Medicine, Health Care and Philosophy (2007) 10:441–459
DOI 10.1007/s11019-007-9053-7

Scientific Contribution

In defense of the reverence of all life: Heideggerean dissolution of the ethical challenges of organ donation after circulatory determination of death

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Abstract. During the past 50 years since the first successful organ transplant, waiting lists of potential organ recipients have expanded exponentially as supply and demand have been on a collision course. The recovery of organs from patients with circulatory determination of death is one of several effective alternative approaches recommended to reduce the supply-and-demand gap. However, renewed debate ensues regarding the ethical management of the overarching risks, pressures, challenges and conflicts of interest inherent in organ retrieval after circulatory determination of death. In this article, the author claims that through the engagement of a Heideggerean existential phenomenological and hermeneutic framework what are perceived as ethical problems dissolve, including collapse of commitment to the dead donor rule. The author argues for a revisioned socially constructed conceptual and philosophical responsibility of humankind to recognize the limits of bodily finitude, to responsibly use the capacity of the transplantable organs, and to grant enhanced or renewed existence to one with diminished or life-limited capacity; thereby making the locus of ethical concern the donor–recipient as unitary ''life.'' What ethically matters in the life-cycle (life-world) of donor–recipient is the viability of the organs transplanted; thereby granting reverence to all life.

Key words: concept of death, dead donor rule, determination of death, ethics, Heidegger, hermeneutics, organ donation, organ recovery, organ recovery after circulatory determination of death, organ supply-and-demand gap, organ transplantation, phenomenology

Introduction

Should you have a personal interest in fostering organ donation? For example, based on simple probability modeling for quantifying self-interest in organ donation within the current US context, if you accept the assumption that you have meaningful relationships with at least 20 other persons, the annual probability that you or someone you care about will need a solid organ transplant within a given year is 1 in 358; within a lifetime the probability is 1 in 5. If you include the need for tissues, the lifetime probability is 1 in 2. (Institute of Medicine, 2006, pp. 94; 341–347.) Thus looms the anguishing question, if I have a need will there be an organ available? In response to the immediate challenge regarding the worldwide shortage of transplantable organs, this article examines the recovery of organs after circulatory determination of death (DCD)[1] as a medically and ethically effective approach to maximize the availability of viable organs for transplantation. Following an analysis of the public and professional concerns surrounding issues regarding viability of organs, allocation strategies, allegiance to donor and recipient, and the concept of death, a Heideggerean argument is constructed in which the risks, pressures, ethical challenges and conflicts of interest historically viewed as inherent in DCD organ procurement dissolve with the collapse of the dead donor rule and a radical reconfiguration of the concept of life-cycle; thereby embracing a reverence of all life. Argumentation and contextual information embedded in the politics of social discourse is projected to forge a paradigm shift from fixed concepts to dynamic revisioning of social values surrounding the life-world of the donor–recipient. This may prove to be a greater challenge for the US than Europe, given Americans' fixated

commitment to identify the precise moment of biological death.

Background – the transplantable organ supply-and-demand gap

During the past 50 years since the first successful organ transplant, waiting lists of potential organ recipients have expanded exponentially as supply and demand have been on a global collision course. However, lack of homogeneity in data acquisition and processing methodology and the absence of an agreed upon global data collection mechanism complicate efforts to accurately depict a comparative worldwide picture of donation rates and a supply-and-demand gap analysis. National history, political and social philosophy, economic theory, as well as the legal climate, medical practice standards and cultural factors related to consent affect response rates to organ donation. In addition, the utilization of varied definitions of 'donor'[2] and 'potential recipient'[3] in data acquisition and processing protocols may result in data that is not comparable. Both the response rates influenced by context and the varied definitions utilized, challenge the validity and reliability of international comparisons. In response to this circumstance, the 12 European Organ Exchange Organizations[4] and the US national data network (UNOS), in addition to the multi-country initiatives such as Eurodonor (subsequently subsumed under Eurocet), Council of Europe, Global Alliance for Transplantation, and the International Registry of Organ Donation and Transplantation (IRODaT) attempt to integrate some measures of harmonization. Nevertheless, it is not possible to consult a single data source for an accurate global accounting of the number, rates and outcomes for all types of organ donation and transplantation, thereby making any multi-country comparative analysis merely suggestive, but not definitive. Complicating this circumstance even further, some researchers have suggested that the number of persons who could benefit from transplantation may be significantly underestimated since extended waiting times due to the critical shortage discourages both patients and transplant clinicians from adding to the waiting list, thereby functioning as an "informal rationing mechanism" and resulting in an inaccurate statement of need (European Commission, 2006, p. 6; Institute of Medicine, 2006, pp. 32–38; Caplan, 1986).

However, with increased awareness regarding the importance of organ donation and transplantation to a national and global health platform, a graphic depiction of the supply-and-demand-gap for selected countries and multi-country mechanisms (Figure 1) is helpful to gain political and social currency for international cooperation to maximize organ donation and allocation, despite the limitations concerning definitional harmonization and organizational centralization of data. During 2004, a wide range of deceased donor rates was reported throughout the world (Table 1), ranging from a high of 34.6 pmp in Spain to a low of 0.5 pmp in Romania (European Commission, 2006, p. 6). As of June 2006, approximately 40,000 patients were on the transplant waiting lists in Western Europe and 10 patients died each day waiting for a transplant that did not occur due to the shortage of donated organs.[5] UK Transplant reported an active waiting

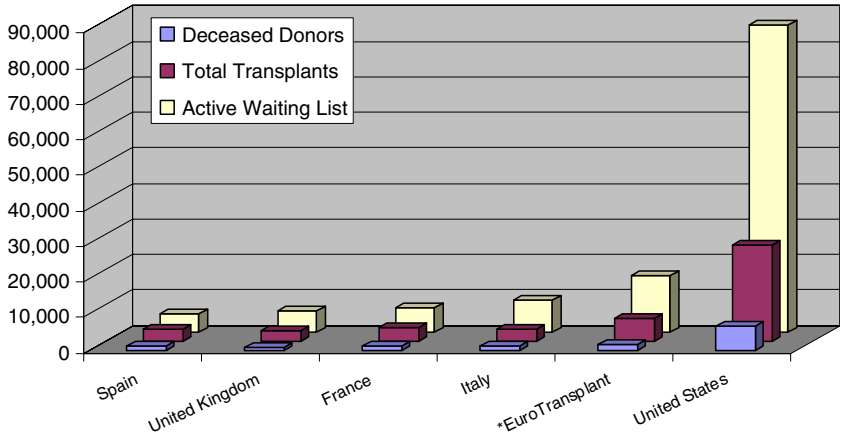

Figure 1. Graphic depiction of the global solid organ supply-and-demand gap using 2004 data from selected countries. *Data Sources*: Spain: Council of Europe 2005; United Kingdom: NHS,UK Transplant Update, 2005; France: Council of Europe, 2005; Italy: Council of Europe, 2005; EuroTransplant: EuroTransplant International Foundation, 2004; United States: OPTN/SRTR Data as of May 2, 2005.

Table 1. 2004 – deceased donors per million population

Spain	34.60
United States	24.10
Austria	22.56
Belgium	21.83
Italy	21.10
France	21.00
Slovenia	18.00
The Netherlands	15.50
United Kingdom	13.80
Germany	13.05
Luxembourg	2.00
Romania	0.50

Data Source: Council of Europe (2005), International figures on organ donation and transplantation (2004) *Transplant Newsletter* 10(1), 24–26; European Commission, *Consultation Document*, June 27, 2006.

list of 6,698 patients at the end of March 2006, a 9% increase over the previous year, and a reported 7% death rate of persons while waiting on the transplant list.[6] Perhaps the most stark reality comes from the US, where as of 17 January 2007 nearly 95,000 persons are listed as transplant candidates,[7] with a new name added to the national waiting list for solid organs every 13 minutes,[8] and approximately 17 people die each day waiting for a transplant.[9] The US Institute of Medicine estimates that to conform the supply to the demand would require an increase of around 18,000 organs or about a 90% increase in organ supply in the United States (Herdman and Potts, 1997, pp. 12–13).

Identification of the numerous forces that widen the global supply-and-demand-gap is critical for understanding the complex nature of the problem. On the one hand, in both the European and American experience the increasing demand for transplantable organs is driven by (i) improved survival rates and quality of life post-transplant due to improvements of surgical technique, organ preservation methods and immunosuppression therapy, (ii) fewer restrictions on transplant patient selection, (iii) an increased number of diseases for which transplantation is medically appropriate, and (iv) the practice of re-listing persons who have lost previous grafts. On the other hand, in both the European and American experience the availability of transplantable organs is affected by a multitude of factors. The number of brain-dead donors has declined due to improvement in auto, bicycle, and mass transit safety, introduction of hypertensive screening and smoking cessation programs, medical advances in the pre-hospital management and hospital critical care management of traumatic brain injury, as well as progress in surgical, endovascular and intensive care of patients with subarachnoid hemorrhage and intracerebral hematoma/hemorrhage. Concerns related to HIV and other infectious diseases, as well as patients with significant co-morbidities add to the donor exclusion rates; while inadequate medical management including failure to begin or prematurely withdrawing life-support, failure to recognize or declare brain death, and failure to recover organs result in the loss of potential donors. Inadequate professional preparation to request organ donation concludes in failure by healthcare professionals to approach families, as well as failure to gain consent for donation, thereby adding to the missed potential to address the organ shortage. Finally, cost containment measures like those in the UK where there has been a reduction of intensive care units and neurosurgical bed availability have a direct impact on the availability of transplantable organs.[10] Thus, increased indications for transplantation that depend on either a static or a declining donor base produce a worldwide imbalance between supply and demand as evident, for example, by the statistics from Eurotransplant International Foundation, the National Health Service of the United Kingdom, the Council of Europe, and UNOS of the United States.

Organ procurement and transplant organizations world-wide are struggling to maintain moderate increases in the supply of solid organs for transplantation.[11] Initiatives are being taken to examine various public policy and institutional changes to potentially increase rates of organ donation. During the last decade proposals have spanned the spectrum from presumed consent to compulsory donation (conscription) and from partial to full commercialization of the organ recovery system (compensation for organs, including 'futures market' concept) (Banks, 1995; Barber, 1996; DeVita and May, 2000; Koffman and Gambaro, 2003; Spike, 2000; Spital, 2005). As a world leader in organ donation and transplantation, Spain over a seven year period embarked on a vigorous initiative to improve donor rates and the efficiency and quality of its organ recovery process through deployment of in-house hospital coordinators for increased donor identification and assessment, systematic death audits, as well as integration of hospital programs with a regional and national network strategy. In addition, emphasis was placed on expanded-criteria donors, and reimbursement to hospitals was increased (Matesanz, 2003, 2004).

