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# The Social Meaning of Death and its Implications for Organ Procurement

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## Abstract

Today, the protocols for “donation after cardiac death” allow clinicians to harvest viable vital organs as soon as cardiopulmonary arrest is deemed to be irreversible, typically several minutes after diagnosing a loss of circulatory and respiratory function. Although these patients are not brain dead, the irreversibility of circulatory death make these patients suitable donors for organ donation, provided that organ harvesting will take place as soon as possible. In the neurologic definition of death, a person is dead when the whole-brain is dead. The continued circulation of blood helps to prevent the organs from deteriorating, making this method superior. Brain dead patients still display some residual functions of life, making non-health professionals wondering if they are really dead. However, the brain death criteria focus on an event, which can be precisely timed and detected with enough certainty to justify an irrevocable action, such as organ procuring. In this paper we analyze two concepts that surrounds death, both with important implications for the society in general and health professionals in particular: “irreversibility” – specifically related to the traditional definition of death (the cardio-pulmonary definition) and “personhood” – especially related to neurologic criteria of death (the brain death definition).

*Keywords:* death, brain death, organ procurement, definition of death, transplantation, donation after circulatory death, organ procurement.

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## Introduction

Why is it important to talk about death? Why would one care about a sad “invisible”, since we are living here, on the ground, in a real world? Because it is the only certain thing in life (beside birth), that is shared by all human beings, that engages the most profound emotions and decisions; it is an important piece in the foundation of social and health policies and nonetheless it is the favorite reflection subject of theologians and philosophers. The importance of debating over death and dying derives from a pluralistic and a broad frame. Death is a biological concept with moral implications. One cannot talk about death as a biological event ignoring its tremendous social impact and we cannot think about a dead body without reflecting to its soul. From the emotional impact that touches each of us and up to shifting the morbidity or mortality statistics, death impact the society as a whole: social, psychological, economic, theological, philosophical, biological, and legal.

In what ways health professionals or legislators draw the line between life and death may be very different compared to how society makes this distinction and even more different than philosophers’ perception. This explains why there are so many controversies and discrepancies over this topic. Before going on deeper into this issue, one should have clear in mind what does death mean at a conceptual level, in order to be able to determine whether or not individuals in particular clinical situations are dead or alive, if dead people are still considered persons or not, or in other words, if dying or death change the personhood statute. This issue is significant especially due to advanced supportive technologies, which can artificially maintain life (Carauleanu, Iliescu & Costea, 2015) in the absence of its spontaneous functioning, trying thus to postpone death as much as possible. We should make a distinction between the criteria for declaring death and the concept underlying the criteria. Most of the debates so far oscillate between an empirical and a conceptual problem. The empirical task is a medical and scientific one, dealing with an operational definition of death and using particular criteria. The conceptual task clarifies the meanings of our concept of death, so we know what we have to test for declaring death (Gervais, 1986).

In this paper we analyze two concepts that surrounds death, both with important implications particular for health professionals (but not only): “irreversibility” – particularly related to the traditional definition of death (the cardio-pulmonary definition) and “personhood” – especially related to neurologic criteria of death (the brain death definition).

## **Death, ir/reversibility and traditional definition of death**

Traditionally, in 1960s the only criterion to validate death was the irreversible cessation of cardiopulmonary function. It was believed that persons who suffered cardiopulmonary arrest immediately lose brain function and vice-versa, and all these would predict the permanent non-functioning of the organism as a whole, therefore serving adequately as criteria for death. This explains why the timing declaration of death in Pittsburgh protocol, according to which people are declared dead after 2 minutes of ventricular fibrillation, was a crucial element of non heart beating organ donation and it seems unreasonable precocious for non-health care professionals.

A body may not only stop functioning but, and maybe more important, it may cease to be a person. The personhood concept may encompass certain abilities and qualities of awareness. Does a human body live as long as it exhibits the traditional signs of life? One would say that the person does not live anymore if the body cease to function? Cole (1993) criticizes the great importance that all laws, clinical criteria, and philosophic theories assign to irreversibility as a key word for declaration of death. The ambiguity of this concept opens other unknown doors: irreversible under what circumstances? According to our present technology and clinical skills? Thus he argues that “irreversible” should be dropped from the definition of death.

While Cole (1993) brings practical arguments against the acceptability of this notion in the definition of death, Tomlison (1993) defines irreversibility on moral grounds: that is, one is dead if the decision not to reverse the loss of function is morally acceptable. He emphasizes that irreversibility is a requirement within the criteria for the determination of death, rather than at the level of the concept of death. Moreover, the determination of death shouldn't be a determination of irreversibility of complete loss of body functions. The proposed compromise in this debate would be: “the possibility of reversal is not ethically significant” (Tomlison, 1993). On this ethical ground the Pittsburgh protocol does not violate the reversibility requirements.

