent necrosis and liquefaction of the brain. Extensive cooperative studies of the value of EEG and neurological examination in the determination of complete brain destruction revealed that of the 2,642 cases under study, there was no instance of recovery in a patient who fulfilled the Harvard criteria. Moreover, since 1970, there have been adequately documented examples in which the Harvard criteria could be considered invalid. Thus, "the validity of the criteria must be considered to have been established with as much certainty as is possible in biology or medicine."9

In a recent medical progress article in the New England Journal of Medicine, Dr. Peter Black reviews several studies of the diagnostic criteria for brain death, including the Harvard criteria. Black concludes that whole-brain damage from which survival has never been seen can be diagnosed by several different sets of criteria and that the set ultimately chosen may depend on the methods considered most reliable.10 Evidence for the validation of the clinical diagnosis is provided by demonstration that when certain clinical criteria of brain death have been met, either somatic death inevitably follows despite vigorous resuscitative efforts, or certain structural changes will be seen in the brain post mortem. Additional studies indicate that with both clinical and electroencephalographic evidence, physicians are now in a position to be 100% sure of the diagnosis of brain death.11

Early Philosophical Concerns

In 1972, affirmation of the Harvard criteria was made by an interdisciplinary Task Force on Death and Dying of the Institute of Society, Ethics and the Life Sciences: "We can see no medical, logical, or moral objection to the criteria as set forth in the Harvard Committee Report. . . . Experience to date in the use of these criteria and procedures for determining death suggests them to be reasonable and appropriate."12 However, the Task Force concluded its study with an instructive summary of "Causes of Concern" connected with conceptual and linguistic problems, the relationship of the criteria to organ transplantation, the role of physicians in establishing the new criteria, and fears concerning possible updating of the criteria.13

We can look first at an obvious ethical question. There is serious concern over the relationship between criteria for the determination of death and whether or not the patient is a potential donor of organs. One of the more controversial elements of the Harvard Criteria was the fact that, while the Committee indicated that the criteria for whole brain death were not to be considered in isolation from one another, and hence constituted a reaffirmation of traditional indicators of death, the problem of definition and the new articulation of criteria were clearly related to the ongoing difficulties involved in organ transplantation.14 Many expressed fear that the need for organ transplants would influence the criteria and procedures used to determine that death has occurred.15

As the Hastings Institute Task Force emphasized, the fact that one's death would be useful to others is not adequate reason to change to brain-related criteria in order to pronounce that person dead. While it cannot be denied that there is need for the establishment of guidelines to protect the integrity of donors against premature organ removal and to protect physicians from malpractice and even homicide charges, "the procedures, criteria, and the actual judgment in determining the death of one human being must not be contaminated with the needs of others, no matter how legitimate those needs may be. 16 Public trust in the medical profession depends on this rigorous separation, difficult as it might be to maintain in practice."

Before proceeding further, a clarification is necessary. The term "definition of death" should be reserved to signify the abstract or philosophical concept of death, and be distinguished from criteria for determining that death has occurred. Thus, the various proposals for updating the definition of death are not offering a new definition of what death is but are refining procedures for detecting that death has occurred.18 Obviously there is a relationship between the two terms, the operational criteria presupposing some notion of what both death and life are and the boundary between the two.

The concept of death is pivotal in the debate over the distinction between two important but different issues which often become confused. In an important debate on this subject, Leon Kass argues that the question, "Is this person dead?" must be distinguished from the question, "When is it desirable or permissible to withdraw or withhold treatment so that a patient (unquestionably alive) may be allowed to die?"19 Thus, discussion of criteria for determining that death has occurred should be distinguished from questions regarding the use of extraordinary means, allowing to die, euthanasia, "natural death," etc.20