The quality assurance program of the donation process in Spain, featured as a pre-congress post-graduate course at the 2007 Congress of the European Society for Organ Transplantation in Prague, is a model for improving organ donation and transplantation outcomes. In 2005, the Committee of Ministers of the Council of Europe in approval of Recommendation 2005:11 and the Public Health Program of the European Commission funded initiatives to recruit and train organ donation professionals for improvement of donation rates across Europe. Desirous of fostering broader public support, the European Commission Directorate-General for Health and Consumer Protection conducted an Open Consultation period from June 2006 to September 2006 to (i) identify fundamental issues in organ donation and transplantation, (ii) solicit public opinion on EU initiatives to mitigate the identified problems, and (iii) determine the extent to which measures may be taken at the community level to solve the problems. With the deceased heartbeating donor rate having remained static since 1998, the UK initiated a national ongoing potential donor audit in an attempt to increase the UK conversion rate, as well as enacted legislation that took effect September 2006 enabling the expressed wishes and consent of an individual to donate his or her organs to supersede any family objection (Barber et al., 2006). In similar efforts, the US Health Resources and Services Administration in 2004 requested that the Institute of Medicine bring together experts from the fields of bioethics, law, health care, organ donation and transplantation, economics, sociology, emergency care, palliative care and consumer advocacy to examine possibilities for increasing rates of organ donation. Acknowledging that over the past 30 years the primary source of organs has been from patients with neurologic determination of death, thereby providing 79% of the transplantable organs, the US committee of experts recommended expansive measures to increase the supply of transplantable organs, including use of organs obtained from sources other than brain-dead patients (Institute of Medicine, 2006).[12]

As an integral part of the worldwide initiatives to reduce the transplantable organ supply-and-demand gap is the recommendation to develop the potential of organ recovery from patients with circulatory determination of death. Historically since the publication of the Maastricht categories for non-heart-beating organ donation, DCD retrieval has been practiced only moderately in such countries as the Netherlands, Spain, Belgium, Austria, Czech Republic, Norway, Turkey, UK, Australia and the US, and then its use generally has been limited to a few of the larger transplant centers within a country. Additionally, because of a stable waiting list that is responded to primarily with the use of live-donor transplants, there has not been a significant usage of DCD recovery in countries like Finland. Further, due to legal constraints in Germany neither recovery nor transplantation of organs from donors of circulatory determination of death is permitted (Bos, 2005b, p. 1146; Koffman and Gambaro, 2003, p. 335). However, with the recent successful growth of DCD recovery, specifically in the Netherlands, Spain, UK and the US, data demonstrate the potential of a 20–50% increase in deceased donors by expanding into retrieval from donors of circulatory determination of death, thereby stimulating worldwide interest.[13]

The international activity and success surrounding recovery of organs after cardiac death is most promising. With a national non-heart-beating organ donation protocol implemented by all donation and transplant centers in the Netherlands, DCD recovered organs accounted for one third of the kidney transplants in 2003 (Bos, 2005a, p. 574, b, p.1143; Keizer et al., 2005, p.1195).[14] Expansion of DCD recovery primarily utilizing Maastricht Type I and II donors at the Hospital Clinico San Carlos (Madrid), the largest retrieval center in Spain for donors of circulatory determination of death, enabled the hospital to (i) increase the number of actual donors by more than 80% over a five-year period, (ii) increase the total number of kidney transplants from 42 in 1994 to 88 in 2004, and (iii) decrease the waiting list from 234 patients in 1996 to 32 patients in 2005 (Sanchez-Fructuoso et al., 2000, 2003, 2006, pp. 157, 162). In the UK experience, although DCD donors accounted for only 11.3% of total deceased donors in the statistical year 2004–2005, the cumulative affect of recent advocacy for DCD recovery by the NHS and UK transplant societies[15] became evident with a 44% increase in DCD donors in the statistical year 2005–2006 over the previous statistical year. The potential for DCD recovery in the UK is projected to be a significant source of additional organs since the decision to withdraw or limit active treatment is made in 9.9% of all ICU admissions and 31.8% of all critical care unit deaths (UK Transplant, Statistics and Audit Directorate, 2006; Papalois et al., 2004, p. 19; Ridley et al., 2005, p. 593; Wunsch et al., 2005, pp. 823–831).

Sweeping initiatives surrounding development of the potential DCD donor pool within the US are

occurring. From 1994 to 2004, the donors after circulatory determination of death rose from 1.1% to 5.5% of the total deceased donors in the US, representing in 2004 an actual 391 donors for recovery of 1,038 transplantable organs. Although this is a small percentage of the 26,539 organs transplanted in 2004, an analysis of the data provides a promising opportunity to reduce the supply-and-demand gap through increased emphasis on DCD recovery of organs. The 2004 DCD donations were recovered by 21 of the 58 organ procurement organizations each reporting to have recovered 5–8 cases; thus leaving 19 organ procurement organizations having recovered fewer than 5–8 cases and 18 organ procurement organizations having recovered no DCD donations. Government "mandated stretch targets" for increased recovery of potential DCD organs have been developed for each of the under-achieving organ procurement organizations. In addition, the projected 2004 estimate of out-of-hospital cardiac arrest deaths indicates a potential of 22,000 donors, representing the potential for a 55-fold increase from the actual 391 DCD donors for 2004, if consensus could be reached in the US regarding uncontrolled retrieval[16] (Institute of Medicine, 2006, pp. 7, 118, 166–167, 327). As further indication of the seriousness of US commitment to increase recovery and utilization of organs from DCD donors, specific actions were proposed in 2005 for US agencies and organizations that included (i) mandatory adoption of protocols regarding DCD recovery of organs for transplant center and organ procurement organization membership and accreditation, and for hospital accreditation;[17] (ii) revision of federal government reimbursement mechanisms for coverage of DCD recovery of organs; and (iii) establishment of a joint committee by the American Society of Transplant Surgeons and the American Society of Transplantation to increase recovery and utilization of organs from DCD organ procurement (Institute of Medicine, 2006, p. 161).

Statement of the problem

While the international medical and public policy communities examine and implement unique "breakthrough" approaches and best practices to reduce the supply-and-demand gap, including deployment of strategies to increase the percentage of DCD donors, as well as strategies to increase organs transplanted per DCD donor, renewed debate ensues regarding the ethical management of overarching risks, pressures, challenges and conflicts of interest inherent in DCD organ retrieval. Reasoned response is needed to the starkly drawn historic concerns of Alan Weisbard about protocols regarding DCD organ retrieval as managing the process of death in terms of "intended" death for utilization of organs for transplantation, i.e., killing to fulfill the needs of transplant centers (Weisbard, 1995), and Renee Fox's equally harsh judgment of protocols regarding DCD organ retrieval as "ignoble forms of cannibalism" (Fox, 1995) or "trial-and-error experimentation" (Fox, 1996). Though these strident judgments may seem dated or foreign from a European mindset, the perspective continues to appear in current literature and hinders specifically US efforts to expand DCD retrieval. While persons like Jerry Menikoff and Michael Potts from the US and David Evans from the UK suggest that organs are being procured from persons prior to their being legally dead, thereby making organ donation an "endorsement of killing people," M.D.D. Bell from the UK asserts that the efforts to reduce the warm ischemia time in DCD retrieval "results in a range of practices which come uncomfortably close to accepted definitions of euthanasia" (Menikoff, 2002; Bell, 2003, p. 180; Potts and Evans, 2005, p. 407). In this article I contend with the arguments put forth in the literature that "gerrymandering," "policy creep," and "mission creep" dependent on "inertia, habituation, thoughtlessness, and self-interest" motivated by social, economic and psychological forces have redrawn the permissible boundaries of defined death (Arnold and Youngner, 1995a; Caplan, 1995; DuBois, 1999, 2000a, b, 2002; Lynn, 1995; Lynn and Cranford, 1999; Menikoff, 1998, 2002; DeVita et al., 2000; DeVita, 2001; van Norman, 2003, pp. 767ff; Bernat, 2006; Truog and Cochrane, 2006).

Question posed

This article wrestles with the underlying question; can a cogent argument for "the reverence of all life" be constructed to support DCD organ recovery as a medically and ethically effective approach to maximize the availability of viable organs for transplantation without violating ethical norms regarding the rights and welfare of donors?

Viewpoint claimed

In this article, I claim that through the engagement of a Heideggerean existential phenomenological[18]

and hermeneutic[19] framework the risks, pressures, ethical challenges and conflicts of interest historically viewed as inherent in organ donation after circulatory determination of death dissolve in light of a world-disclosing cultural phenomenon (''new form of intelligibility'') that embraces a life-cycle as being from ''the point of no return''[20] of donor life to ''the point of renewed or enhanced'' recipient life; thereby affirming respect for all life in which organs do not correlate to the ''living-time'' (*chronos*) of an organism (body), but to the organ's ''life-time capability'' (opportunity or readiness {*kairos*} of usability) (White, 2005, specifically the Foreword by Hubert L. Dreyfus, Introduction and pp. 93–126; Capurro, 2005). To borrow words from A.N. Whitehead and E.R. Koppelman, it is the ''fallacy of misplaced concreteness''[21] as well as ''a moral cowardice and the abdication of our common humanity''[22] to posit the certitude of death as a precise moment, functional state or biological process intertwined with the requirements of medical, legal and religious perspectives that then obligate one to a social construction known as the dead donor rule. ''A single moment is insufficient to justify all social and moral concerns that seem to be connected with death'' (Koppelman et al., 2003, p. 2).

Public and professional concern about risks, pressures, ethical challenges and conflicts of interest historically viewed as inherent in organ donation after circulatory determination of death

Unlike the Asian experience, i.e., specifically in Japan, where historically the majority of organs have been recovered from donors after circulatory determination of death, in Europe and the US the DCD recovery of organs is one of those topics that is considered ''back to the future.'' (Rudlich et al., 2002; van Deynse et al., 2005) There is a history in Europe and the US from the 1960s and early 1970s of DCD recovery of organs. However, in 1968 with the establishment of criteria for neurologic determination of death,[23] European and US recovery of organs after circulatory determination of death essentially ceased. Despite current public justification that DCD organ donation is not new, but is an old procurement strategy, and that such is part of quality end-of-life care which grants families an additional opportunity to create meaning from tragedy, Americans in particular not having experienced donation of organs in this manner for the past 25-year period assert that the risks, pressures, ethical challenges and conflicts of interest inherent in such recovery of organs remain problematic (Herdman and Potts, 1997; Institute of Medicine, 2000, 2006). It is not the scope of this article to analyze each of the risks, pressures, ethical challenges and conflicts of interest. The literature is replete with this discussion.[24] In summary fashion, I wish to parse the public and professional concerns about the risks, pressures, ethical challenges and conflicts of interest under the topical categories of (i) quality; (ii) allocation; (iii) allegiance; and (iv) concept of death.

Quality

Assessment of organ viability and long-term graft survival in recovery/transplant of DCD organs is medically and ethically imperative since ischemic damage in varying degrees is inevitable, resulting in potential delayed function,[25] primary non-function,[26] acute rejection, increased possibility of recipient sensitization, pain, depression, morbidity, or death, and potential increase of length of hospital stay.[27] However, these negative outcomes (specifically related to kidneys) have been addressed through scientific progress of *in situ* preservation using improved cold perfusate, restoration of cardiopulmonary function after death with cardiac massage and ventilator support or bypass, total body cooling, rapid retrieval after death following withdrawal of ventilator support, and use of hypothermic pulsatile machine perfusion that improves the condition of marginal organ grafts and permits time for viability assessment prior to transplantation. Analysis of these improvements has included examination of increased costs, e.g. the high cost of machine perfusion is offset by the potential savings from reduced dialysis and an increase from 45.5% graft survival rate in cold stored kidneys not assessed for viability to 88.1% graft survival rate in kidneys that are machine perfused and viability tests run (Balupuri et al., 2000b, c, d, 2001a, pp. 1119–1120, b, p. 106).

Though the literature reports a 17–90% delayed graft function in kidneys recovered after circulatory determination of death, the 3–5 year graft survival and long-term function rates are similar to the graft survival and long-term function rates of kidneys recovered after neurologic determination of death.[28] Further, there is growing evidence that in addition to kidneys recovered after circulatory determination of death it is possible to successfully and efficaciously transplant lungs, pancreas, livers, and hearts recovered in the same manner.[29,30] Thus, given the current international assessment of comparable long-term outcomes between transplanted organs after circulatory and neurologic determination of death, as well as on-going

research to develop (i) sensitive viability tests to indicate cellular injury, (ii) techniques to rebuild ischemically damaged cells *ex vivo*, and (iii) improved protocols to prevent reperfusion injury (e.g. Magliocca et al., 2005), resistance to the use of these organs for transplantation due to ethical concerns regarding quality is difficult to justify.