However, this protocol does not respect the concept of irreversible death from the perspective of the body function. After two minutes of pulselessness, the patient is not “brain dead”. Therefore it pulls apart heart oriented and brain oriented criteria of death. This is a significant issue since it does not clarify if a patient is dead because his heart stopped beating or is still alive because his brain is still functioning. As Tomlison (1993) interpreted, “this is not a choice between different criteria for the same concept of death, but between fundamentally different concepts of death”.

Widely adopted to diagnose death outside the context of transplantation, the “cardiopulmonary” standard significantly limits the retrieval of viable vital organs

for transplantation, in particular the heart (Monteverde & Rid, 2012). This situation changed in the early 1990s, when transplant centers began implementing protocols for “donation after cardiac death” or “donation after circulatory death” (DCD) (DeVita & Snyder, 1993). The medical suitability for DCD refers to a patient that is likely to die within 90 minutes of withdrawal of cardio-respiratory support and the patient is not brain dead and is unlikely to progress to brain death (Steinbrook, 2007).

There are two distinct methods of DCD: controlled DCD (cDCD) and uncontrolled DCD (uDCD). The cDCD occurs after an anticipated in-hospital cardiac arrest, generally but not exclusively in intensive care unit patients, who have suffered a catastrophic brain injury and for whom a decision has been made to withdraw life-sustaining therapies with family consent. A variable amount of time later, death is declared, and organs are procured. The uDCD is initiated following an unexpected, and usually out-of-hospital, refractory cardiac arrest. The declaration of death may occur after resuscitation is terminated on scene or after arrival to the hospital. There is a “no touch” period after which death is determined and organ preservation may be restarted. After hospital arrival, cannulation and organ preservation with extracorporeal perfusion or in situ cooling begin. Consent requirements for donation and organ preservation vary by country or region and may occur before or after cannulation. Protocols for uDCD have already been implemented in Spain, France, Italy, the UK, and Netherlands (Borry *et al.*, 2008) and have also been developed in countries such as Belgium, Switzerland, and Austria, in Saint Petersburg (Russia) and in New York City (Wall *et al.*, 2011). These international experiences have demonstrated that uDCD is an effective way to increase the availability of solid organs for transplantation (Blackstock & Ray, 2014) There is a variability of practices between existing protocols (Morrissey & Monaco, 2014) and not definite answer on comparative effectiveness of implementing a particular protocol (Dominguez-Gil *et al.*, 2011).

Those involved in transplantation from controlled NHBDs manage patients who do not meet the legal test for death by neurologic criteria and whose cardiopulmonary function has been resuscitated or is being supported through medical technology. Physicians must maintain as normal as possible blood and oxygen supply to organs, provide organ-conserving interventions as necessary, discontinue breathing and circulatory support when a proper decision and proper consent has been obtained and then begin preserving and removing organs as soon as possible before they deteriorate.

The DCD protocols allow clinicians to harvest viable vital organs as soon as cardiopulmonary arrest is deemed to be irreversible, typically several minutes after diagnosing a loss of circulatory and respiratory function. DCD protocols might be perceived as a return to the traditional “cardiopulmonary” standard of death. In an effort to harvest vital organs that are viable for transplantation, some new protocols allow organ retrieval as early as 75 seconds after diagnosing cardiac

arrest (Boucek *et al*, 2008). However, clinical and research experience on cardiopulmonary resuscitation show that some patients might be successfully resuscitated after 5 or more minutes of asystole (Petrie, 2001; Brain Resuscitation Clinical Trial II Study Group, 1991). This suggests that cardiopulmonary function has not ceased irreversibly when vital organs are extracted after a waiting time of 5 minutes or less after cardiac arrest. Therefore the available evidence about cardiopulmonary resuscitation suggests that some patients who undergo DCD are still alive based on this standard. The only way to make sense of such short waiting times is to assume that cardiac arrest is irreversible, provided that no efforts of resuscitation are made. Indeed, some evidence (though insufficient) supports this interpretation of irreversibility based on the fact that there are no documented cases of cardiac autoresuscitation after 75 seconds of asystole when cardiopulmonary resuscitation is not attempted (Hornby, Hornby & Shemie, 2010).

However, this interpretation of irreversibility is not acceptable by all. Irreversibility normally means that something is impossible to undo – not that something would be possible to undo but one chooses not to undo it (Brock, 1999). To exclude the possibility of successful resuscitation and hence to ensure that cardiac arrest is irreversible, clinicians would have to wait more than 5 minutes after cardiac arrest before removing organs. Yet this approach would jeopardize the viability of organs in patients eligible for DCD. Furthermore, according to the “dead donor rule,” donation should not cause or hasten death (Institute of Medicine, 2006). According to this rule, persons must be dead before their organs are taken and they should not be killed by organ retrieval.

