LEGAL AND ETHICAL ASPECTS OF ORGAN TRANSPLANTATION

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PART III
GENERAL ISSUES

1

Why and when is a potential donor a cadaver?

'What is so intricate, so entangled as death?'
John Donne, 1628

Few other issues pertaining to transplantation have generated as many quandaries and as much attention as the 'Gordian knot' of death, whose essence is of crucial importance to the very existence and success of cadaveric transplantation programmes. Moreover, the character of applicable regulatory regimes hinges directly upon the dichotomy between cadaveric and living donation created by it. The so-called 'dead donor' rule requires that vital organs be removed only from *cadaveric* donors. Duties to respect the autonomy and to avoid maleficent treatment of the donor take on a very different hue and import in the event of the individual's death. It has been alleged that certain classes of donors have generally been located in the wrong 'camp' (for example anencephalics and non-heart-beating donors) resulting in the application of inappropriate principles for procurement.[1] Whilst the dead donor rule has itself recently become a subject of re-appraisal, debated in a following chapter, its contemporary significance is indisputable and pivotal.

There are dilemmas here attaching to both 'heart-beating' donors and, the increasingly popular, 'non-heart-beating' (asystolic) donors. The former depend upon the relatively modern notion of *brain death* as marking the end of life of the individual human being, the practical effect of which can be illustrated by comparing volumes of transplants between nations. In Japan, which until recently shied away from the notion of brain death, the mean annual volume of cadaver kidney transplants was

[1] See D. Vawters, 'Ethical Frameworks for Live and Cadaveric Organ Donation' in B. Spielman (ed.), *Organ and Tissue Donation: Ethical, Legal and Policy Issues*, Southern Illinois University Press, Carbondale, 1997, at 53.

approximately 200, contrasted with, for instance, 1,600 in the United Kingdom and 8,000 in the United States. Moreover, multi-organ transplantation, and thoracic organ transplantation in particular, is practically ruled out in its absence.[2] Whilst most nations of the world now endorse brain death as the death of the individual, some societies have been slow to accept it (for instance Denmark, Poland and Japan) and some societies still either wholly or partially reject it (for example, China, Iran, Israel and Korea). Despite what has been described as a 'remarkable consensus' having generally developed supporting brain death, Miles observes that 'It is ironic that so soon after the medical and legal legitimisation of the concept of brain death, whole-brain criteria for death seem to be disintegrating – neurologically, clinically, and socially.'[3] Whilst this is undoubtedly an overstatement, brain death indeed continues to generate significant controversy, both conceptually and pragmatically.

Paradoxically, whilst brain death has attracted criticism and scrutiny because of its supposed *departure* from traditional notions of death, non-heart-beating donor (NHBD) protocols have attracted at least as much criticism for their supposed reliance upon orthodox cardiopulmonary determinants of death. Whilst not a thesis on the meaning and determination of death in general terms, this chapter will debate the validity of brain death and cardiopulmonary standards of death due to their centrality to transplantation practices, and will additionally consider proposals to extend neurological formulations of death to the realms of *higher brain* death, because of the greater inclusiveness of certain classes of potential organ donors resulting therefrom. It then remains to consider the most appropriate form of legal regulation of these matters.

A convenient fiction?

Although in 'pre-technological' days, traditional cardiorespiratory/cardiopulmonary perceptions of death were employed, as Gervais states,

> Until we developed the power to maintain cardiac and respiratory functions mechanically, there was really no need to scrutinise the

[2] For instance, up until 1990, when Denmark passed legislation adopting brain death, many patients were sent abroad to receive heart and lung transplants.

[3] S. Miles, 'Death in a Technological and Pluralistic Culture' in S. Youngner, R. Arnold and R. Schapiro (eds.), *The Definition of Death: Contemporary Controversies*, Johns Hopkins University Press, Baltimore, 1999, 310.

> conceptual underpinnings of our decision to declare a person dead when his heart and lungs ceased functioning: heart and lung failure brought on the failure of all the other major organ systems almost immediately. Hence the whole individual appeared to die at once.[4]

Thus, different notions of death tended to coalesce. But whilst kidneys and corneas might still be viable for transplantation for a short time after circulation had ceased, organs such as hearts and lungs, more vulnerable to hypoxia, essentially required a still-beating heart at explantation in order to function properly post-transplant. However, the application of the technology to facilitate such a (heart-beating) state then begged the question about the continued legal status of the individual whose respiration and circulation had been maintained. Indeed, because of such uncertainty, until well into the latter half of the twentieth century the integrity of the dead body was typically preserved until the point in time when *all* critical functions of the body had necessarily ceased.[5] The Australian Law Reform Commission (ALRC) once commented that 'the practice of transplantation forces the close attention of the community to the subject of death and in many cases greater accuracy and care to be brought to bear in determining that death has occurred'.[6] Evans, however, notes that 'Of the [other] kinds of death-behaviour, there is only one where haste [of this kind] is usual – for the successful procurement of transplantable organs, time is of the essence.'[7] Moreover, it is alleged by some that the global movement towards endorsement of brain death has been entirely driven, even manipulated, by the necessities of transplantation. Indeed, Evans and Hill have accused that 'There is, of course, no need for a so-called ''brain death'' criterion of death except for the purposes of organ transplantation, specifically the provision of hearts, livers and lungs.'[8] Singer has pronounced brain death a 'convenient

[4] See K. Gervais, *Redefining Death*, Yale University Press, New Haven, 1986, at 2.