Allocation

The perspective that organs recovered under DCD conditions are of marginal quality naturally raises questions about ethical allocation strategies. Widely debated without a current consensus, four allocation strategies are suggested in the literature and discussed among professionals in the transplant community: (1) In a paternalistic fashion, the transplant team selects from the waiting list those patients who due to multiple and complex factors are projected to have a minimal chance of receiving a transplant and have been on the waiting list for an extensive period of time with no offers of organs; (2) At the time of listing a patient on the transplant waiting list, the medical team, following a thorough explanation of the risk factors known to be related to organs recovered after circulatory determination of death, inquires of each patient seeking listing status whether or not she or he is willing to receive organs recovered under DCD conditions; (3) All patients, at the time they rise to the top of the waiting list, are offered the possibility of transplantation with organs recovered after circulatory determination of death with full disclosure, including the 5–20% chance that the organ will not function; and (4) Since international studies demonstrate similar graft survival and long-term function rates for organs recovered after circulatory and neurologic determination of death and since extended criteria donors currently are used extensively by transplanters world-wide, organs recovered after circulatory determination of death are distributed with no disclosure concerning their being DCD organs (Papalois et al., 2004, p. 18). It is the last of the four allocation strategies that is logically congruent with the argument of similar quality outcomes after circulatory and neurologic determination of death. However, it is this fourth allocation strategy that is considered the most ethically challenging in the US context of personal autonomy and informed consent. In contrast to the US, the Netherlands does not consider DCD kidneys to be ''marginal organs'' and thus allocates them routinely without the patient being given a choice (Bos, 2005b, p. 1145).

Allegiance

In recovery of organs after circulatory determination of death, concerns about perceived and real conflicts of interest, timing of actions, consent and dignity of care become enmeshed in an overarching question of allegiance, particularly in the American context of organ donation and transplantation. Who is my patient – the donor or the recipient? Given the prevalence of dichotomous reasoning inherent in American pragmatic thinking, the donor's interest of either longevity or comfort immediately is juxtaposed to the recipient's interest of optimal graft viability and function in such a manner as to set-up conflicting prescriptive and proscriptive rules grounded in values of benefit/harm, end/means, double effect/direct causation, respect/desecration. Professional and public polarization occurs around (i) antemortem pharmacologic interventions with or without consent (e.g. use of heparin to prevent intravascular clotting, phentolamine to maintain vascular perfusion, antibiotics, steroids, analgesia), (ii) antemortem or postmortem invasive procedures with or without consent (e.g. insertion of catheters to enable rapid *in situ* preservation, tissue typing and virology screening), and (iii) postmortem interventions with or without consent (e.g. *in situ* preservation, cardiac massage, mechanical ventilation, cardiopulmonary bypass).[31]

To defuse the professional rancor and public confusion surrounding issues about perceived and real conflicts of interest, timing of actions, consent and dignity of care, various procedural protocols have developed across the US that delineate roles and timing of actions for agents acting in the capacities of caregivers at the end-of-life, organ recovery team, and organ transplant team. The lack of uniformity of approach has resulted in professionals working effectively and efficiently on behalf of both the donor and the recipient in one geographic region while being encumbered in another geographic region with unreasonable and illogical requirements to protect the donor. The artificiality and possible ruse regarding separation of roles and actions of various agents become apparent (i) with the disclosure of American physicians' practice coverage arrangements, physician group practice affiliations, and the role of hospitalists, (ii) with the advent of electronic medical records where information is instantly available to all healthcare professionals, and (iii) when end-of-life caregivers and organ recovery personnel engage in dialogue about ''best practices for 'pre-donor' management,'' i.e., medical

management to optimize viability of potentially transplantable organs in a patient for whom there has been no decision made to withhold and withdraw life-sustaining treatments and for whom there has been no discussion with the next of kin concerning the potential for organ donation.[32]

Concept of death

Until recent efforts in 2006 by the Department of Health and Human Services, the patchwork approach to US protocol development for recovery of organs after circulatory determination of death has been so disjointed that a patient may be declared dead in one hospital, while in the hospital across the street in the same city that same patient may be considered still alive. There is no national regulation or legislation regarding "irreversibility." Thus, the foundational issue of public and professional concern, especially in the US, becomes assurance of "certitude" regarding the definition, measurable criteria and validated tests for death,[33] lest organs be taken from the "probably dead, practically dead, as good as dead, almost dead, but not certainly dead patients" (Arnold and Youngner, 1995b, p. 2914). If the donor is possibly alive, then re-establishment of cerebral perfusion during post-mortem re-initiation of CPR, or postmortem use of mechanical ventilation or cardiopulmonary bypass theoretically could result in some level of awareness, thereby challenging the status of declared death. If the donor is possibly alive when insertion of aortic catheters and infusion of organ preservatives occur, or if the donor is possibly alive when organ procurement begins immediately following pronouncement of death, then the recovery process could be viewed as the cause of death, thereby reinforcing a perception of recovery of organs after circulatory determination of death as participation in euthanasia (i.e., killing of persons for the sake of recovery of organs)[34] (Bell, 2003; Potts and Evans, 2005).

The "paradoxical" clinical management goal embedded in this debate is assurance of the death of the patient before procuring organs ("dead donor rule"[35]) while in the same instant minimization of warm ischemia time to achieve the greatest degree of transplantable organ function and long-term graft survivability. Accusations of "gerrymandering" the definition of death to enable recovery of organs from patients prior to "actual" death, thereby treating patients as a means to an end, have been the driving force behind efforts to identify the "precise moment" of death as an "irreversible" state (Morison, 1971; Weisbard, 1995; Barber, 1996; Bernat, 1998; American College of Critical Care Medicine, 2001; Menikoff, 2002; Bell, 2003). However, as the "paradox" of the clinical management goal becomes more apparent,[36] a variety of definitions of irreversibility are considered.

Irreversibility may be:

(1) A specified period of time after which cardiac function cannot spontaneously return, thus ensuring a clinical circumstance equivalent to brain death (Bos, 1995; Kootstra, 1995, 1996, 1997; Veatch, December 1997; Bernat, 1999);
(2) Inability of clinicians who are present at the time to reverse the loss of cardiac function through interventional efforts (Youngner and Arnold, 1993; Cole, 1995; Veatch, 1997; American College of Critical Care Medicine, 2001);
(3) Failure to restore cardiac function not because of the lack of present interventional means, but from an intentional decision not to use the means (Youngner and Arnold, 1993; Tomlinson, 1995; Veatch, 1997; American College of Critical Care Medicine, 2001);[37]
(4) Collapse of the definitive commitment to the dead donor rule in light of the cultural understanding of "life-cycle" encompassing "the point of no return" of donor life to "the point of renewed or enhanced" recipient life in which organs do not correlate to the "living-time" of a body, but to the organ's "life-time capability" (i.e., readiness of usability), and "life-cycle" shifts from a personal to a social referent (i.e., life-world of donor–recipient).[38]

The definitional spectrum of "irreversibility" ranges from (a) "certitude" of clinical circumstances equivalent to brain death, to (b) "inability" to restore cardiac function, to (c) "failure" to restore cardiac function, to (d) "collapse" (death) of the "dead donor rule" as grounded in the Heideggerean activity of "Being-towards death." At one end of the spectrum is the premise that the clinical circumstances of cardiac death must be equivalent to brain death, while at the other end of the spectrum is the premise that fixated concern regarding whether a person is actually dead at the moment of organ recovery dissolves with the readiness to give up the most definitive commitment (dead donor rule) and radically reconfigure the concept of life-cycle as social (donor–recipient), thus understanding organs to correlate to their "life-time capability" or their readiness of usability;

thereby embracing a reverence of all life. It is this latter premise that occupies the remaining focus of this article.

Embracing the reverence of *all* life: Heideggerean dissolution of the risks, pressures, ethical challenges and conflicts of interest historically viewed as inherent in organ donation after circulatory determination of death

In Heideggerean terms, ontology is provisional in nature, i.e., finite, ungrounded and vulnerable. Therefore, when a specific historically accepted and defended understanding of reality is professionally and publicly challenged as no longer adequate, it is presumed that a social paradigm shift is to occur.[39] There is a continual ''unconcealing what-is in new ways'' (White, 2005, p. 18). ''The new world with its new possibilities arises from the collapse of the old world, and someday it too will die. That is, it will make sense no longer, become impossible, unthinkable, and so give place to new forms of intelligibility'' (White, 2005, Forward by H.L. Dreyfus, p. xxvi). A cataclysmic change from one way of thinking about the nature of reality to another is effectuated. Thus, a manner of ''Being'' (''*Dasein*'') meets its death (''world-collapse'') through critical inquiry and inner conviction that contradicts the present understanding of reality and culminates in its loss of legitimacy, thereby affording the opportunity to give up that which has been considered to be the most definitive commitment for a radically reconfigured ''world-disclosing'' and ''world-forming'' cultural understanding. The dislocation transforms practice. Thus, in the case of organ donation after circulatory determination of death what are perceived as controversial problems regarding quality, allocation, allegiance, and the phenomenon of death dissolve in the cultural practice change from prescriptively defining that which constitutes death with certitude (i.e., an exacting biological, scientific and medical determination of Being and non-Being) and from proscriptively declaring that the recovery of organs must not cause the death of the donor to reconfiguring death as a social construction with anthropological,[40] psychological[41] and sociological[42] implications evolving and changing over time.

Adapting both Carol White's analysis of what the early to late Heidegger means by death and finitude[43] and an argument from Rafael Capurro's interpretation of Heidegger's phenomenology of organic life,[44] I employ the Heideggerean activity of ''Being-towards-death''.[45] In the face of the tragic global reality of the transplantable organ supply-and-demand gap, there is a readiness to give up the definitive commitment to the inadequate cultural understanding that organ procurement cannot cause the death of the donor.[46] Ethical responsibility calls forth the radical reconfiguration of the concept of life-cycle as social (donor–recipient), rather than personal/individual; thereby understanding the ontological status of organs in terms of their ''readiness of usability.'' Paradoxically, death is not intended or caused by the recovery of organs since life is not in the ''living-time'' of the organism (body), but in the ''life-time capability'' or readiness of usability of the organ. Therefore, neither the healthcare professional who recovers the organs nor the consenting party to organ donation (if consent is even ethically necessary[47]) is morally responsible for, or a participant in, the physical death of the organism (body) (Frey, 2005, p. 466). Thus, fixated concern on whether a person is actually dead at the precise moment of organ recovery dissolves into symbolic ''moral traces'' (i.e., grieving and loss of a past cultural understanding) with limited conceptual (''world-forming'') relevance,[48] or at most dissolves into ''moral remainders,'' i.e., values that evoke respect but currently cannot be accommodated by the ''new form of intelligibility'' or cultural practice (Gowans, 1994). In a spirit of engagement, the agents recognize ''a small window of opportunity where two worlds do not necessarily agree but can mutually co-exist through the pane/pain of difference'' (Leonardo, 2003, p. 340). What ethically matters in the life-cycle (life-world) of donor–recipient is the viability of the organs transplanted; thereby granting reverence to all life.[49] There emerges a socially constructed conceptual and philosophical responsibility of humankind to recognize the limits of bodily finitude, to responsibly use the capacity of the transplantable organs, and to grant enhanced or renewed existence to one with diminished or life-limited capacity; thereby making the locus of ethical concern the donor–recipient as unitary ''life.''

