

Reading SAL Week 8: Defining Death

I: Introduction (SAL 323-326)

Traditional criteria for death: death occurs when breath stops and the heart ceases to beat.

It is generally believed that cessation of function of the brain marks the end of any chance of continuing to live as a human being..

But: modern medical technology (eg., ventilators) has separated the previously inseparable link between brain function and cardio-pulmonary death. Technology has made the traditional indicators invalid for one set of patients. For them we need a different set of diagnostic measures.

Neurological criteria for death:

Higher brain criterion: death occurs when there is the permanent loss of consciousness. (Adopted by the Belmont report)

Whole brain criterion: death occurs with the cessation of all the functions of the brain: consciousness, and also reflexes, autonomic nervous system functions, organic integration, -- in other words, higher-brain *and* brain-stem activity. (argued for by Veatch; the Belmont Report considered it too far away from the traditional definition.)

II; President's Commission: Defining Death (1982)

Role of technology: stethoscope was invented in the mid-19th century. (Before then, the use of a mirror to determine expired breath was useful.) The EKG was developed in the 20th century.

Anatomy of the brain: cerebrum and cortex considered the 'higher brain' and control thought, consciousness, memory and feeling. Cerebellum and especially the brain stem control vegetative functions such as swallowing, yawning and sleep-wake cycles, and unless it is artificially supported, respiration.

Loss of brain functions: direct trauma to the head, bleeding into the brain, and anoxic damage (deprivation of oxygen to the brain) are the most common causes of loss of brain function. Some physiological functions can be maintained for short periods even when all brain function is lost. Less severe injury can allow the brain stem to continue to function even when all other brain functions are lost, and in PVS or other non-cognitive states, patients can survive for months or even years with respiratory and ANH support. (the Commission reports one survival of 37 years.)

The purpose of this report is to distinguish partial brain impairment from complete and irreversible loss of brain function. The commission considered three formulations of the meaning of death:

Whole brain formulation: Death is that moment at which the body's physiological system ceases to constitute an integrated whole. The brain is not merely the sponsor of consciousness, but serves a pre-eminent role as the complex organizer and regulator of bodily functions. Breathing and circulation are necessary but not sufficient to establish that an individual is alive. If there is neurological evidence that the brain has ceased to perform this central integrating function (as occurs when the whole brain, including the brain stem, is damaged) the person is de facto dead.

Higher brain formulation: When those brain functions which sponsor consciousness, feeling and thought are gone, the psychological capacities and properties which make an individual a "person" are gone. Thus loss of the higher brain functions, rather than all brain functions, is suggested as adequate to constitute death. "After the brain has ceased functioning, the body is no longer identical with the person." (p. 346)

But: there is no agreement about what constitutes an adequate criterion of personal identity. Further, severely senile or severely retarded people might meet this criterion; but they ain't dead; nor are individuals in PVS.

Non-brain formulations: The traditional cardio-pulmonary criterion for death, the cessation of circulation of blood and air through the body, remains one accepted standard for declaration of death. Because of the technological advances mentioned above, cardiac and respiratory function are no longer sufficient determinants of whether a person is alive or not, because those functions can (at least for a while) be artificially maintained.

Some people will maintain that even the artificial provision of circulation of fluids means that the individual is still alive. Under the Uniform Determination of Death Act (see below), physicians will declare dead those bodies in which respiration and circulation continued solely as a result of artificial maintenance, in the absence of all brain function. "Nonetheless (p. 348), people who believe that the continued flow of fluids in such patients means they are alive would not be forced by the statute to abandon their beliefs nor to change their religious conduct."

The Uniform Determination of Death Act

The National Conference of Commissioners on Uniform State Laws in 1980 formulated the Uniform Determination of Death Act (UDDA). It states that:

"An individual who has sustained **either**

(1) irreversible cessation of circulatory and respiratory functions, **or**

(2) irreversible cessation of all functions of the entire brain, including the brain stem is dead.

A determination of death must be made in accordance with accepted medical standards."

Laws functionally identical to this model have been adopted by all 50 states and c. 80 countries.

Bernat: Whole Brain Concept of Death Remains Optimum Public Policy (2006)

The author was influential in the '80s in generating an analysis of death that was one point of reference for the President's Commission report and the UDDA. He reiterates his arguments in this article, which appeared in 2006 at the same time as the article by McMahan which follows in our text.