The Webster’s definition of killing is “to cause death”. Dead donor rule is concerned with “killing people”, disregarding the variant “let die”. It is the nature of motivation that makes “killing” either morally acceptable or blameworthy (Arnold & Youngner, 1993). This is why several physicians and bioethicists suggested dropping the dead donor rule and focusing more on consent.

Whose interests are we serving by bringing into discussion the issue of reversibility? Beside the legal consequences derived from a death of a person, cadaveric organ procurement has been developed as a social issue strongly related with the understanding and acceptance of the different criteria of death (Dumea *et al.*, 2013). Thus a quick answer to the above question would be: societal needs. Therefore, it should be regarded as having a strong utilitarian support. It is because of a reluctant society in face of the altruism of organ transplantation that dead donor rule has been set up.

## Death, personhood and “brain death” definition

Since 1968, when an ad hoc committee at Harvard Medical School proposed a brain-based definition of death that became widely accepted, organs for transplantation have been removed primarily from hospitalized patients who have been pronounced dead on the basis of neurologic criteria (the death of the entire brain), when they are on ventilators and their hearts continue to function. The continued circulation of blood helps to prevent the organs from deteriorating (Steinbrook, 2007).

In our attempt to illuminate how much of this concept draws from biology versus moral law, we may address this question: are the dead people still persons? Does the personhood status change at the end of life? Today we are not very sure if we should consider even fetuses as persons. Making a comparison between beginning of life and end of life, can we admit that fetuses and dying persons have the same status? Maybe having the same rights? The difference comes mainly from the degree of intrinsic quality of life which in case of fetuses has at least the potential to become high enough while in dying people is closed to “degenerateness” and uselessness. While we may rhetorically ask what minimal quality of life in a human body possesses sufficient intrinsic value to make us regard it as a living person, some people consider that human life has an intrinsic value.

It has been argued that patients in persistent vegetative state are no longer persons because they are no longer members of the moral community and any decision made with respect to them neither harm, nor benefit. Therefore we may ask: are they only ...bodies? The essence of human life lies in being a person with some basic awareness or understanding of the self. On this view, death occurs when personhood is permanently lost (this is particularly important for the “higher brain” standard of death, that we will approach later on). There is no philosophical consensus on what constitutes personhood.

The “whole brain” standard of death connects three basic dimensions of human life – the biological, the cognitive and the sentient (De Grazia, 2011), the brain being the central integrator of the human body, necessary for coordinating the various bodily systems and allowing the body to function as an “integrated whole” (President’s Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, 1981). According to the *brain death* criterion the cessation of functioning of the organism as a whole is the permanent loss of the activity of the *entire* brain. The “whole brain” standard of death defines death as the irreversible loss of function of the higher brain and the brainstem (Monteverde & Rid, 2012).

However, the growing clinical experience with “brain dead” patients shows that with the support of mechanical ventilation and nursing care, patients who are correctly diagnosed as “brain dead” digest food, regulate salt and water

homeostasis, maintain their temperature, grow hair, heal wounds, fight infections, react to stress, grow in length, go through puberty, and even gestate fetuses (The President's Council on Bioethics, 2008). For sure, it is questionable that these functions – often called “residual” – really constitute human life. Thus, how could patients be considered dead when they perform all these functions? “

Some authors argued that death occurs when a patient no longer carries out the “fundamental vital work of a living organism”, which includes being receptive to stimuli and signals from the surrounding environment (The President's Council on Bioethics, 2008). However, many of the above listed functions in “brain dead” patients reflect receptivity to such stimuli, such as the ability to heal wounds and fight infections.

Hans Jonas considers it as morally wrong, arguing that declaring death in such cases is primarily motivated by transplantation interest. In response to the report of the “Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death,” Jonas included in his essay “*Philosophical Reflections on Experimenting with Human Subjects*,” a section dealing with the redefinition of death as “irreversible coma” (Jonas, 1974). In this section, Jonas states that he sees nothing wrong with allowing a patient in a coma which has been determined to be truly irreversible to die with dignity; that is, that he does not object to disconnecting the life-support systems that are maintaining the marginal life of such a patient. What he does oppose is pronouncing the patient “brain dead” and leaving him connected to the life-support systems so that the patient may become available for vivisection under a different designation.

On the opposite side, Howard Brody accepts the brain death, arguing that the brain death criteria focus on an event which can be precisely timed and detected with enough certainty to justify an irrevocable action. The criteria used to detect brain death are essentially biomedical observations well suited to serve as a basis for moral and legal decisions and actions (Brody, 1983): (1) The criteria are suitable for quick application. An answer can be obtained within twenty-four hours, in some cases much less; (2) The answer obtained is a clear yes-or-no answer, not an approximate or quantitative one; (3) The criteria very rarely if ever yield false-positive results, and this has been confirmed by studies using independent criteria (Black, 1978).