[5] The practices of anatomists and medical schools with regard to cadavers typically require no 'living' tissue and thus no urgency as regards the timing of death.

[6] Australian Law Reform Commission, *Human Tissue Transplants*, Report No. 7, Canberra, 1977, para. 127, at 59.

[7] M. Evans, 'Against Brain-stem Death' in R. Gillon (ed.), *Principles of Health Care Ethics*, John Wiley, Chichester, 1994, 1041 at 1044.

[8] See D. Evans and D. Hill, 'The Brain Stems of Organ Donors are Not Dead' (1989) (August) *Catholic Medical Quarterly* 113 at 114. Seifert states even more trenchantly that 'The only cogent pragmatic motive for introducing the criterion of brain death is its purpose of allowing organ-transplantations without the need to commit active euthanasia or manslaughter by killing persons who are still alive': see J. Seifert, 'Is ''Brain Death'' Actually Death?' (1993) 76 *Monist* 175 at 178.

fiction'[9] and Taylor describes it as a 'social construct' created for wholly utilitarian (that is transplantation) purposes.[10] These are potent charges requiring that any definition of death operative in this sphere be independently supportable on sound ethical and public policy grounds. Expediency cannot be a total justification in itself, but as Birnbacher observes, 'the practical usefulness of a criterion is no reason to doubt its adequacy'.[11]

The evolution of brain death

In the fifties, when transplantation considerations were not directly implicated,[12] the (ventilator) technology was already developing to allow patients whose brains were totally dead[13] to have their breathing and heartbeat maintained for a substantial period of time, coinciding with a rapid increase in acquired knowledge of the physiology of the brain,[14] out of which the notion of brain death evolved.[15] Clinicians began at this time to doubt the traditional criteria for establishing death and the value of ventilating all such patients to asystole (cardiac standstill). Acceptance of the clinical notion of brain death did not necessarily imply any normative proposition as to whether an *individual* whose brain had died was dead however.[16] This further deductive step was not long in being forthcoming

[9] P. Singer, *Rethinking Life and Death*, Oxford University Press, Oxford, 1994, at 35.

[10] R. Taylor, 'Reexamining the Definition and Criteria of Death' (1997) 17(3) *Seminars in Neurology* 265.

[11] D. Birnbacher, 'Philosophical Arguments for Accepting the Brain Death Criterion' in G. Collins, J. Dubernard, W. Land and G. Persijn (eds.), *Procurement, Preservation and Allocation of Vascularized Organs*, Kluwer, Dordrecht, 1997, 339 at 341.

[12] Jennett notes that a further ten years were to elapse from the identification of the concept of 'coma dépassé' before the UK transplant rate exceeded even one per week: B. Jennett, 'Brain Death' (1981) 53 *British Journal of Anaesthesiology* 1111.

[13] As autopsy frequently undeniably substantiated.

[14] In 1959, a group of neurophysiologists and neurosurgeons in Lyons first described a condition termed 'death of the central nervous system': see M. Jouvet, 'Diagnostic electro-souscorticographique de la mort du système nerveux central au cours de certains comas' (1959) II *Electroencephalography and Clinical Neurophysiology* 805.

[15] Two Parisian neurologists dubbed the condition 'coma dépassé' (beyond coma) later that same year: see P. Mollaret and M. Goulon, 'Le coma dépassé (mémoire préliminaire)' (1959) 101 *Review of Neurology* 3.

[16] The Danish Council of Ethics developed a perspective of a 'death process' which began when, *inter alia*, the brain had died, but which only ended when all three functions, circulatory, respiratory and brain, had all definitely ceased. However, in order not to impede organ transplantation, it would nevertheless be permissible to prolong the death process to that end and to remove organs for transplantation after brain death had occurred: see Danish Council of Ethics Report, *The Criteria of Death*, Copenhagen, December 1988.