Although we may speak of life and death at many levels - cells, organisms, families, cultures - in this question of death definition, medicine and the public are concerned not with the death of cells and organs which are mere parts, but with the death of the organism as a
whole, the death of the individual human being. As Kass points out, the medical and scientific communities have always made the distinction between necrosis (death of a part) and the somatic death of the whole organism as a functional unit, and have insisted upon treating the latter as a discrete event. 21

Without agreement on this concept of the organism as a whole, the distinction between the concept of death and criteria for determining that it has occurred becomes confused. For example, Robert Morison warns against Whitehead’s fallacy of misplaced concreteness and rejects the “abstraction” of death as a concrete event. 22 Morison claims that “there is no magic moment at which ‘everything disappears’; that “the integrated physiological system does not inevitably fail all at once,” and that life is “certainly not an all-or-one phenomenon” but a “continuous process of growth and decay.” Because, according to Morison, there is “no infallible physical index to what we value about human personality,” it is becoming increasingly difficult to regard death as a single, coherent event. Hence, we are inevitably forced into “quality of life decisions,” recognizing that “life may reach a state such that there is no longer an ethical imperative to preserve it.” 23

But Kass argues firmly that nature must be maintained as a standard in matters of such fundamental human importance: birth, death, health, sickness and origin. He insists that death is “the transition from the state of being alive to the state of being dead,” an event the determination of which is clearly a medical-scientific question in itself, “to be distinguished from artistic, literary and legal fictions.” 24

Kass sees utilitarian interests prompting use of the new definition of death to signify the moment at which “the risk of declining benefit curves intersect, the time when the costs of keeping someone alive outweigh the value of his life.” According to Kass, confusing the question, “When is a person dead and fit for burial?” with the question, “When, if ever, is a person’s life no longer worth preserving?” is a dangerous confusion of fact with subjective standards of taste, prejudice and opinion in a cost-benefit analysis of the value of prolonging lives, whether of fetuses, the elderly or dying patients. 25

In the early debate, no one argued more trenchantly than Hans Jonas against this notion that social utility and the good of the individual enjoy equal moral claims. For Jonas, “the individual is the primary concrete,” needing no justification itself, and the infringement of that primary inviolability must always be justified. 26 On the basis of this principle, Jonas warned against allowing societal concern (in this instance, the transplant market) to intrude into the theoretical attempt to define death. 27

As a philosopher, Jonas saw in the attempts of the “redefiners” a “curious remnant of the old soul-body dualism,” reappearing in the

form of brain and body dualism. 28 While not denying that the higher mental functions are decisive for the quality of human life, Jonas viewed the movement toward brain death as a tendency to define true human personhood as represented by the brain, with the rest of the body seen as a mere subservient tool. For Jonas, it seemed as much an exaggeration of the cerebral aspect as it was of the conscious soul to deny the rest of man’s “mere bodily functions” their essential share in the identity of the human person. For as Jonas argued eloquently, the body is uniquely the body of this brain and no other, as the brain is uniquely the brain of this body and no other. What is under the brain’s control, the bodily total, is as individual, as much “myself” as singular to my identity (fingerprints), as noninterchangeable, as the controlling (and reciprocally controlled) brain itself. How else could a man love a woman and not merely her brains? How else could we lose ourselves in the aspect of a face? Be touched by the delicacy of a frame? It’s this person’s, and no one else’s. 29

Despite Jonas’ and others’ arguments, however, in a remarkably short period of time definition of death discussions have returned to the old philosophical debate about whether the human individual is to be defined in terms of the biological organism or of the person as a national being.