According to Brody (1983), the brain death criteria tell us, in effect, that “nobody's home; but not who's not home”. Even with this standard there were several polemics about “*higher*” brain (neocortex) versus whole brain, which ended in philosophical debates between consciousness and integrative capacity. The “*higher brain*” standard of death defines death as the irreversible loss of function of the higher brain, which involves the permanent incapacity to return to consciousness (as opposed to a temporary incapacity, for example during sleep). No state has adopted the “higher brain” standard, but several scholars have



defended it. Their common argument is the irreversible loss of some ability for which the capacity for consciousness is necessary – for example, having self-awareness over time or being able to reason and act morally (De Grazia, 2011).

If self-awareness is seen as necessary for personhood, patients in irreversible coma or a persistent vegetative state would have to be considered dead despite their spontaneous cardiopulmonary activity. If the ability to reason or act morally is seen as necessary, severely demented patients would have to be considered dead – although they are capable not only of spontaneous breathing, but also of some forms of social life. It is not surprising that the “higher brain” standard of death has not been adopted by any legislature. Moreover, depending on what notion of personhood is assumed, the “higher brain” might have negative consequences that would likely undermine public trust and support of organ donation. The “higher brain” standard of death therefore has been discussed primarily among academics, who raised concerns about this standard for its tendency to reduce human life to personhood and devalue the dimension of embodiment (Monteverde & Rid, 2012).

Robert Veatch (1988; 1999), who actually defended the neocortical death criterion for 20 years, considers that the essence of the human being is the intrinsic capacity to experience and to socially interact with others, and the permanent loss of this capacity signal death. According to this position, senile or demented people may be regarded as dead as well.

In Japan, for example, recognition of brain death and organ donation from brain dead bodies are not widely accepted. Japanese believe the body must remain intact not only in life but also after death. Japan lacks a tradition of altruistic giving to unknown others. Viewing a warm, breathing body as dead is more unusual to Japanese than westerners (Hayashi, Hasui & Kitamura, 2000). Shinto is the indigenous spirituality of Japan and the people of Japan. Shinto's believe that the body is pure and gathers impurities throughout life (Oliver, Ahmed & Woywodt, 2012). A cadaver is considered very powerful and can impose bad luck if interfered with. Incredibly, organ procurement from “brain dead” donors was only legalized in 1997 (McConnell, 1999) and it took another 2 years until a heart transplant was performed (Chung *et al.*, 2008).

Today, the widespread agreement among bioethicists rely on the “functional” criteria of the brain death, meaning that death is not the death of the entire organ, but rather loss of all functions of the brain (Youngner & Arnold, 2001). It is in the remit of the society as a whole and of the hospitals, at a microlevel (within the ethics audit procedures) to set forth criteria for the acceptability of a definition of death We certainly need more education at all level of health practice, to increase awareness on a topic that touches not only doctors, nurses and policy makers but the society as a whole. (Agheorghiesei *et al.*, 2014; Antohe *et al.*, 2016).

## Conclusion

As currently practiced, donation after cardiac death inevitably raises more concerns than donation after brain death. The process is more complex, and the potential donor is not dead when life-sustaining measures cease. The tightly scheduled management of the donor patient and the transplantable organs particularly for NHBD, but also for brain dead patients must satisfy a number of important ethical principles, including the dead donor rule, respect for family wishes, prohibition against euthanasia, and informed consent. In a practical discourse there are no big differences between “almost dead”, “maybe dead” or “probably dead” because all could mean “as good as dead”. In a moral stance all these connotations cannot equate “dead for sure”.

Today we ask ourselves more and more if it is not the time to abandon the dead donor rule. Some policies propose to abandon the requirement that patients must be dead to retrieve their vital organs. Instead, the ethical acceptability of harvesting viable vital organs would depend on two conditions: the valid consent of the donor and an acceptable risk-benefit ratio for both the individual patient and society (Monteverde & Rid, 2012; Miller & Truog, 2012)). That means that organs could only be removed if the patient or his or her surrogate has consented to the removal and the patient’s clinical prognosis show no potential recovery. This approach separates questions surrounding the determination of death from questions about the ethical permissibility of retrieving viable vital organs for transplantation. Death would no longer be a requirement for organ removal (Monteverde & Rid, 2012).

Thus, death is both a biologically based and socially constructed notion about which there is little prospect for social consensus in the near future. While attorneys will always claim that defining death is classically a legal problem and doctors would consider themselves experts in testing the death, none of them have authoritative insights into moral, spiritual and social factors to set a conclusive criteria. It is the individual who place his own background, values, traditions and beliefs on the seat of the moral judgement. In face of all these disparities, health professionals should respect the cultural, religious and social diversity.

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