though. In 1968, an Ad Hoc Committee of the Harvard Medical School Report argued, although without any supporting rationale, that an individual whose brain had irreversibly ceased to function should be considered dead.[17] A brain death formulation was also adopted in August of the same year by the World Medical Association as part of the Declaration of Sydney.[18] In the UK in January 1976, the Conference of Medical Royal Colleges published a memorandum on 'The Diagnosis of Brain Death', identifying with the concept of brain death, with the ostensible principal purpose of establishing criteria justifying the removal of a patient from a ventilator.[19] A further memorandum from the Medical Royal Colleges in January 1979 took the further step of equating the death of the brain with the death of the individual.[20] Evans and Hill have argued that transplantation concerns were the *sole* reason for the attempt by the Medical Royal Colleges in Britain to enforce acceptance of its version of brain death, and state: 'Contrary to what some have claimed, it was never necessary to certify death prior to discontinuing futile and unkind life-support measures.'[21] Although neither memorandum specifically alluded to transplantation, these perceptions were fostered when the memoranda were incorporated into *Cadaveric Organs for Transplantation (A Code of Practice including the Diagnosis of Brain Death)* issued in 1983.[22] The Code of Practice issued by the Department of Health in 1998 softens this association slightly by reversing the emphasis, being entitled *A Code of Practice for the Diagnosis of Brain Stem Death: Including Guidelines for the Identification and Management of Potential Organ and Tissue*

[17] 'A Definition of Irreversible Coma', Report of the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death (1968) 205 *Journal of the American Medical Association* 337.

[18] 22nd World Medical Assembly, adopted 9 August 1968.

[19] (1976)(ii) *British Medical Journal* 1187 and (1976)(ii) *Lancet* 1069. These recommendations were very similar to the Minnesota Code for Brain Death formulated by Mohandas and Chou in 1971.

[20] Conference of Medical Royal Colleges and their Faculties in the United Kingdom, 'Memorandum on the Diagnosis of Death' (1979)(i) *British Medical Journal* 332; Conference of Medical Royal Colleges and their Faculties in the United Kingdom, 'Diagnosis of Death' (1979)(i) *Lancet* 261.

[21] Evans and Hill, 'The Brain Stems of Organ Donors are Not Dead', at 114.

[22] *Cadaveric Organs for Transplantation (A Code of Practice including the Diagnosis of Brain Death)*, Health Departments of Great Britain and Northern Ireland, 1983. Julius Korein previously accused the British Code of linking the diagnosis of brain death 'irretrievably with transplantation': see J. Korein, 'Diagnosis of Brain Death' (1980) 281 *British Medical Journal* 1424.

Donors![23] It is indeed very likely that transplantation concerns were at least in the background of the policy-makers' minds at this time, if not in the forefront. In the US, the evolution of the notion of brain death was explicitly motivated in part by transplantation considerations, although the Harvard Committee in particular attempted to play down such a connection.[24] McCullagh is nonetheless right to assert that the notion of brain death was not, in the first instance, a contrivance to facilitate the identification of subjects who would be suitable donors of transplantable organs, as considerable doubt did exist at that time as regarded the legality of such withdrawal of life-supporting measures.[25] But it was nevertheless a factor, as such legal doubt resulted in the removal of organs from brain-dead donors typically taking place only once asystole had occurred – with consequent potential organ damage.[26] This historical excursus, however, tells us little about the legitimacy of a determination of death founded upon brain death.

Concepts, standards, criteria and tests

The rationale for the adoption of (that is the concept underpinning) any particular standard(s) of death has typically remained unarticulated, but as Gervais rightly observes, 'behind the use of any criterion for declaring death there lies what I shall call a decision of significance, that is, a decision that there is a certain feature (or cluster of features) whose permanent absence constitutes the death of the person'.[27] Thus, there is an *a priori* issue as to what death *means*, posed by Veatch in terms of: 'What is so essential to our concept of human life such that when it is lost

[23] *A Code of Practice for the Diagnosis of Brain Stem Death: Including Guidelines for the Identification and Management of Potential Organ and Tissue Donors*, Department of Health, March 1998.

[24] See discussion by Singer in *Rethinking Life and Death*, at 24–7. Fost describes the Harvard Committee deliberations as 'an explicitly utilitarian exercise': see N. Fost, 'The Unimportance of Death' in Youngner *et al.*, *The Definition of Death*, 161 at 165.

[25] See P. McCullagh, *Brain Dead, Brain Absent, Brain Donors*, John Wiley & Sons, Chichester, 1993, at 8. See also J. Bleich, 'Moral Debate and Semantic Sleight of Hand' (1993) 27 *Suffolk University Law Review* 1171 at 1175.

[26] Whatever the legal doubts, as early as 1957, Pope Pius XII removed (Catholic) religious impediments to such a practice, at an international gathering of physicians, surgeons and scientists. He suggested that the soul might have left the body despite the continued functioning of certain organs.