Unlike prior proposals by Truog, Robinson, Robertson, Fost, Arnold, and Youngner who variously address reassessment of the boundaries of death and redaction of the dead donor rule with moral justification anchored in the abstract ethical principles of non-maleficence, personal autonomy and the doctrine of informed consent,[50] the central argument of this article turns on the disposition of ''Being'' in the ''new form of intelligibility'' or

cultural practice of what occurs in recovery of organs after circulatory determination of death. It is the engagement of a Heideggerean existential phenomenological and hermeneutic framework that shields the argument from accusations of gerrymandering definitions. With a principle-based approach, one may use the same theoretical normative principles to defend or ground either side of an argument, thereby easily manipulating the information to fit one's position and yield definitional-determining properties of entities and thus become vulnerable to criticisms of "gerrymandering," "policy creep," or "mission creep."[51] However, the approach of existential phenomenology and hermeneutics, embodied in sensibilities and comportment (shared practices) of a specific cultural epoch, enables accessibility to "Being" as evoked by reconfiguring or revisioning that "shifts marginal practices from the wings to center stage" (White, 2005, Forward by H.L. Dreyfus, p. xxiii). It is not within the scope of this article to describe the hermeneutic process of reconfiguration or revisioning. In a subsequent article, the author intends to develop the theoretical foundation, as well as the methodological and ethical challenges, of a "deliberative society" as the framework for the hermeneutic process of revisioning.

Enduring challenges

It is the hope generated from such a stellar example of society's willingness to give up a definitive commitment and radically reconfigure a cultural understanding as evident in some of the current world-wide advancements of stem cell research that makes it possible to argue for a social paradigm change in the circumstance of recovery of organs after circulatory determination of death. Promising are the European reports by Koffman and Gambaro (2003), as well as by Kompanje et al. (2006), that European non-heart-beating programs have increased the number of available kidneys with no negative effect on heart-beating donation, and without any loss of dignity in the dying process or conflicts of interest due to the procedure.

However, even in the light of such hope there are significant enduring challenges, especially in the context of the United States. In its most recent report, *Organ Donation: Opportunities for Action*, issued in May 2006, the Institute of Medicine of the National Academies of Sciences as advisors to the United States on Science, Engineering and Medicine included a specific section detailing the "guiding perspectives and principles the committee used in discharging its task" that indicates unwavering commitment to certain limiting conditions grounded in historic cultural, religious and legal traditions (Institute of Medicine, 2006, pp. 92ff). The report argues that organ donation and recovery policies must be compatible with the foundational commitment to the dead donor rule, personal autonomy, and informed consent; thereby reinforcing (a) absolute prohibition of active euthanasia,[52] (b) a precise biological, scientific and medical determination of death, i.e., assurance that autoresuscitation is not possible even with a DNR order, and (c) discretionary altruism (personal autonomous choice out of self-interest)[53] as the appropriate appeal for donation (Institute of Medicine, 2006, specifically pp. 3, 12, 94–98, 106, 169–170, 341–347).

The US commitment to social paradigms that severely limit resolution of the organ supply-and-demand gap is defended on a fear that to give up the most definitive commitments and radically reconfigure the world or cultural understandings even when the historic cultural practices make sense no longer will do damage to current organ donation rates, "trivialize the dying process and transform the patient from a person with his or her own intrinsic value into a mere commodity" (Institute of Medicine, 2006, pp. 96–98; van Norman, 2003, p. 766). In a subsequent article focused on the theoretical, methodological and ethical challenges of the concept of "deliberative society," I intend to wrestle with the intersections of scientific reason, cultural meaning and social power to address what I consider the unfounded American fear and lack of political will to reconfigure the social paradigm in the circumstance of recovery of organs after circulatory determination of death. I believe the European experience can be instructive to the American context.

Conclusion

The recovery of organs from patients with circulatory determination of death is a medically and ethically effective approach to maximize the availability of viable organs for transplantation without violating ethical norms regarding the rights and welfare of donors. In Heideggerean terms, the fixated concern regarding whether a person is actually dead at the moment of organ recovery dissolves with the readiness to give up the definitive commitment to the dead donor rule and radically

reconfigure the concept of ''life-cycle'' as ''social'' (donor–recipient), thus understanding organs to correlate to their ''life-time capability'' or their readiness of usability. There emerges a socially constructed responsibility of humankind to recognize the limits of bodily finitude, to use the capacity of the transplantable organs, and to grant enhanced or renewed existence to one with diminished or life-limited capacity; thereby granting reverence to all life.

Acknowledgements

This article was written in partial fulfillment of the educational program European Master in Bioethics, University of Leuven (Belgium), Radboud University, Nijmegen (the Netherlands), and University of Padova (Italy). The views expressed here are the author's own and do not reflect the position of any of the institutions with which the author has affiliation (Harris Methodist Fort Worth Hospital and Texas Health Resources), or any of the professors from the three universities sponsoring the European Master in Bioethics graduate program.

Notes

1. Recovery of organs after circulatory determination of death is known as ''donation after cardiac death'' and referenced throughout this article as ''DCD''.
2. For example, the term donor may refer to ''consented'' donor, ''actual'' donor, ''effective'' donor, ''utilized'' donor, etc.
3. Waiting list data may reflect actual transplant candidates, or persons registered on waiting lists that may include listing of candidates multiple times, or inclusion of suspended transplant candidates as well as active candidates.
4. The 12 European Organ Exchange Organizations include, by size of serviced population: Eurotransplant, UK Transplant, EfG France, CNT Italy, ONT Spain, Poltransplant, Scandiatransplant, HNOT Greece, Lusotransplante, Hungarotransplant, Czech Transplant, Swiss Transplant (Roels, 2005).
5. European Commission, Directorate-General Health and Consumer Protection: 27 June 2006, *Organ Donation and Transplantation Policy Options at EU Level, Consultation Document*, 3. 5.
6. UK Transplant. Statistics and Audit Directorate: August 2006, NHS Blood and Transplant. Website: http://www.uktransplant.org.uk/ukt/statistics/statistics.jsp Accessed on 31 December 2006 and 15 January 2007.
7. UNOS Website: www.unos.org Last accessed on 17 January 2007.
8. New York Organ Donor Network Website: http://www.nyodn.org/organ/o_statistics_overview.html Last accessed on 18 December 2005.
9. Health and Human Services, Department of, Health Resources and Services Administration (2005).
10. Reference sources for the identification of the numerous forces that widen the global supply-and-demand-gap include: Arias-Diaz et al. (2004), Barber et al. (2006), Doig and Rocker (2003, p. 1070), Hibberd et al. (1992), Howard et al. (2005), Kimber et al. (2001, p. 681), Koffman and Gambaro (2003, pp. 334ff), Kompanje et al. (2006, pp. 217–221), Opdam and Silvester (2004, pp.1390–1397), Papalois et al. (2004, p. 14), Sanchez-Fructuoso et al. (2005, pp. 596–603), Sheehy et al. (2003, pp. 667–674), Wight et al. (2004, pp. 963–968).
11. Historically, the moderate increases in the supply of solid organs for transplantation have been achieved through addition of living donors, expansion of acceptance criteria for heart-beating donors (e.g. increased age; donors with diabetes, hypertension, some infections; increased warm ischemia time), efficient use of donors (i.e., more solid organs recovered and transplanted per donor), emphasis on community education regarding organ donation, and mandatory inquiry regarding organ donation at the time of death. Briceno et al. (1997, pp.477–480), Caplan et al. (1992, pp. 199–232), Emre et al. (1996, pp. 62–65), Jacobbi et al. (1997, pp. 1550–1556), Rubin and Fishman (1998, pp. 333–335), Satoi et al. (2001, pp. 1108–1113), Trevisani et al. (1996, pp. 114–121), Virnig and Caplan (1992, pp. 2155–2158).
12. In 2003, the US Department of Health and Human Services, Health Resources and Services Administration, initiated the ''Organ Donation Breakthrough Collaborative'' to (1) ''increase the average conversion rate of eligible donors from the current average of 43–75% in the Nation's largest 200 hospitals,'' (2) ''increase donations by up to 1,900 donors per year,'' (3) ''increase transplantation by 6000 per year,'' and (4) ''help save lives of thousands of people each year and prevent up to 17 deaths per day'' (Health and Human Services, Department of, Health Resources and Services Administration, September 2003). Through replication of identified ''best practices,'' over a 20-month period there was realized a 10.8% increase in US organ donors in 2004 over 2003, and for the first 5 months of 2005, the number of organ donors was 9.5% higher than for the same period in 2004. Building on this success, the US Department of Health and Human Services, Health Resources and Services Administration, announced in June 2005 that it would launch a new initiative, the ''Organ Transplantation Breakthrough Collaborative,'' focused on strategies to (1) ''increase organs transplanted per donor from standard criteria donors (SCD) to 4.3 or greater,'' (2) ''increase organs transplanted per donor from expanded criteria donors (ECD) to 2.5 or greater,'' (3) ''increase organs transplanted per donor from donors after cardiac death (DCD) to 2.75 or greater,''

(4) "increase the percentage of DCD donors in each Donation Service Area (DSA) to 10% or greater while maintaining or increasing the level of donations after brain death," and (5) "increase Donation Service Area-wide organs transplanted per donor to 3.75 or greater" (Health and Human Services, Department of, Health Resources and Services Administration, 2005).