The Current Debate

Since the publication of the Harvard criteria, the medical profession has been moving toward increasing acceptance of the concept of brain death, and numerous authors have attempted to show that this definition of death is consistent with Orthodox Judeo-Christian, traditional Catholic ethics, and the mainstream of Protestant theology. 30 However, authors of a recent status report of medical and ethical considerations on brain death insist that while higher integrative functions of the brain are carried out by portions of the brain other than the brainstem, irreversible loss of these functions does not alone constitute a determinate of death in biblical terms. “Death of the entire brain or brain death, and only that, is consonant with biblical pronouncements on what constitutes an acceptable definition of death.” 31

Similarly, although state legislatures have passed brain-death statutes that relate to traditional heart-lung definition as alternative, supplementary or substitute definitions, the Harvard criteria and the brain-death statutes which, on a national average, have been passed in two or three states a year since 1970, have been based on the concept of whole-brain destruction. 32 As recently as August, 1978, the National Conference of Commissioners on Uniform State Laws approved and recommended for enactment in all the states a “Uniform Brain Death Act” in which brain death is defined as follows: “For legal and medical purposes, an individual who has sustained

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irreversible cessation of all functioning of the brain, including the brainstem, is dead. A determination under this section must be made in accordance with reasonable medical standards. 33

As we have seen, brain death definition has not been offered as a new definition of death but supplementary and refined procedure for recognizing that death has occurred have been developed. 34 For example, in both whole-brain and heart-lung definitions of death, the concept of death relates in some basic way to the absence of the integral unity of the individual organism. The brain, particularly the lower brain, effects a neurological integration, controlling breathing, blood pressure and reflexes, while the cardiovascular system provides a metabolic integration, transporting oxygen to all parts of the body.

In recent philosophical literature, however, there has been a shift of the debate away from whole-brain and heart-lung formulations to discussion of which part of the brain should be signified in brain death definitions. The question now being asked is whether a person is to be pronounced dead when the section of the brain that controls the higher human functions is destroyed or only with the destruction of the whole brain.

Once the brain became an acceptable basis for death definition, perhaps inevitably, the argument has become stronger that definition of death should be based on the concept of person, identified with the higher mental functions subsumed under “consciousness.” Moreover, those characteristics that most distinguish humans from other organisms—the capacity for rational and moral thought, the sense of personal identity, memory, foresight, the ability for complex interaction with other human beings—all depend on the functional integrity of this one portion of the brain, (the cerebrum). 35

Thus, it is now being stated explicitly that “the crucial level of life is more than mere continuance of biological life (which . . . continues even in the presence of brain death.” 36 The question, then, of whether an irreversibly comatose man is dead is not whether or not he satisfies the minimum definition of human biological life, but “whether the actual basis for his being personally present in the world and having rights (i.e., his embodiment in his brain) has been lost.” 37

Similarly, philosopher Robert Veatch, member of the original Hastings Center Task Force, now questions the philosophical notion underlying current brain death definitions which focus on the destruction of the whole brain, thereby emphasizing the integrating capacity of the brain as what is “essentially significant to the nature of man,” the loss of which is a plausible test for the death of a person. 38 Veatch claims that such formulations are based on an already outdated philosophical formulation, and run the risk of including additional nonessential functions. Noting that differing concepts of death will lead us to look for different criteria for the diagnosis of death.

Veatch rejects the whole brain, locus of man’s integrating capacity, as “much too massive” to be the physiological embodiment of man’s capacity for social interaction, man’s essentially significant characteristic, the loss of which is signified in the concept of death. Veatch suggests that the Harvard criteria are too inclusive, requiring positive tests for lower brain as well as neocortical activity. His conclusion is as follows:

When the reflex networks that regulate such things as blood pressure and respiration are separated from the higher functions, I am led to conclude that it is the higher functions which are so essential that their loss ought to be taken as the death of the person. While consciousness is certainly important, man’s social nature and embodiment seem to me to be the truly essential characteristics. I therefore believe that death is most appropriately thought of as the irreversible loss of the embodied capacity for social interaction . . . which (presumably) has its locus in the neocortex. 39