[27] Gervais, *Redefining Death*, at 2.

we should treat the individual as dead?'[28] The expression *concept* of death is preferred here to describe this abstraction, as the alternative phrase 'definition of death' is frequently used also as a label for legislative formulations based upon a second-level enquiry as to the physiological state representing (this concept of) death.[29] This general physiological state will be designated the *standard(s)* of death here. For instance, Bernat *et al*.[30] support the permanent cessation of functioning of the entire brain as the standard of death, underpinned by a concept of death based upon the permanent cessation of the functioning of the organism as a whole. I adopt the term 'criteria' to refer to the *operational diagnostic criteria* required to be satisfied in order to ensure that the physiological standard(s) equating with death exist(s).[31] Finally, there are the actual 'tests' or procedures employed for determining that the criteria for death exist in the individual instance. This lexicography and ordering is crucial and is succinctly and elegantly summed up by Engelhardt in the statement: 'To give a coherent account of how one should determine death, one must know what it is no longer to be alive, both in terms of knowing what life is so that it can be gone, as well as where that life is necessarily embodied so that one can know what tests to cluster under what genre of general criteria.'[32] This fourfold taxonomy is preferred for its flexibility and clarity to the more straightforward threefold taxonomies employed by various commentators, which display a tendency to conflate different categories of assessment.[33] In most instances though, there is little to choose between them as where commentators innocuously use the expression 'criteria' to additionally include testing procedures for determining death. As

[28] R. Veatch, 'The Definition of Death: Ethical, Philosophical, and Policy Confusion' in N. Abrams and M. Buchner (eds.), *Medical Ethics*, MIT, Cambridge Mass., 1983, 30 at 30. Hans Jonas poses the primary question more pithily in terms of 'What counts for life?': see H. Jonas, 'Against the Stream: Comments on the Definition of Death and Redefinition of Death' in *Philosophical Essays: From Ancient Creed to Technological Man*, Prentice-Hall, Englewood Cliffs N.J., 1974, 132.

[29] For this reason, I have not simply adopted Bernat *et al*.'s threefold classification, that is 'definition', 'criteria' and 'tests' of death: see J. Bernat, C. Culver and B. Gert, 'On the Definition and Criterion of Death' (1981) 94 *Annals of Internal Medicine* 389.

[30] Although they term this the 'criterion' of death: ibid.

[31] The President's Commission referred to them as 'operational criteria': see President's Commission for the Study of Ethical Problems in Medicine, *Defining Death: A Report on the Medical, Legal and Ethical Issues in the Determination of Death*, US Government Printing Office, Washington D.C., 1981.

[32] H. Engelhardt, 'Redefining Death' in Youngner *et al*., *The Definition of Death*, 319 at 325.

[33] The President's Commission also employed this fourfold classification in preference to the more typical scheme.

Engelhardt notes, 'Operational concerns, it should be noted, bring together both criteria for death and tests for death. Criteria for death function as chapter headings for tests, indicating what genre should be employed as dictated by a definition of death, which gives an account of what it is to be alive and to be embodied.'[34]

But is death a biological matter, a philosophical matter (that is, a 'truth' to be discovered, an *ontological* investigation into the essence of human life) or merely an issue of social engineering? This is a subject which continues to generate confusion between combatants. Lord Kilbrandon, at a symposium in the sixties, declared that 'the question of what is death . . . is a technical, professional medical matter'.[35] Indeed, historically the meaning of death was frequently left inexplicit in terms of the law, and left to the medical profession to decide. The notion of death as a biological phenomenon is still one obstinately clung to by many analysts. Taylor for instance has criticised the notion of brain death as being merely a 'legal construct' rather than, as he considers it should properly be regarded, a biological phenomenon. By contrast, the President's Commission,[36] Bernat *et al.* and Veatch all view the determination of the proper concept of death as 'primarily a philosophical task'. However, this enquiry is not susceptible to a straightforward response, and it is necessary to have regard to the taxonomy above to assist us. It hinges on whether we are considering the meaning of death itself, the physiological state manifesting it or the criteria and/or tests utilised to establish such a state.

The concept of death is clearly a primarily philosophical question. As Veatch remarks, 'No amount of neurological study could possibly determine whether those with dead brains should be considered dead people. This is a religious, philosophical, ethical, or public policy question, not one of neurological science.'[37] Singer maintains that 'If we choose to mark death at any moment before the body goes stiff and cold (or to be

[34] Engelhardt, 'Redefining Death', at 327.

[35] Lord Kilbrandon, 'Closing Remarks' in G. Wolstenholme and M. O'Connor (eds.), *Ethics in Medical Progress: With Special Reference to Transplantation*, CIBA Foundation Symposium, J. & A. Churchill, London, 1966, at 213.

[36] See the President's Commission Report, *Defining Death*, at 55.