Despite the almost universal consensus on the use of neurological criteria to determine death, controversy remains, although restricted in scope to academics and some religious groups. He thinks the problem arises because some people fail to accept his "paradigm of death," which consists of seven elements:

- (1) Death is a common non-technical word we all use correctly to refer to the cessation of a human being's life. We need to make explicit the meaning that has been made ambiguous by technological advances.
- (2) Life is a biological phenomenon; so is its cessation. Death is biological.
- (3) For higher vertebrate species, death is univocal. It may not mean the same thing for individual cells or unicellular organisms, but it means the same thing for me and my gerbil.
- (4) The term can be applied directly and categorically only to organisms.
- (5) 'Alive' and 'dead' are mutually exclusive and jointly exhausting sets; no in-betweens.
- (6) Death is an event, not a process. (That does not mean we can always accurately measure the event; nor does it deny that dying is a process.)
- (7) Death is irreversible.

Bernat's *definition*: The cessation of functioning of the organism as a whole. The definition relies on Loeb's 1916 claim that an organism is more than the sum of its parts; and Korein's 1978 assertion that the brain is the 'critical system' of the organism. Critical functions include consciousness, control of circulation, respiration and temperature, and systems to maintain physiological homeostasis. Death is the irreversible and permanent loss of the critical functions of the organism as a whole. (351) Bernat's *criteria*: there are three candidates: the whole brain criterion, a brain-stem criterion accepted in England; and "the higher brain formulation, popular in the academy but accepted in no jurisdiction anywhere." (352) Including the circulation criterion, he says of the alternatives: "the higher-brain and brain-stem criteria both fail because they are necessary but not sufficient for death. The circulation criterion fails because it is sufficient but not necessary for death." (*He means: in the absence of life-support, the organism dies, so absence of circulation is sufficient for death ; but nowadays circulation can be maintained in an individual who has lost functions critical to the maintenance of the organism, so it is not necessary for death according to his definition.*)

Tests of death: Bernat goes through various presently-used and possible future tests that reduce the likelihood of error in determination of death (apart from various human errors).

Public policy: Bernat discusses the support for the current criterion (wide national and international adoption, medical association consensus reports as recently as 1996, Pope John Paul's 2000 acceptance of it as consistent with Catholic teachings) and dissent from it (Veatch, Taylor). He also inserts

a section (355) on Donation after Cardiac Death—a recent innovation in organ policy which we will discuss at greater length after Spring Break.

Jeff McMahan: An Alternative to Brain Death (2006)

In this article McMahan explicitly targets Bernat and denies many of his assumptions. He denies (3) that the concept of death is univocal. In particular, it relates ambiguously to ‘exist’ as well as to ‘functionally integrated.’ An individual might continue to exist after death. When an amoeba undergoes binary fission, it ceases to exist (as an individual) but does not die. Further, if the Lazarus (or Christ) stories are true, death is not (7) irreversible, either.

McMahan is puzzled why Bernat does not prefer ‘irreversible’ to ‘permanent,’ and by ‘irreversible’ intends in principle, not in practice. If integrated functioning has ceased but could be revived, your decision whether to revive it or not determines whether the cessation of function is permanent or not. If in fact it cannot be revived, then maybe it is irreversible—and that may be what Bernat needs.

[McMahan refers here to an earlier Bernat article in which Bernat had a different attitude toward DCD than that expressed in the above Bernat article.]

An important part of Bernat’s argument is that nothing can serve as the central integrator of function except the brain. McMahan suggests two possible alternatives: a mechanical replacement, or a decentralized interaction. (Sherwon suggests some examples of the latter.) So if it is not an empirical claim, is it a conceptual one? McMahan suggests several thought-experiments to test that claim, and suggests that there’s nothing intuitive in our reaction to them. He also points out that the human embryo seems to be a living human organism whose somatic functions are not regulated or integrated by the brain.

McMahan closes with an argument that human beings are not organisms.—or more precisely, not reducible to organisms. The discussion here is reminiscent of our discussion of persons a few weeks ago: McMahan evokes psychological or identity-narratives for his claim that the person is not identical with the organism: a hypothetical about a brain transplant (if my brain were put in the body of my twin whose cerebrum had been removed, I’d exist “in association with” what was once his organism) and a rare birth defect, dicephalic twinning, where two heads sprout from the same torso.

His solution is to hypothesize that human beings are (for the most part) embodied minds, and death consequently has two (not just one) meanings: (1) an organism dies in the biological sense when it loses the capacity for integrated functioning (for which the best criterion is the circulatory-respiratory criterion); and (2) the embodied mind (the psychological, rather than the physiological self) ceases to exist when we irreversibly lose the capacity for consciousness – ie, when there is irreversible loss of function in those areas of the brain through which consciousness occurs. Note that PVS thus represents the survival of the organism past the point at which the mind which it embodies has already ceased to survive.

Getting right to the heart of the discussion two weeks from now; McMahan asks if it is permissible to take organs from what he calls “an unoccupied organism,” with the permission of its prior occupant, and decrees that it’s unproblematic.