13. Reference sources for the potential of DCD recovery include: Alvarez and del Barrio (2002, p. 184), Alvarez et al. (2000, 2001, pp. 1102–1103), Bos (2005a, 574ff, b, pp.1143–1146), Cohen et al. (2005, pp. 34–41), Daar (2004, p. 1885), D'Alessandro et al. (2004, p. 68), Doig and Rocker (2003), Gerstenkorn et al. (2005, p.69), Koffman and Gambaro (2003, p. 335), Kompanje et al. (2006, p. 218).
14. There is debate in the Netherlands as to whether the increase in DCD donation is counterbalanced by an equal decrease in the number of heart-beating donors.
15. References regarding promoting DCD in the UK: National Health Service (2003, 2005).
16. Based on OPTN data as of 8 September 2005; and 2006 HRSA and SRTR data.
17. As of 1 January 2007 in accordance with the accreditation standards of the Joint Commission, every accredited acute care hospital and organ procurement organization in the US must have a policy regarding DCD recovery.
18. Heideggerean existential phenomenology "intends to clarify conceptual differences on the basis of what appears to make a difference," thereby raising awareness of that which could remain obscure when a specific perspective is emphasized or dominates (Capurro, 2005, p. 571).
19. Heideggerean hermeneutics is interpretive meaning evoked by dissolution ("Being-towards-death") that occurs through dislocation (i.e., a readiness to give up even the most definitive commitment) and transformation (i.e., radical reconfiguration of the world or cultural understanding when the historic cultural practices make sense no longer). Dissolution or "Being-towards-death" is the readiness to give up the most definitive commitment and radically reconfigure the world or cultural understanding when the historic cultural practices make sense no longer (Heidegger, 1962, II.1.¶ 53, p. 307).
20. As used in this context, "point of no return" does not indicate a precise moment, functional state or biological process, but a socially constructed phenomenon indicating there has been an intentional decision to allow death through either ceasing ineffective resuscitation attempts, or withdrawing mechanical ventilation, or initiating recovery of organs. The phrase "point of no return" is adapted from Zamperetti et al. (2003).
21. Whitehead (1967, pp. 51–55).
22. Koppelman et al. (2003, p. 2).
23. An ad hoc committee of Harvard Medical School published in the *Journal of the American Medical Association* a report, "A Definition of Irreversible Coma" (*Journal of the American Medical Association*, August 5, 1968, 205, pp. 337–340).
24. A detailed description of the risks, pressures, ethical challenges and conflicts of interest is provided in Herdman and Potts (1997) and re-affirmed by the Institute of Medicine (2006).
25. Delayed function is defined as the need for dialysis in the first post-operative week and obscured detection of graft rejection in early post-transplant.
26. Primary non-function is defined as the failure to reduce recipient's serum creatinine, thus the need for extended dialysis.
27. See Alonso et al. (1997, p. 1378), Chang (1995, p. 322), Kievit et al. (1997, pp. 2989–2991), and Kootstra (1997, p. 3620).
28. See Alvarez and del Barrio (2002), Alvarez et al. (2001), Balupuri et al. (2000a), Cho et al. (1998), D'Alessandro et al. (2004), Droupy et al. (2003), Institute of Medicine (2006, pp. 156, 157), Keizer et al. (2005), Kievit et al. (1997), Koffman and Gambaro (2003), Light et al. (2000), Ridley et al. (2005), Sanchez-Fructuoso et al. (2006), Sanchez-Fructuoso et al. (2004), Tanabe et al. (1998), Weber et al. (2002), and White et al. (2000).
29. The Singhal et al. study demonstrated a potential increase of 4–6% in the number of hearts transplanted with use of hearts recovered after circulatory determination of death (Singhal et al., 2005).
30. See Brook et al. (2003), D'Alessandro et al. (1995, 2000a, b), Egan (2004), Gerstenkorn (2003), Gok et al. (2002, 2003), Kamihira et al. (2000), Light (2000), Metcalfe et al. (2001a, b, c), Mizutani et al. (2001), Nathan et al. (1991), Nicholson et al. (2000), Nicholson (2002), Nunez et al. (2004), Ridley et al. (2005), Singhal et al. (2005), Steen et al. (2001, 2002, 2003), Seltzer et al. (2000), and Weber et al. (2002).
31. See American College of Critical Care Medicine, Ethics Committee (2001), Anaise (1995), Anaise and Rapaport (1993), Arnold and Youngner (1995b), Barber (1996), Bell (2003, 2005), Bos (1995), Burdick (1995), Doig and Rocker (2003), DuBois (2001), Frader (1995), Institute of Medicine (2006), Kimber et al. (2001), Shaw (1995), and Steinberg (2003).
32. In personal conversation with the author of this paper, it was reported by representatives from the author's home institution and by representatives from the organ procurement organization with which the author's home institution contracts that dialogue regarding "best practices for 'pre-donor' management" occurred at a federal government *Transplantation Breakthrough Collaborative* meeting in 2006.
33. See Bernat (1998, pp. 14–23).
34. Interestingly, Truog and Robinson by comparing living patients, brain-dead patients, and heart-dead patients in terms of features associated with living persons have demonstrated that actually recovery of organs from *brain-dead patients* has the greatest appearance of recovery of organs from live persons (Truog and Robinson, 2003, Table 1, p. 2392).
35. The "dead donor rule" is informal, uncodified consensus-standard terminology introduced in the US by John Robertson in 1988 that influenced organ recovery standards world-wide and became inferentially

linked to various country's laws prohibiting homicide, i.e., organ procurement cannot cause the death of the donor (Robertson, 1988).

36. As will be argued in the conclusion of this paper, the absolute and fixated commitment to identify the precise moment of death is elusive, off-balance and ethically unjustified in the face of the commitment to reverence all life, i.e., to achieve the greatest degree of transplantable organ function and long-term graft survivability.
37. In the US, it would be illegal and unethical to resuscitate patients who have intentionally selected a "Do Not Resuscitate" status and determined to withhold and withdraw life-sustaining treatments. Both the right to refuse treatment, including all life-sustaining treatment, as well as the right to withdraw current life-sustaining treatment when certified to be in an irreversible or terminal condition, are protected under the 14th Amendment of the United States Constitution.
38. Discussion in this paper concerning "collapse of the definitive commitment to the dead donor rule" is grounded in the Heideggerean activity of "Being-towards-death."
39. "Social paradigms" is borrowed and adapted from Kuhn's argument for "universally recognized scientific achievements that for a time provide model problems and solutions to a community of practitioners" (Kuhn, 1971, p. viii).
40. Anthropological implication: Organs do not correlate to the living-time of an organism, but to the organ's life-time capability or readiness of usability.
41. Psychological implication: Readiness to give up the most definitive commitment.
42. Sociological implication: Life-cycle shifts from a personal to a social referent (i.e., life-world of donor–recipient).
43. White's interpretation of Heidegger's concept of death and the argument put forth in this paper stand in contrast to the traditional interpretation of Heidegger as referring to an event that occurs at the end of an individual's biological life when the individual ceases to exist. Heidegger's thought considered as a life-time project leads to the interpretation of social implications rather than individual implications regarding death and finitude, i.e., models of cultural-formation (world-understanding) die and new arise (White, 2005).
44. Capurro (2005).
45. *Sein zum Todes*. "Being-towards-death" is dissolution. See end note number 19.
46. A readiness to give up even the most definitive commitment is in Heideggerean terms "the possibility of the absolute impossibility of *Dasein*," i.e., "the possibility of no longer being able to-be-there" (Heidegger, 1962, II.1.¶ 53, p. 307).
47. The scope of this article does not permit defending a position of conscription of organs.
48. However, it is important to note that the accretion of grief and loss of past cultural understandings protects against inappropriate expansion of limits and boundaries, which in itself is a protection against the potential of slippery slopes.
49. The argument of "reverence of all life" as employed in this article does not embrace an Aristotelian entelechy in terms of actualization of potentiality/essence, or a vitalist philosophical perspective regarding an inherent force which controls and directs the activities and development of an organism, or a philosophical/theological/moral commitment to "sacredness of life."
50. See Truog (1997), Truog and Robinson (2003), Robertson (1988), Fost (1999), Arnold and Youngner (1995a), and Youngner and Arnold (1993, 2001).
51. See Arnold and Youngner (1995a), Caplan (1995), Menikoff (2002), van Norman (2003, pp. 767ff).
52. Actually, an argument could be made that to not give up the definitive commitment to the dead donor rule would be committing active euthanasia since life is in the "life-time capability" of the organs.
53. Unlike the European concept of solidarity or the Jewish concept of charity from a disinterested perspective (*Tzedaqah*), the historic American commitment to altruism is grounded in opportunistic giving out of self-interest ("what is in it for me"), i.e., "discretionary altruism." The May 2006 report from the Institute of Medicine, *Organ Donation: Opportunities for Action*, reinforces American opportunistic giving out of self-interest in the section of the report focused on an argument for "common interest obligation" to donate organs. The American "common interest obligation" is grounded in an appeal to organ donation due to projected annual and life-time probabilities that a person or an individual whom he or she "cares about" will need a solid organ and/or tissue transplant (Institute of Medicine, 2006, pp. 94ff; 341–347). However, as noted in a recent study and in the May 2006 report of the Institute of Medicine, for the American understanding of altruism to ethically shift to a concept of "solidarity" or *Tzedaqah* will require a radical change in US philosophy of healthcare financing, i.e., implementation of universal access to health insurance coverage. Since a recent study showed that 23% of organ donors are uninsured, then to implement either presumed consent or conscription as a donation policy would be unethical, requiring the uninsured to donate organs while never having had possible access to organs if needed (King et al., 2005; Institute of Medicine, 2006, pp. 94–96).

References

Alonso, A., J.G. Buitron, M. Gomez, G.A. Fernandez, R.C. Fernandez, J. Oliver, M. Lopez, C. Tresancos and F. Valdes: 1997, 'Short- and Long-Term Results with Kidneys from Non-Heart-Beating Donors', *Transplantation Proceedings* 29(1–2), 1378–1380.

Alvarez, J. and M.R. del Barrio: 2002, 'Transplant Coordination as the "Keystone" in Non-Heart-Beating Donations', *Progress in Transplantation* 12(3), 181–184.

Alvarez, J., R. del Barrio, J. Arias, F. Ruiz, J. Iglesias, R. de Elias, C. Yebenes, J. Matesanz, C. Caniego and J. Elvira: 2000, 'Non-Heart-Beating Donors from the

Streets: An Increasing Donor Pool Source', *Transplantation* 70(2), 314–317.

Alvarez, J., M.R. del Barrio, J. Arias, S. Vazquez, A. Sanchez, J. Iglesias, C. Barra and C. Ibarguren: 2001, 'Non-Heart-Beating Donors: Estimated Actual Potential', *Transplantation Proceedings* 33(1–2), 1101–1103.

American College of Critical Care Medicine, Ethics Committee: 2001, 'Recommendations for Nonheartbeating Organ Donation', *Critical Care Medicine* 29(9), 1826–1830.

Anaise, D.: 1995, 'In Situ Organ Preservation in Non-Heart-Beating Cadaver Donors', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate over Non-Heart-Beating Cadaver Protocols*. The Johns Hopkins University Press: Baltimore, pp. 175–185.

Anaise, D. and F.T. Rapaport: 1993, 'Use of Non-Heart-Beating Cadaver Donors in Clinical Organ Transplantation – Logistics, Ethics and Legal Considerations', *Transplantation Proceedings* 25(2), 2153–2155.

Arias-Diaz, J., J. Alvarez, M.R. del Barrio and J.L. Balibrea: 2004, 'Non-Heart-Beating Donation: Current State of the Art', *Transplantation Proceedings* 36(7), 1891–1893.

Arnold, R.M. and S.J. Youngner: 1995a, 'The Dead Donor Rule: Should We Stretch It, Bend It, or Abandon It?', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate over Non-Heart-Beating Cadaver Protocols*. The Johns Hopkins University Press: Baltimore, pp. 219–234.

Arnold, R.M. and S.J. Youngner: 1995b, 'Time Is of the Essence: The Pressing Need for Comprehensive Non-Heart-Beating Cadaveric Donation Policies', *Transplantation Proceedings* 27(5), 2913–2921.

Balupuri, S., P. Buckley, D. Mantle, C. Snowden, C. Cornell, D.M. Manas, J. Kirby and D. Talbot: 2000a, 'Non-Heart-Beating Kidney Donors', *Clinical Transplantation* 14(3), 266–270.

Balupuri, S., P. Buckley, M. Mohamad, V. Chidambaram, C. Gerstenkorn, B. Sen, J. Kirby, D.M. Manas and D. Talbot: 2000b, 'Early Results of a Non-heartbeating Donor (NHBD) Programme with Machine Perfusion', *Transplant International* 13(Supplement 1), S255–S258.

Balupuri, S., P. Buckley, M. Mohamed, C. Cornell, D. Mantle, J. Kirby, D.M. Manas and D. Talbot: 2000c, 'Assessment of Non-Heart-Beating Donor (NHBD) Kidneys for Viability on Machine Perfusion', *Clinical Chemistry and Laboratory Medicine* 38(1), 1103–1106.

Balupuri, S., P. Buckley, C. Snowden, M. Mohamed, B. Sen, P. Griffiths, M. Hannon, D. Manas, J. Kirby and D. Talbot: 2000d, 'The Trouble with Kidneys Derived from the Non-Heart-Beating Donor: A Single Center 10-year Experience', *Transplantation* 69(5), 842–846.

Balupuri, S., D. Mantle, M. Mohamed, B. Shenton, M. Gok, N. Soomro, D.M. Manas, J. Kirby and D. Talbot: 2001a, 'Machine Perfusion and Viability Assessment of Non-Heart-Beating Donor Kidneys – a Single-centre Result', *Transplantation Proceedings* 33(1–2), 1119–1120.

Balupuri, S., A. Strong, N. Hoernich, C. Snowden, M. Mohamed, D. Manas, J. Kirby and D. Talbot: 2001b, 'Machine Perfusion for Kidneys: How To Do it at Minimal Cost', *Transplant International* 14: 103–107.