[37] R. Veatch, 'The Conscience Clause' in Youngner *et al.*, *The Definition of Death*, 137 at 140. In similar vein, Rabbi Bleich states that 'Newly formulated criteria of death are no more and no less than determinations of who shall be accorded, or better, who shall be denied, standing as a member of the human community with its attendant rights, entitlements, and claims. Such a determination is a moral, philosophical, religious, and legal issue. Most emphatically, it is not a scientific issue': see Bleich, 'Moral Debate and Semantic Sleight of Hand', at 1175.

really on the safe side, before it begins to rot) we are making an ethical judgment.'[38] But even this assertion incorporates an *a priori* assumption that death is in reality *cellular death* not some other sort of death. Yet, as the ALRC noted, 'there is, and has always been, a great difference between the questions "Is he dead?" and "Is life extinct in every part of his body?" ', that is between somatic (cellular) death and the death of the *individual*.[39] In some cultures and societies, theological perspectives dictate responses to this question. Although mainstream religious thought in the great majority of jurisdictions has not obstructed acceptance of brain death, in Japan for instance reform has only recently been forthcoming due partially to reticence rooted in Confucian ideals, and Shinto and Buddhist thought, which see death as an evolving process. In addition, many orthodox Jews, Aborigines and Native Americans place great significance upon the continued functioning of the heart even today.[40]

In 1988, the Danish Council of Ethics, in a Report on Death, drew attention to a perceived divide between 'scientific' (unseen) and 'ordinary' (seen) views of death. It stated that 'The concept of death must relate to the everyday experience', according to which 'the identity of the person relates no less to the body than to the mind', and recommended that the standard of death should be cessation of respiration and cardiac activity.[41] This raises questions as to the extent to which policies should reflect 'ordinary' emotional reactions as opposed to rational thought. Martyn Evans contends that our reactions may be morally significant, even decisive, here and states: 'I don't believe we would display, embalm, bury or cremate someone until her heart had stopped beating – because we would not until then *see her* as dead', and observes that this obstacle seems only not to apply in the sphere of transplantation.[42] It is suggested however that our intuitions should act as a 'check' on our intellectual

[38] See Singer, *Rethinking Life and Death*, at 32.

[39] See the Australian Law Reform Commission, *Human Tissue Transplants*, at para. 118.

[40] In the 1970s, Frank Veith asserted that brain death was a concept compatible with all three major Western religions, and apart from small factions, this still holds good today: see F. Veith *et al.*, 'New Developments in the Use and Recognition of Brain Death in the United States and other Countries' (1981) 13 *Transplantation Proceedings* 689 at 691.

[41] Danish Council of Ethics Report, *The Criteria of Death*.

[42] Evans, 'Against Brain-stem Death', at 1044. See also M. Evans, 'A Plea for the Heart' (1990) 4 *Bioethics* 227.

inclinations, but should not be wholly controlling or sufficient moral guides, even assuming that there is a consensus here.[43]

To some extent, the concept of death to which we subscribe is a function of whether we hold a 'mentalist' or a 'physicalist' viewpoint and, to a lesser degree, 'dualist' or 'monist' views regarding the human mind. Some supporters of mentalist, personhood perspectives on the nature of human life regard the mind as being the critical entity, distinct from matter, the human body. Others take a similar view but regard the mind as either located within the body or dependent upon the body. On the other hand, those who regard the biological functioning of the body as being the primary matter of importance might also regard the mind as being distinct from the body or as a part of it. The former in either camp display a (Cartesian) dualist perspective, the latter a monist view, and we can therefore see that a mentalist or physicalist perspective does not in itself commit one to any particular standard of death. Devettere notes that even the neocortical criterion of human death is consistent with some non-dualistic conceptions of human beings which focus on the human body.[44] We can see in this discussion the process of *translation* of abstract conceptual notions into a physiological basis for empirical determination and the variety of variables which might impact on this process. Similar difficulties arise in the translation of religious doctrine or teachings in some instances. For example, Rosner illustrates how the two sides in the brain death debate in Israel under Jewish law line up in polarised fashion based upon differing interpretations of the pivotal talmudic and other classic Jewish sources as regards whether cessation of cardiac as well as respiratory activity is a prerequisite for death.[45] Thus, whilst the concept of death may be a wholly philosophical enquiry, there are biological and medical determinants to all the remaining levels of enquiry, although as

[43] Angstwurm has stated that 'it can prove difficult to understand the permanent and complete loss of brain function as a definitive sign of death. Unlike rigor mortis, livor mortis, and signs of decay and putrefaction, brain death can only be determined and distinguished from the death-like state of an intensively treated individual by means of specific tests': see H. Angstwurm, 'Brain Death' in Collins *et al.*, *Procurement, Preservation and Allocation*, 331 at 332.

[44] In particular he cites the work of Alfred North Whitehead and Maurice Merleau-Ponty: see R. Devettere, 'Neocortical Death and Human Death' (1990) 18(1–2) *Law, Medicine and Health Care* 96 at 98–100.

[45] See F. Rosner, 'The Definition of Death in Jewish Law' in Youngner *et al.*, *The Definition of Death*, at 270.

one can see from the above discussion, philosophical perspectives intrude to some degree on outcomes at nearly every stage.[46]

Process or event?