Ramsey’s Critical Analysis

In a recent work, Paul Ramsey subjects to critical analysis the contemporary emphasis on patient autonomy in the choice of treatment and death. 40 In this connection, while examining Veatch’s “reasonableness” principle as a standard for substituted judgments about patient treatment, Ramsey points to Veatch’s “definition” approach to the determination of criteria for the pronouncement of death. 41 This approach would presumably make it possible for a statutory determination of death to be pronounced when the irreversible loss of embodied capacity for social interaction has been diagnosed. Such a declaration of death would, in Veatch’s view, prevent “the basic indignity of treating a corpse as if it were alive.” 42 Ramsey sees the same “subjectivism and voluntarism” which is incorporated into Veatch’s “reasonableness” principle as reflected in Veatch’s proposals for patient autonomy in the choice of the concept of death under which the patient is to be pronounced dead. Ramsey writes, “Veatch in an astounding manner manages to reach the conclusion that a state of being pronounced dead does depend upon that consent.” 43 Indeed, Veatch is convinced that such a complex philosophical issue as death definition does not require universal conformity. He favors a law which would recognize the complexity of the debate and in democratic fashion permit the patient or the patient’s agent to choose among plausible death concepts (heart-lung, whole-brain, or neocortical). 44

In 1975, the Hastings Institute Task Force found it “inconceivable” that society or the medical profession would allow the preparation for burial of persons still spontaneously breathing with intact cerebral reflexes but anatomically dead neocortices. 45 Similarly, as recently as

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August, 1978, Peter Black emphasized that "no set of criteria currently proposed by physicians seems to allow for the possibility of long-term survival, let alone recovery." An editorial in the same edition of New England Journal of Medicine insists that a clear distinction must be made between death of the brain and a prolonged or irreversible state of coma that involves some evidence of brain-related function. These two states are both different and not overlapping. "Once a person is dead, he is no longer in coma." 47

And yet this distinction seems to have eroded in some studies which apparently would allow for a long-term survival of the "dead-off machines." Black argues that Veitch's proposals in this connection alter the common sense and medical notion of what death is and hence the purpose of brain-death definition. 49

Quite clearly, as the Hastings Center Task Force warned in expressing its concern about attempts to further update the criteria for death, the assumption in many such proposals is that "the existence of human life, no less than its essence, is defined in terms of activities normally associated with higher brain function...and that such activities are exclusively centered in the anatomical locus known as the neocortex." 50

In conclusion, we can see that developments in science and medical technology give new urgency to philosophical theories of mind and human nature and that these conceptions determine any discussion about definition of death. In the early brain-death discussions, emphasis was placed on the need to separate the determination of criteria for the judgment that death has occurred from the interests of organ recipients and transplantation procedures. Secondly, effort was made to show the continuity between brain-death criteria and traditional tests to determine that death has occurred, emphasizing that new and refined methods were being developed to detect the "same old phenomenon of death." This approach stressed the idea of man as an integrated organism in which lung, heart and brain activities are interdependent and central to the integrity of human life. More recent philosophical discussions have tended to center around the role of consciousness and "personhood" in brain-death definition, the physiological locus of consciousness, and appropriate new tests for determining the destruction of so-called higher mental functions. The stage seems now set for fuller consideration of the practical applications of these discussions.

In concepts reminiscent of Plato, Aquinas and Descartes, the contemporary debate over new brain-death formulations has reopened perennial questions about the end of human life, the concept of person, the relationship between biological and rational activities in the essential make-up of man, as well as practical problems connected with the value and dignity of human life and the allocation of scarce resources.

REFERENCES

3. "A Definition of Irreversible Coma," report of the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death, JAMA 205 (1968), pp. 337-340. Veith et al. write, "Brain death is only professional jargon to describe a patient who exhibits a permanent loss of signs of life." Veith, et al., op. cit., p. 1654. In medical practice the term has been restricted to cases with irreversible deep coma and lack of spontaneous respiration.
5. See note 3.
13. Ibid., pp. 51-53.
14. The Harvard Committee Report begins by stating its two-fold purpose in defining irreversible coma and the criterion of death: 1) to relieve the burdens on society of those who suffer permanent loss of intellect; and 2) to help solve controversies involved in obtaining organs for transplantation. "A Definition," op. cit., p. 337.
17. At least four levels of definition give substance to the formal concept of death, defined as the transition, however abrupt or gradual, between the state of being alive and the state of being dead. They are: 1) the basic concept or idea; 2) general physiological standards; 3) operational criteria; and 4) specific tests or procedures. See A. M. Capron and L. R. Kasel, "A Statutory Definition of the Standards for Determining Human Death: An Appraisal and a Proposal," University of Pennsylvania Law Review, 121 (1972), pp. 87-118. Capron and Kasel agree with Robert Veitch who insists that the concept of death is to be tested philo-