Banks, G.J.: 1995, 'Legal and Ethical Safeguards: Protection of Society's Most Vulnerable Participants in a Commercialized Organ Transplantation System', *American Journal of Law and Medicine* 21(1), 45–110.

Barber, S.D.: 1996, 'The Tell-tale Heart: Ethical and Legal Implications of In situ Organ Preservation in the Non-Heart-Beating Cadaver Donor', *Health Matrix* 6(2), 471–502.

Barber, K., S. Falvey, C. Hamilton, D. Collett and C. Rudge: 2006, 'Potential for Organ Donation in the United Kingdom: Audit of Intensive Care Records', *BMJ* 332: 1124–1127.

Bell, M.D.D.: 2003, 'Non-Heart Beating Organ Donation: Old Procurement Strategy – New Ethical Problems', *Journal of Medical Ethics* 29(3), 176–181.

Bell, M.D.D.: 2005, 'Non-Heartbeating Organ Donation: Clinical Process and Fundamental Issues', *British Journal of Anaesthesia* 94(4), 474–478.

Bernat, J.L.: 1998, 'A Defense of the Whole-Brain Concept of Death', *Hastings Center Report* 28(2), 14–23.

Bernat, J.L.: 1999, 'Refinements in the Definition and Criterion of Death', in: S.J. Youngner, R.M. Arnold, and R. Schapiro (eds.) *The Definition of Death: Contemporary Controversies*. The Johns Hopkins University Press: Baltimore, pp. 83–92.

Bernat, J.L.: 2006, 'Are Organ Donors After Cardiac Death Really Dead?', *The Journal of Clinical Ethics* 17(2), 122–132.

Bos, M.A.: 1995, 'Legal Issues Concerning the Use of Non-Heart-Beating Donors', *Transplantation Proceedings* 27(5), 2929–2932.

Bos, M.A.: 2005a, 'Ethical and Legal Issues in Non-Heart-Beating Organ Donation', *Transplantation Proceedings* 37(2), 574–576.

Bos, M.A.: 2005b, 'Ethical and Legal Issues in Non-Heart-Beating Organ Donation', *Transplantation* 79(9), 1143–1147.

Briceno, J., P. Lopez-Cillero, S. Rufian, C. Diaz-Iglesias, G. Solorzano, J. Padillo, M. De la Mata and C. Pera: 1997, 'Impact of Marginal Quality Donors on the Outcome of Liver Transplantation', *Transplantation Proceedings* 29(1–2), 477–480.

Brook, N.R., S.A. White, J.R. Waller, P.S. Veitch and M.L. Nicholson: 2003, 'Non-heart Beating Donor Kidneys with Delayed Graft Function have Superior Graft Survival Compared with Conventional Heart-beating Donor Kidneys that Develop Delayed Graft Function', *American Journal of Transplantation* 3(5), 614–618.

Burdick, J.F.: 1995, 'Potential Conflicts of Interest Generated by the Use of Non-Heart-Beating Cadavers', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate over Non-Heart-Beating Cadaver Protocols*. The Johns Hopkins University Press: Baltimore, pp. 123–126.

Caplan, A.L.: 1986, 'Requests, Gifts, and Obligations: The Ethics of Organ Procurement', *Transplantation Proceedings* 18(3 Supplement 2), 49–56.

Caplan, A.L.: 1995, 'The Telltale Heart: Public Policy and the Utilization of Non-Heart-Beating Donors', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate Over*

Non-Heart-Beating Cadaver Protocols. The Johns Hopkins University Press: Baltimore, pp. 207–218.

Caplan, A.L.: 1992 'Increasing Organ and Tissue Donation: What Are the Obstacles, What Are the Options?', A. Novello, The Surgeon General's Workshop on Increasing Organ Donation: Proceedings Washington, DC, 8–10 July 1991U.S. Government Printing Office Washington, D.C199232.

Capurro, R.: 2005, 'Philosophical Presuppositions of Producing and Patenting Organic Life', in: A. Wiercinski, (ed.) *Between Description and Interpretation: The Hermeneutic Turn in Phenomenology*. The Hermeneutic Press: Toronto, pp. 571–581.

Chang, R.W.S.: 1995, 'Transplantation of Non-Heart-Beating Kidneys', *The Lancet* 346: 322 .

Cho, Y.W., P.I. Terasaki, J.M. Cecka and D.W. Gjertson: 1998, 'Transplantation of Kidneys from Donors Whose Hearts Have Stopped Beating', *New England Journal of Medicine* 338(4), 221–225.

Cohen, B., J.M. Smits, B. Haase, G. Persijn, Y. Vanrenterghem and U. Frei: 2005, 'Expanding the Donor Pool to Increase Renal Transplantation', *Nephrology, Dialysis, Transplantation* 20(1), 34–41.

Cole, D.: 1995, 'Statutory Definitions of Death and the Management of Terminally Ill Patients Who May Become Organ Donors after Death', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate over Non-Heart-Beating Cadaver Protocols*. The Johns Hopkins University Press: Baltimore, pp. 69–79.

Council of Europe: 2005, 'International Figures on Organ, Tissue and Hematopoietic Stem Cell Donation and Transplantation Activity Year 2004', Documents Produced by the Committee of Experts on the Organisational Aspects of Co-Operation in Organ Transplantation – 2004 – Matesanz, R. and B. Miranda (eds.). *Transplant Newsletter* 10(1), 5–40.

Daar, A.S.: 2004, 'Non-Heart-Beating Donation: Ten Evidence-based Ethical Recommendations', *Transplantation Proceedings* 36(7), 1885–1887.

D'Alessandro, A.M., L.A. Fernandez, L.T. Chin, B.D. Shames, N.A. Turgeon, D.L. Scott, A. DiCarlo, Y.T. Becker, J.S. Odorico, S.J. Knechtle, R.B. Love, J.D. Pirsch, B.N. Becker, A.I. Musat, M. Kalayoglu and H.W. Sollinger: 2004, 'Donation After Cardiac Death: The University of Wisconsin Experience', *Annals of Transplantation* 9(1), 68–71.

D'Alessandro, A.M., R.M. Hoffmann, S.J. Knechtle, D.E. Eckhoff, R.B. Love, M. Kalayoglu, H.W. Sollinger and F.O. Belzer: 1995, 'Successful Extrarenal Transplantation from Non-Heart-Beating Donors', *Transplantation* 59(7), 977–982.

D'Alessandro, A.M., R.M. Hoffmann, S.J. Knechtle, J.S. Odorico, Y.T. Becker, A. Musat, J.D. Pirsch, H.W. Sollinger and M. Kalayoglu: 2000a, 'Liver Transplantation from Controlled Non-Heart-Beating Donors', *Surgery* 128(4), 579–588.

D'Alessandro, A.M., J.S. Odorico, S.J. Knechtle, Y.T. Becker, R.M. Hoffmann, M. Kalayoglu and H.W. Sollinger: 2000b, 'Simultaneous Pancreas-Kidney (SPK) Transplantation From Controlled Non-Heart-Beating Donors (NHBDs)', *Cell Transplantation* 9: 889–893.

DeVita, M.A.: 2001, 'The Death Watch: Certifying Death Using Cardiac Criteria', *Progress in Transplantation* 11(1), 58–66.

DeVita, M.A. and T. May: 2000, 'Decisions by Conscious Persons About Controlled NHBD After Death: Eyes Wide Open', *The Journal of Clinical Ethics* 11(1), 85–89.

DeVita, M.A., J.V. Snyder, R.M. Arnold and L.A. Siminoff: 2000, 'Observations of Withdrawal of Life-Sustaining Treatment from Patients Who Became Non-Heart-Beating Organ Donors', *Critical Care Medicine* 28(6), 1709–1712.

Doig, C.J. and G. Rocker: 2003, 'Retrieving Organs from Non-Heart-Beating Organ Donors: A Review of Medical and Ethical Issues', *Canadian Journal of Anesthesia* 50(10), 1069–1076.

Dreyfus, H.L.: 2005, 'Forward to Time and Death: Heidegger's Analysis of Finitude', in: C.J. White, *Time and Death: Heidegger's Analysis of Finitude*. Ashgate Publishing Company: Burlington Vermont, pp. ix–xlvii.

Droupy, S., P. Blanchet, P. Eschwege, Y. Hammoudi, L. Joseph, F. Kriaa, P. Bedossa, J. Duranteau, B. Charpentier and G. Benoit: 2003, 'Long-Term Results of Renal Transplantation Using Kidneys Harvested from Non-Heartbeating Donors: A 15-year Experience', *Journal of Urology* 169(1), 28–31.

DuBois, J.M.: 1999, 'Non-Heart-Beating Organ Donation: A Defense of the Required Determination of Death', *Journal of Law, Medicine and Ethics* 27(2), 126–136.

DuBois, J.M.: 2000a, 'Intention, Action and the Dead Donor Rule: Commentary on Spike', *The Journal of Clinical Ethics* 11(1), 78–84.

DuBois, J.M.: 2000b, 'Is Non-Heart-Beating Organ Donation too Aggressive?', *Health Care Ethics USA* 8(3), E3.

DuBois, J.M.: 2001, 'Non-Heart-Beating Organ Donation. Designing an Ethically Acceptable Protocol', *Health Progress* 82(1), 18–21.

DuBois, J.M.: 2002, 'Is Organ Procurement Causing the Death of Patients?', *Issues in Law and Medicine* 18(1), 21–41.

Egan, T.M.: 2004, 'Non-Heart-Beating Donors in Thoracic Transplantation', *Journal of Heart & Lung Transplantation* 23(1), 3–10.

Emre, S., M.E. Schwartz and G. Altaca: 1996, 'Safe Use of Hepatic Allografts from Donors Older Than 70 Years', *Transplantation* 62: 62–65.

European Commission, Directorate-General Health and Consumer Protection: 2006, *Organ Donation and Transplantation Policy Options at EU Level, Consultation Document*. http://europa.eu.int/comm/health/ph_threats/human_substance/organs_en.htm. Last accessed on 15 January 2007.

Eurotransplant International Foundation: 2004, *Annual Report 2004* (Cohen, B. and G.G. Persijn, editors). The Netherlands: Leiden.

Eurotransplant International Foundation: 2005, *Annual Report 2005* (Oosterlee, A., A. Rahmel, W. van Zwet, editors). The Netherlands: Leiden.

Eurotransplant Website. http://www.transplant.org. Last accessed on 9 June 2006.

Fost, N.: 1999, 'The Unimportance of Death', in: S.J. Youngner, R.M. Arnold, and R. Schapiro (eds.) *The Definition of Death: Contemporary Controversies*. Johns Hopkins University Press: Baltimore, pp. 161–178.

Fox, R.C.: 1995, '"An Ignoble Form of Cannibalism": Reflections on the Pittsburgh Protocol for Procuring Organs from Non-Heart-Beating Cadavers', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate over Non-Heart-Beating Cadaver Protocols*. The Johns Hopkins University Press: Baltimore, pp. 155–163.

Fox, R.C.: 1996, 'Trial-and-error Ethics: Experimenting with Non-Heart-Beating Cadaver Organ Donation', *Cambridge Quarterly of Healthcare Ethics* 5(2), 292–295.

Frader, J.: 1995, 'Non-Heart-Beating Organ Donation: Personal and Institutional Conflicts of Interest', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate over Non-Heart-Beating Cadaver Protocols*. The Johns Hopkins University Press: Baltimore, pp. 113–122.

Frey, R.G.: 2005, 'Intending and Causing', *The Journal of Ethics* 9: 465–474.

Gerstenkorn, C.: 2003, 'Non-Heart-Beating Donors: Renewed Source of Organs for Renal Transplantation During the Twenty-first Century', *World Journal of Surgery* 27(4), 489–493.