In biological terms death is a process not an event. As Miles puts it, 'Biological processes and organ systems shut down over time in individualised sequences.'[47] Indeed, even the brain itself dies in stages. But if one focuses instead on the *individual* rather than specific parts of the organism it is easier to conceive of death being an event rather than a process. Indeed, Bernat contends that 'Because all organisms must be either alive or dead, death is an inherently discontinuous and instantaneous event.'[48] However, the Danish Council of Ethics argued that whilst total destruction of brain function meant the 'death process' had *begun* and was irreversible, it did not signify that the death process was *complete*, although it might still be ethically and legally defensible to remove organs for transplantation at that point.[49] Bernat *et al.*'s convincing retort is that

> a definition of death stipulating that it occurs at a more or less definite time is preferable to a definition that makes death a process. If we regard death as a process, then either the process starts when the person is still living, which confuses the 'process of death' with the process of dying, for we all regard someone who is dying as not yet dead, or the 'process of death' starts when the person is no longer alive, which confuses death with the process of disintegration.[50]

Indeed, if the individual was not yet 'dead' when such organs were removed, he/she must presumably still have been alive and the removal

[46] Bearing in mind the differences in terminology (see note 29), Bernat *et al.* state that 'providing a definition of death is a philosophical task; the choice of criterion is primarily medical; and the choice of tests . . . is solely a medical matter': see Bernat *et al.*, 'On the Definition and Criterion of Death', at 389.

[47] Miles, 'Death in a Technological and Pluralistic Society', at 313.

[48] J. Bernat, 'A Defense of the Whole-Brain Concept of Death' (1998) 28 *Hastings Center Report* 14 at 16. Engelhardt's suggestion of the notion of different deaths for different purposes would be extremely difficult to translate into (legal) reality. See also D. Smith, 'Legal Recognition of Neocortical Death' (1986) 71 *Cornell Law Review* 879, and S. Brennan and R. Delgado, 'Death: Multiple Definitions or a Single Standard?' (1981) 54 *Southern California Law Review* 1323.

[49] B. Rix, 'Danish Ethics Council Rejects Brain Death as the Criterion of Death' (1990) 16 *Journal of Medical Ethics* 5.

[50] See Bernat *et al.*, 'On the Definition and Criterion of Death', at 389.

would thus have contravened the dead donor rule.[51] It is also necessary for legal purposes to be able to isolate a moment of death, as the person's legal status then radically alters and with it attendant rights, claims and entitlements.

Legal complications

Whilst the medical community gradually accepted the phenomenon of brain death during the sixties and early seventies, laws and policy statements at that time pretty universally omitted to engage with it, thus leaving substantial uncertainty as to the legal status of the brain-dead patient. This incertitude coincided with various pathbreaking transplantation ventures, notably the series of first heart transplants performed in the late sixties. Indeed, in the first such attempted cardiac transplant on 3 December 1967 in Cape Town, Christiaan Barnard implicitly relied on brain death in order to facilitate it.

However, whilst legislative statements on (brain) death are almost exclusively a feature of the seventies or later, the question of what constituted death arose indirectly in a smattering of early judicial decisions. These cases were often concerned with matters relating to insurance claims or the criminal liability of third party assailants. An early example of the latter, which also incidentally implicated the removal of organs for transplantation, was the British case of *R* v. *Potter* in 1963.[52] Fourteen hours after being admitted to hospital following a head injury sustained in a fight, the patient stopped breathing and was connected to an artificial respirator. Twenty-four hours later a kidney was removed (with his wife's consent) and transplanted into another man. The respirator was then disconnected and it was found that there was no spontaneous respiration or circulation. Although at the subsequent coroner's inquest it was decided that the removal of the kidney had not contributed to the death, and the assailant was committed for trial, a medical witness had testified that the man had 'virtually died' at the time when he was put on the respirator although it would be 'legally correct' to

[51] For this, logical, reason clinicians in Denmark refused to remove organs from brain-dead, but not actually 'dead', individuals, for fear of legal repercussions, despite the expressly stated permissibility of so doing: see B. Rix, 'Brain Death, Ethics, and Politics in Denmark' in Youngner *et al*., *The Definition of Death*, 227 at 233.

[52] *The Times*, 26 July 1963; (1963) 31 *Medical Legal Journal* 195.

say that death did not occur until twenty-four hours later, when breathing and heartbeat had ceased, thus suggesting he was not dead when the removal occurred. At the eventual trial the accused was found guilty only of common assault, although charged with manslaughter, suggesting that the patient was indeed not legally dead until the respirator was removed, so that the removal of the kidney must presumably have been a criminal battery. Amongst other things, this case illustrates the ambivalence and uncertainty of judicial decision-making on this issue at that time and in general.[53]

The inherent dangers for surgeons at this time were even more vividly illustrated by the *Wada* case in Japan in 1968. A man was pulled from a frozen lake unconscious and declared dead on the basis of brain death criteria despite the fact that no law or policy then sanctioned the determination of death on brain-related criteria. The following day his heart was transplanted by Dr Wada into an eighteen-year-old with chronic heart disease who survived for eighty-three days.[54] Dr Wada was charged with murder, although the prosecution was ultimately aborted due to lack of material evidence. This was the only heart transplant performed in Japan and undoubtedly impeded acceptance of brain death by Japanese society.[55] In the United States though, such decisions were more liberal and less equivocal from the outset. In *Tucker* v. *Lower*[56] in 1972, the judge directed a jury in Virginia that they could either apply the traditional cardiorespiratory standard of death *or* the brain death standard