18. "Criteria, any criteria, do not define death. Rather, they can allow us to say only that death has occurred. It is detection rather than definition. Thus they are merely tools and their proper use depends on proper judgment." Editorial, JAMA, 221 (1972), p. 65. "Even more to be avoided is the notion that the new criteria constitute a new or alternative definition of death, rather than a refined and alternative means for detecting the same 'old' phenomenon of death."


20. Since the focus of this paper is on death definition, these related issues will not be treated here except insofar as they bear directly on our question.


23. Ibid., p. 696.


25. Ibid., p. 701.


28. Ibid., p. 139.

29. Ibid.


31. Veith et al., op. cit., p. 1654.


34. See note 18.


41. Ibid., p. 174, n. 34. See pp. 160-171 on the "reasonableness" principle.

42. Veatch, Death, Dying, op. cit., pp. 42, 64, quoted by Ramsey, Ethics, op. cit., p. 174, n. 34.

43. Ibid., p. 169.

44. Veatch, Death, Dying, op. cit., pp. 55-76, especially pp. 76, 72-73, 75. Thus, as Ramsey points out in private correspondence, "not only 'moral agency' enters into the definition of death but familial vagaries as well."


47. Sweet, op. cit., p. 410.

48. J. B. Briers and associates studied patients who showed isoelectric EEGs and in subsequent neurological analyses dies neocortices, and survived— one for five months, another for 153 days. Certain brainstem and spinal centers remained intact, involving the functions of spontaneous breathing and reflexes: eye opening, yawning, etc., including reactivity of the pupils to light. In reference to these studies, Veatch suggests that such patients could be classified dead according to the consciousness or social interaction conception of death but alive according to the full Harvard criteria. Veatch, Death, Dying, op. cit., p. 49. Thus, according to Veatch, "the question whether to treat a person who will never regain consciousness as dead is really one of what concept of death should be used by society." Ibid., p. 56. See J. B. Briers, J. H. Adams, D. I. Graham, et al., "Neocortical Death after Cardiac Arrest," Lancet, 2 (1971), pp. 569-561. The Hastings Task Force argued against the conclusions of this study on both philosophical and preliminary experimental grounds. "Refrainments," op. cit., p. 53.

49. Black, "Brain Death," part II, op. cit., pp. 398-399. Black also judges that Veatch's proposals cannot be supported by present medical research on the brain and the outcome of prolonged coma. In a recent letter to the editor, Thomas A. Shannon claims that Black's series on brain death the distinction between whole-brain death and neocortical death seems too narrowly drawn. Shannon writes: "If the neocortex is the precondition of what is distinctly human, reliance on a neocortical definition alone seems justified as the basis for a definition of brain death."

"Thus, Shannon suggests that if, in the wake of further analysis of recovery rates when only the brainstem is functioning, treatment serves primarily to maintain the status quo of the patient, then "certainly withdrawal of treatment can be justified, and an acceptance of only a neocortical definition of brain death may be indicated." In response, Black agrees that further study of survival with severe cortical dysfunction is necessary, but wonders whether such evidence would really change the present concept of brain death. He asks, "Would we ever feel comfortable calling a patient with spontaneous respiration and some spontaneous movement 'dead'?" The New England Journal of Medicine, 299 (1978), pp. 1314-1315.