Gerstenkorn, C., V.E. Papalois and N. Hakim: 2005, 'Effective Use of Kidneys for Transplantation from Asystolic Donors', *International Surgery* 90(2), 66–70.

Gok, M.A., P.E. Buckley, B.K. Shenton, S. Balupuri, M.A. El-Sheikh, H. Robertson, N. Soomro, B.C. Jaques, D.M. Manas and D. Talbot: 2002, 'Long-Term Renal Function in Kidneys from Non-Heart-Beating Donors: A Single-center Experience', *Transplantation* 74(5), 664–669.

Gok, M.A., B.K. Shenton, P.E. Buckley, R. Peaston, C. Cornell, N. Soomro, B.C. Jaques, D.M. Manas and D. Talbot: 2003, 'How to Improve the Quality of Kidneys from Non-Heart-Beating Donors: A Randomized Controlled Trial of Thrombolysis in Non-Heart-Beating Donors', *Transplantation* 76(12), 1714–1719.

Gowans, C.: 1994, *Innocence Lost*. New York: Oxford University Press.

Health and Human Services, Department of, Health Resources and Services Administration: 2003, *The Organ Donation Breakthrough Collaborative: Best Practices Final Report*. Contract: 240-94-0037, Task Order No. 12. http://www.organdonor.gov. Last accessed on 18 December 2005.

Health and Human Services, Department of, Health Resources and Services Administration: 2005, *Organ Transplantation Breakthrough Collaborative, Application Fact Sheet*. http://www.organdonor.gov. Last accessed on 18 December 2005.

Heidegger, M.: 1962, *Being and Time*. Trans. Macquarrie, J. and E. Robinson. New York: Harper and Row, Publishers.

Herdman, R. and J.T. Potts: 1997, *Non-Heart-Beating Organ Transplantation, Medical and Ethical Issues in Procurement*. Washington, D.C: National Academy Press, Institute of Medicine.

Hibberd, A.D., I.Y. Pearson, C.J. McCosker, J.R. Chapman, G.J. Macdonald, J.F. Thompson, D.L. O'Connell, P.J. Mohacsi, M.P. McLoughlin and P.M. Spratt 1992, 'Potential for Cadaveric Organ Retrieval in New South Wales', *British Medical Journal* 304: 1339–1343.

Howard, R.J., J.D. Schold and D.L. Cornell: 2005, 'A 10-Year Analysis of Organ Donation After Cardiac Death in the United States', *Transplantation* 80(5), 564–568; discussion 569–570.

Institute of Medicine. 2000, *Non-Heart-Beating Organ Transplantation. Practice and Protocols*. Washington, D.C: National Academies Press.

Institute of Medicine: 2006, *Organ Donation: Opportunities for Action* (J.F. Childress and C.T. Liverman eds.). Washington, D.C.: National Academies Press.

Jacobbi, L.M., V. McBride, E.E. Etheredge, J.C. McDonald, N. Feduska, D.J. Frey, J.P. Boudreaux, C. Van Meter, R. McMillan and R.J. Tesi: 1997, 'Costs Associated with Expanding Donor Criteria: A Collaborative Statewide Prospective Study', *Transplantation Proceedings* 29(1–2), 1550–1556.

Kamihira, O., T. Kinukawa, O. Matsuura, R. Hattori, N. Nishiyama, Y. Ono and S. Ohshima: 2000, 'Successful Use of Graft from Marginal Donors in Non-Heart-Beating Renal Transplantation', *Transplantation Proceedings* 32(7), 1578 .

Keizer, K.M., J.W. de Fijter, B.J. Haase-Kromwijk and W. Weimar: 2005, 'Non-Heart-Beating Donor Kidneys in the Netherlands: Allocation and Outcome of Transplantation', *Transplantation* 79(9), 1195–1199.

Kievit, J.K., A.P.A. Oomen, B. de Vries, E. Heineman and G. Kootstra: 1997, 'Update on the Results of Non-Heart-Beating Donor Kidney Transplants', *Transplantation Proceedings* 29(7), 2989–2991.

Kimber, R.M., M.S. Metcalfe, S.A. White and M.L. Nicholson: 2001, 'Use of Non-Heart-Beating Donors in Renal Transplantation', *Postgraduate Medical Journal* 77(913), 681–685.

King, L.P., L.A. Siminoff, D.M. Meyer, C.W. Yancy, W.S. Ring, T.W. Mayo and M.H. Drazner: 2005, 'Health Insurance and Cardiac Transplantation: A Call for Reform', *Journal of the American College of Cardiology* 45(9), 1388–1391.

Koffman, G. and G. Gambaro: 2003, 'Renal Transplantation from Non-Heart-Beating Donors: A Review of the European Experience', *Journal of Nephrology* 16(3), 334–341.

Kompanje, E.J.O., J. Bakker, F.J.A. Slieker, J.N.M.I. Jzermans and A.I.R. Maas: 2006, 'Organ Donations and Unused Potential Donations in Traumatic Brain Injury, Subarachnoid Haemorrhage and Intracerebral Haemorrhage', *Intensive Care Medicine* 32: 217–222.

Kootstra, G.: 1995, 'Statement on Non-Heart- Beating Donor Program', *Transplantation Proceedings* 27(5), 2965 .

Kootstra, G.: 1996, 'Ethical Questions in Non-Heart-Beating Donorship', *Transplantation Proceedings* 28(6), 3417–3418.

Kootstra, G.: 1997, 'Expanding the Donor Pool: The Challenge of Non-Heart-Beating Donor Kidneys', *Transplantation Proceedings* 29(8), 3620 .

Koppelman, E.R. et al., 2003, 'The Dead Donor Rule and the Concept of Death: Severing the Ties that Bind Them', *The American Journal of Bioethics* 3(1), 1–32.

Kuhn, T.S.: 1971, *The Structure of Scientific Revolutions* (2nd ed.). Chicago: The University of Chicago PressThird impression.

Leonardo, Z.: 2003, 'Interpretation and the Problem of Domination: Paul Ricoeur's Hermeneutics', *Studies in Philosophy and Education* 22(5), 329–350.

Light, J.A.: 2000, 'Viability Testing in the Non-Heart-Beating Donor', *Transplantation Proceedings* 32(1), 179–181.

Light, J.A., T.M. Sasaki, A.O. Aquino, D.Y. Barhyte and F. Gage: 2000, 'Excellent Long-Term Graft Survival with Kidneys from the Uncontrolled Non-Heart-Beating Donor', *Transplantation Proceedings* 32(1), 186–187.

Lynn, J.: 1995, 'Are the Patients Who Become Organ Donors Under the Pittsburgh Protocol for ''Non-Heart-Beating Donors'' Really Dead?', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate over Non-Heart-Beating Cadaver Protocols*. The Johns Hopkins University Press: Baltimore, pp. 91–102.

Lynn, J. and R. Cranford: 1999, 'The Persisting Perplexities in the Determination of Death', in: S.J. Youngner, R.M. Arnold, and R. Schapiro (eds.) *The Definition of Death: Contemporary Controversies*. The Johns Hopkins University Press: Baltimore, pp. 101–114.

Magliocca, J.F., J.C. Magee, S.A. Rowe, M.T. Gravel, R.H. Chenault 2nd, R.M. Merion, J.D. Punch, R.H. Bartlett and M.R. Hemmila: 2005, 'Extracorporeal Support for Organ Donation After Cardiac Death Effectively Expands the Donor Pool', *Journal of Trauma-Injury Infection & Critical Care* 58(6), 1095–1101.

Matesanz, R.: 2003, 'Factors Influencing the Adaptation of the Spanish Model of Organ Donation', *Transplant International* 16(10), 736–741.

Matesanz, R.: 2004, 'Factors that Influence the Development of an Organ Donation Program', *Transplantation Proceedings* 36(3), 739–741.

Menikoff, J.: 1998, 'Doubts About Death: The Silence of the Institute of Medicine', *The Journal of Law, Medicine and Ethics* 26(2), 157–165.

Menikoff, J.: 2002, 'The Importance of Being Dead: Non-Heart-Beating Organ Donation', *Issues of Law and Medicine* 18(1), 3–20.

Metcalfe, M.S., P.C. Butterworth, S.A. White, R.N. Saunders, G.J. Murphy, N. Taub, P.S. Veitch and M.L. Nicholson: 2001a, 'A Case-control Comparison of the Results of Renal Transplantation from Heart-beating and Non-Heart-Beating Donors', *Transplantation* 71(11), 1556–1559.

Metcalfe, M.S., A. Tweed, S.A. White, R. Taylor, E. Mullin, R.N. Saunders, J.R. Waller, R. Wrigglesworth and M.L. Nicholson: 2001b, 'Quality of Life for Renal Transplant Recipients of Organs from Non-Heart-Beating Donors, Heart-beating Cadaveric Donors, and Living Related Donors', *Transplantation Proceedings* 33(7–8), 3403–3404.

Metcalfe, M.S., S.A. White, R.N. Saunders, G.J. Murphy, T. Horsburgh, A.J. Knight and M.L. Nicholson: 2001c, 'Long-term Results of Renal Transplantation Using Organs from Non-Heart-Beating Donors', *Transplantation Proceedings* 33(1–2), 826.

Mizutani, K., Y. Ono, T. Kinukawa, R. Hattori, N. Nishiyama, O. Kamihila and S. Ohshima: 2001, 'Use of Marginal Organs from Non-Heart-Beating Cadaveric Kidney Donors', *Transplantation* 72(8), 1376–1380.

Morison, R.S.: 1971, 'Death: Process or Event?', *Science* 173(998), 694–698.

Nathan, H.M., B.E. Jarrell, B. Broznik, R. Kochik, B. Hamilton, S. Stuart, T. Ackroyd and M. Nell: 1991, 'Estimation and Characterization of the Potential Renal Donor Pool in Pennsylvania. Report of the Pennsylvania Statewide Donor Study', *Transplantation* 51(1), 142–149.

National Health Service. 2003, *Saving Lives, Valuing Donors. A Transplant Framework for England*. London: Department of Health.

National Health Service: 2005, *More Transplants – New Lives. Transplant Activity in the UK 2004–2005*. Bristol, England: Statistics and Audit Directorate. Available from www.uktransplant.org.uk. Last accessed on 9 June 2006.

New York Organ Donor Network: 2005, *Overview and Data of Organ and Tissue Donation*. http://www.nyodn.org/organ/o_statistics_overview.html. Last accessed on 18 December 2005.

Nicholson, M.: 2002, *Kidney Transplantation from Non-Heartbeating Donors*. Peterborough: The National Kidney Research Fund.

Nicholson, M.L., M.S. Metcalfe, S.A. White, J.R. Waller, T.M. Doughman, T. Horsburgh, J. Feehally, S.J. Carr and P.S. Veitch: 2000, 'A Comparison of the Results of Renal Transplantation from Non-Heart-Beating, Conventional Cadaveric, and Living Donors', *Kidney International* 58(6), 2585–2591.

Nunez, J.R., A. Varela, F. del Rio, P. Gamez, J. Calatayud, M. Cordoba, F. Hernando, P. Ussetti, A. Gomez, M.C. Carreno, A. Torres, J. Gomez, J.L. Balibrea and A. Lopez: 2004, 'Bipulmonary Transplants with Lungs Obtained from Two Non-Heart-Beating Donors Who Died Out of Hospital', *The Journal of Thoracic and Cardiovascular Surgery* 127(1), 297–299.

Opdam, H.I. and W. Silvester: 2004, 'Identifying the Potential Organ Donor: An Audit of Hospital Deaths', *Intensive Care Medicine* 20: 1390–1397.