[53] Quite a diversity of judicial response resulted however. In the United States, in *Commonwealth* v. *Golston* 366 N.E. 2d 744 (Mass. 1977), a person sustained brain death following an assault. The judge, relying on a brain-death standard, decided that the discontinuance of treatment by doctors following such a diagnosis did not break the chain of causation between the original assault and the victim's death. In Scotland, in the High Court of Justice, by contrast, in a case decided on similar facts at around the same time, the court declined to adopt a brain-stem standard of death, and held that the person died only after the artificial ventilation was terminated, in *Finlayson* v. *H.M. Advocate* [1978] SLT (Notes) 60. In *R* v. *Malcharek; R* v. *Steel* [1981] 1 WLR 691 (CA) the English court adopted the same view as in *Golston* as regarded causation, but did not conclude as regarded any legal standard(s) of death. See also *R* v. *Kitching and Adams* [1976] 6 WWR 697 (Manitoba) and *R* v. *Kinash* [1982] Qld R 648 (Qld).

[54] There was significant doubt whether the patient even really needed a transplant: see Provisional Commission for the Study on Brain Death and Organ Transplantation, *Important Considerations with Respect to Brain Death and Organ Transplants*, Japan, 1992.

[55] See K. Hoshino, 'Legal Status of Brain Death in Japan' (1993) 7 *Bioethics* 234, and K. Bai, 'The Definition of Death: The Japanese Attitude and Experience' (1990) 22 *Transplantation Proceedings* 991.

[56] VA No. 2831, May 1972. Brain death was first accepted judicially in the US in *United Trust Co.* v. *Pyke* 427 P. 2d 67 (Cal. 1967).

in the context of a case where a person's heart was removed for transplantation purposes immediately after ventilation was stopped, the patient having been assaulted. The doctors were found not to be liable for causing the death. Moreover, in a criminal context in California, in *People* v. *Lyons*,[57] it was held that a shooting victim was legally dead prior to being used as a transplant donor, despite the continuance of artificial respiration. In spite of the general legal void, clinicians therefore repeatedly took matters into their own hands, forcing the hand of policy-makers. As in Japan, this sometimes backfired, but in most instances it prompted positive action to facilitate transplantation based on brain death and a protective framework for clinicians.[58] Of course, in the US the medical profession had embraced the notion of brain death very early on by contrast with many other nations, but even there, as Capron notes, the greatest pressure for legislation came from physicians concerned about the potential civil or criminal ramifications of cadaveric organ donation practices.[59]

Legislative responses

In many jurisdictions, the relevant transplant legislation merely refers to the definition of death established through other legal sources. For instance, the UK Human Tissue Act 1961 merely states that a registered medical practitioner removing parts of a body must have satisfied himself by personal examination of the body that 'life is extinct' (in addition to the physician who certified the death initially).[60] When life is 'extinct' cannot be determined from the statute itself and, due to the absence of a statutory definition elsewhere, case law and medical guidelines would need to be turned to for assistance. The Uniform Anatomical Gift Act in the United States refers to a 'determination of death' and to the 'decedent',

[57] Sup. Ct No. 56072, Alameda Co. (Cal. 1974).

[58] Contrast the extrajudicial remark made by the then Dame Elizabeth Butler-Sloss that 'The idea that either Parliament or indeed lawyers should be allowed to get their hands on this particular delicate matter fills me with horror, as one of those who might end up trying it'! See C. Pallis, 'Brain Stem Death: The Evolution of a Concept' (1987) 55 *Medico-Legal Journal* 84 at 106 (Discussion).

[59] A. Capron, 'The Bifurcated Legal Standard for Determining Death: Does it Work?' in Youngner *et al.*, *The Definition of Death*, 117 at 119. He notes that thirty-six US jurisdictions have today adopted the Uniform Determination of Death Act incorporating dual standards of death, including the brain-death standard.