Papalois, V., K. Vlachos, A. Barlas, Z.A. Zarka, A. El-Tayar and N.S. Hakim: 2004, 'Ethical Issues in Non-Heart-Beating Donation', *Bulletin of Medical Ethics* 202: 13–20.

Potts, M. and D.W. Evans: 2005, 'Does it Matter that Organ Donors Are not Dead? Ethical and Policy Implications', *Journal of Medical Ethics* 31(7), 406–409.

Ridley, S., S. Bonner, K. Bray, S. Falvey, J. Mackay and A. Manara: 2005, 'UK Guidance for Non-Heart-Beating Donation', *British Journal of Anaesthesia* 95(5), 592–595.

Robertson, J.A.: 1988, 'Relaxing the Death Standard for Organ Donation in Pediatric Situations', in: D. Mathieu, (ed.) *Organ Substitution Technology: Ethical, Legal and Public Policy Issues*. Westview Press: Boulder, CO, pp. 55.

Roels, L.: 2005, *International Perspective, Presentation at the Institute of Medicine Workshop on Increasing Rates of Organ Donation*. Washington, DC: Institute of Medicine.

Rubin, R.H. and J.A. Fishman: 1998, 'A Consideration of Potential Donors with Active Infection – Is this a Way to Expand the Donor Pool?', *Transplant International* 11(5), 333–335.

Rudich, S.M., B. Kaplan, J.C. Magee, J.D. Arenas, J.D. Punch, L.K. Kayler, R.M. Merion and H.U. Meier-Kriesche: 2002, 'Renal Transplantations Performed Using Non-Heart-Beating Organ Donors: Going Back to the Future?', *Transplantation* 74(12), 1715–1720.

Sanchez-Fructuoso, A.I., M. Marques, J. Conesa, N. Ridao, A. Rodriguez and J. Blanco: 2005, 'Use of Different Immunosuppressive Strategies in Recipients of Kidneys from Nonheart-Beating Donors', *Transplant International* 18: 596–603.

Sanchez-Fructuoso, A.I., M. de Miguel Marques, D. Prats and A. Barrientos: 2003, 'Non-Heart-Beating Donors: Experience from the Hospital Clinico of Madrid', *Journal of Nephrology* 16: 387–392.

Sanchez-Fructuoso, A.I., M. de Miguel Marques, D. Prats, J. Conesa, N. Calvo and M.J. Perez-Contin: 2006, 'Victims of Cardiac Arrest Occurring Outside the Hospital: A Source of Transplantable Kidneys', *Annals of Internal Medicine* 145: 157–164.

Sanchez-Fructuoso, A.I., D. Prats, J. Torrente, M.J. Perez-Contin, C. Fernandez, J. Alvarez and A. Barrientos: 2000, 'Renal Transplantation from Non-Heart Beating Donors : A Promising Alternative to Enlarge the Donor Pool', *Journal of the American Society of Nephrology* 11(2), 350–358.

Sanchez-Fructuoso, A.I, D. Prats Sanchez, M. Marques Vidas, E. De Lopez Novales and A. Barrientos Guzman: 2004, 'Non-Heart Beating Donors', *Nephrology, Dialysis, Transplantation* 19(Supplement 3), iii26–31.

Satoi, S., S.R. Bramhall and M. Solomon: 2001, 'The Use of Liver Grafts from Donors with Bacterial Meningitis', *Transplantation* 72: 1108–1113.

Seltzer, D.L., R.M. Arnold and L.A. Siminoff: 2000, 'Are Non-Heart-Beating Cadaver Donors Acceptable to the Public?', *The Journal of Clinical Ethics* 11(4), 347–375.

Shaw, B.W.: 1995, 'Conflict of Interest in the Procurement of Organs from Cadavers Following Withdrawal of Life Support', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate Over Non-Heart-Beating Cadaver Protocols*. The Johns Hopkins University Press: Baltimore, pp. 103–111.

Sheehy, E., S.L. Conrad, L.E. Brigham, R. Luskin, P. Weber, M. Eakin, L. Schkade and L. Hunsicker: 2003, 'Estimating the Number of Potential Organ Donors in the United States', *New England Journal of Medicine* 349: 667–674.

Singhal, A.K., J.D. Abrams, J. Mohara, R.D. Hasz, H.M. Nathan, C.A. Fisher, S. Furukawa and B.I. Goldman: 2005, 'Potential Suitability for Transplantation of Hearts from Human Non-Heart-Beating Donors: Data Review from the Gift of Life Donor Program', *The Journal of Heart and Lung Transplantation* 24(10), 1657–1664.

Spike, J.: 2000, 'Controlled NHBD Protocol for a Fully Conscious Person: When Death Is Intended as an End in Itself and It Has Its Own End', *The Journal of Clinical Ethics* 11(1), 73–77.

Spital, A.: 2005, 'Conscription of Cadaveric Organs for Transplantation: A Stimulating Idea Whose Time Has Not Yet Come', *Cambridge Quarterly of Healthcare Ethics* 14(1), 107–112.

Steen, S., T. Sjoberg, L. Pierre, Q. Liao, L. Eriksson and L. Algotsson: 2001, 'Transplantation of Lungs from a Non-Heart-Beating Donor', *Lancet* 357: 825–829.

Steen, S., T. Sjoberg, L. Pierre, Q. Liao, L. Eriksson and L. Algotsson: 2002, 'Non-Heart Beating Lung Donation: Aspects for the Future', *Thorax* 57: 53–56.

Steen, S., Q. Liao, P.N. Wierup, R. Bolys, L. Pierre and T. Sjoberg: 2003, 'Transplantation of Lungs from Non-Heart-Beating Donors After Functional Assessment Ex Vivo', *Annals of Thoracic Surgery* 76(1), 244–252.

Steinberg, D.: 2003, 'The Antemortem Use of Heparin in Non-Heart-Beating Organ Transplantation: A Justification Based on the Paradigm of Altruism', *The Journal of Clinical Ethics* 14(1,2), 18–25.

Tanabe, K., T. Oshima, T. Tokumoto, N. Ishikawa, A. Kanematsu, H. Shinmura, S. Koga, S. Fuchinoue, K. Takahashi and H. Toma: 1998, 'Long-Term Renal Function in Non-Heart-Beating Donor Kidney Transplantation', *Transplantation* 66(12), 1708–1713.

Tomlinson, T.: 1995, 'The Irreversibility of Death: Reply to Cole', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate over Non-Heart-Beating Cadaver Protocols*. The Johns Hopkins University Press: Baltimore, pp. 81–89.

Trevisani, F., A. Colantoni and P. Caraceni: 1996, 'The Use of Donor Fatty Liver for Liver Transplantation: A Challenge or a Quagmire?', *Journal of Hepatology* 24(1), 114–121.

Truog, R.D.: 1997, 'Is It Time to Abandon Brain Death?', *Hastings Center Report* 27(1), 29–37.

Truog, R.D. and T.J. Cochrane: 2006, 'The Truth About ''Donation After Cardiac Death''', *The Journal of Clinical Ethics* 17(2), 133–136.

Truog, R.D. and W.M. Robinson: 2003, 'Role of Brain Death and the Dead-donor Rule in the Ethics of Organ Transplantation', *Critical Care Medicine* 31(9), 2391–2396.

UK Transplant. Statistics and Audit Directorate: 2006, *NHS Blood and Transplant*. Website: http://www.uktransplant.org.uk/ukt/statistics/statistics.jsp. Accessed on 31 December 2006 and 15 January 2007.

UNOS Website: www.unos.org. Last accessed on 17 January 2007.

van Deynse, D., V. Dumont, C. Lecomte, J.P. Squifflet, M. Mourad, F. Verschuren, D. Dufrane, P. Hantson and J. Malaise: 2005, 'Non-Heart-Beating Donor, Renewal of an Old Procedure: A Belgian Experience', *Transplantation Proceedings* 37(6), 2821–2822.

van Norman, G.A.: 2003, 'Another Matter of Life and Death: What Every Anesthesiologist Should Know About the Ethical, Legal, and Policy Implications of the Non-Heart-Beating Cadaver Organ Donor', *Anesthesiology* 98(3), 763–773.

Veatch, R.M.: 1997, 'Non-Heart-Beating Cadaver Organ Procurement: Two Remaining Issues', *Transplantation Proceedings* 29(8), 3339–3340.

Virnig, B.A. and A.L. Caplan: 1992, 'Required Request: What Difference Has It Made?', *Transplantation Proceedings* 24(5), 2155–2158.

Weber, M., D. Dindo, N. Demartines, P.M. Ambuhl and P.A. Clavien: 2002, 'Kidney Transplantation from Donors Without a Heartbeat', *New England Journal of Medicine* 347(4), 248–255.

Weisbard, A.J.: 1995, 'A Polemic on Principles: Reflections on the Pittsburgh Protocol', in: R.M. Arnold, S.J. Youngner, R. Schapiro, and C.M. Spicer (eds.) *Procuring Organs for Transplant. The Debate over Non-Heart-Beating Cadaver Protocols*. The Johns Hopkins University Press: Baltimore, pp. 141–154.

White, C.J.: 2005, *Time and Death: Heidegger's Analysis of Finitude*. Burlington, Vermont: Ashgate Publishing Company.

White, S.A., S. Jain, H. Absalom, G. Murphy, S.T. Williams, A. Knight, A.M. Zickerman and M.L. Nicholson: 2000, 'Influence of Delayed Graft Function in Renal Transplants from Cadaveric or Non-Heart-Beating Donors', *Transplantation Proceedings* 32(1), 189 .

Whitehead, A.N.: 1967, *Science and the Modern World*. New York: Macmillan Publishers.

Whiting, J.F., R.S. Woodward, E.Y Zavala, D.S. Cohen, J.E. Martin, G.G. Singer, J.A. Lowell, M.R. First, D.C. Brennan and M.A. Schnitzler: 2000, 'Economic Cost of Expanded Criteria Donors in Cadaveric Renal Transplantation: Analysis of Medicare Payments', *Transplantation* 70(5), 755–760.

Wight, J., J. Chilcott, M. Holmes and N. Brewer: 2003, 'The Clinical and Cost-effectiveness of Pulsatile Machine Perfusion Versus Cold Storage of Kidneys for Transplantation Retrieved from Heart-beating and Non-Heart-Beating Donors', *Health Technology Assessment* 7(25), 1–94.

Wight, J., M. Jakubovic, S. Walters, R. Maheswaran, P. White and V. Lennon: 2004, 'Variation in Cadaveric Organ Donor Rates in the UK', *Nephrology, Dialysis, Transplantation* 19: 963–968.

Wunsch, H., D.A. Harrison, S. Harvey and K. Rowan: 2005, 'End-of-Life Decisions: A Cohort Study of the Withdrawal of all Active Treatment in Intensive Care Units in the United Kingdom', *Intensive Care Medicine* 31: 823–831.

Youngner, S.J. and R.M. Arnold: 1993, 'Ethical, Psychological, and Public Policy Implications of Procuring Organs from Non-Heart-Beating Cadaver Donors', *Journal of American Medical Association* 269(21), 2769–2774.

Youngner, S.J. and R.M. Arnold: 2001, 'Philosophical Debates About the Definition of Death: Who Cares?', *Journal of Medicine and Philosophy* 26(5), 527–537.

Youngner, S.J., R.M. Arnold and R. Schapiro: 1999, *The Definition of Death: Contemporary Controversies*. Baltimore, Maryland: The Johns Hopkins University Press.

Zamperetti, N., R. Bellomo and C. Ronco: 2003, 'Defining Death in Non-Heart Beating Organ Donors', *Journal of Medical Ethics* 29(3), 182–185.