[60] In section 4.

but the drafters properly decided not to include any further definition in that (model) law by way of further elaboration.[61] Virtually all US states however have independent statutes establishing standards of death. Other jurisdictions by contrast have incorporated the concept of brain death into their transplant statutes rather than including it in a discrete piece of legislation. In fact, three US state laws passed in the seventies actually had a specific standard of death which applied *only* in the context of organ transplantation, that is West Virginia (1975), Illinois (1975)[62] and Connecticut (1979). Another example is the 1979 Spanish transplant Law which stipulates[63] that organs may be removed from deceased persons 'After death has been determined on the basis of irreversible brain damage that is incompatible with life'.[64] Likewise, the 1996 Romanian transplant statute states that 'Harvesting of tissue and organs from dead persons is allowed only if the brain death has been medically confirmed',[65] and is supplemented in an Annex by specific criteria for the diagnosis and confirmation of brain death.[66] The danger is that the perception will be generated that organ donors are to be handled in different fashion to other patients. Even aspects of testing can be productive of such an impression. In 1984 a Report produced by the Swedish Government endorsed destruction of the brain as the standard of death. This was to be ascertained by clinical examination alone unless organ transplantation was anticipated, in which case radiological examination of blood flow cessation was required. McCullagh rightly observes that this suggests that one needs to be more certain about death in some (that is transplant) settings than others.[67]

[61] See Comment to section 1. It was supposed that implicit reference was made to the definition contained in the Uniform Determination of Death Act anyhow.

[62] Illinois still has the American Bar Association model brain-death law in effect in its version of the Uniform Anatomical Gift Act.

[63] Spanish Law of 27 October 1979 on the Removal and Transplantation of Organs, Article 5(1).

[64] Crown Decree of 22 February 1980, Article 10 implementing the above Law states that 'Organs which are required to be viable for transplantation purposes may be removed from the cadaver of the deceased person only following determination of brain death, based on simultaneous observation for at least 30 minutes and persistence for six hours after onset of coma of the following signs: (1) absence of cerebral response, with absolute loss of consciousness; (2) absence of spontaneous respiration; (3) absence of brain reflexes, with muscular hypotonia and mydriasis; and (4) a "flat" electroencephalogram, indicating lack of bioelectrical activity in the brain.'

[65] Law Regarding the Harvesting and the Transplantation of Human Tissues and Organs, Article 6(1).

[66] Article 7(1).

[67] McCullagh, *Brain Dead, Brain Absent, Brain Donors*, at 25.

A high percentage of jurisdictions now have legislation incorporating brain death, although this has only occurred recently in one or two, for example Denmark[68] in 1990 and Japan in 1997.[69] In 1994, Pallis and Harley listed twenty-eight countries[70] and most US states[71] as having legislation explicitly recognising brain death as the death of the individual.[72] The first legislative initiatives were in Italy in 1967, in the state of Kansas in 1970 and in Finland in 1971. These statutory provisions are either unitary brain death statutes or contain bifurcated, alternative standards of death, as was the case under the early Kansas statute.[73] The US Uniform Determination of Death Act (UDDA)[74] states that 'An individual who has sustained either [1] irreversible cessation of circulatory and respiratory functions, or [2] irreversible cessation of all functions of the entire brain, including the brain stem, is dead. A determination of death must be made in accordance with accepted medical standards.'[75] Bernat *et al*. have criticised the UDDA for creating two separate standards of death rather than two sets of criteria supporting one unitary standard.[76] This issue of sole versus dual standards of death is a constantly recurring one. Transplant protocols and legislative provisions display a tendency to conflate the distinctions between different levels of enquiry, and perpetuate ambiguities. Problems arise in the context of both heart-beating and

[68] Law of 13 June 1990.

[69] See E. Feldman, 'Culture, Conflict and Cost: Perspectives on Brain Death in Japan' (1994) 10(3) *International Journal of Technology Assessment in Health Care* 447. Up until relatively recently, the concept was not accepted in Latvia either.

[70] See C. Pallis and D. Harley, *ABC of Brain-stem Death*, 2nd edn, BMJ Publishing Group, London, 1995, at 40–3. Germany, India and Japan should now be added to that list.

[71] All US states now recognise brain death. Twelve states had already done so by 1977 and twenty-five had done so by 1981: see D. Jones, 'Retrospective on the Future: Brain Death and Evolving Legal Regimes for Tissue Replacement Technology' (1992–3) 38 *McGill Law Journal* 394.

[72] See C. Pallis, *ABC of Brain Stem Death*, BMJ Publications, London, 1983, at 26–7. See also A. Walker, *Cerebral Death*, 2nd edn, Urban & Schwartzenberg, Baltimore, 1981.

[73] Kan. Stat. Ann. @77–202.

[74] It superseded the Uniform Determination of Death Act 1978. This 1980 model law is similar to that proposed by the Law Reform Commission of Australia: see *Human Tissue Transplants*. The omitted reference to cessation of spontaneous respiratory function is relatively insignificant in view of the fact that such cessation usually precedes circulatory failure.

[75] This at least ameliorated the position whereby there were seven different death formulations across the country, so that one could be actually 'raised from the dead' in driving over a pertinent state line in order to reach the nearest hospital! The Law resembles the Kansas statute but contains no reference to mechanical means of support or transplantation.

[76] Although rather inexplicably Bernat himself described this as a 'theoretical quibble'! See J. Bernat, 'A Defense of the Whole-Brain Concept of Death' (1998) 28 *Hastings Center Report* 14 at 21.

non-heart-beating donors. Typically, doubts are generated by the adoption of the irreversible cessation of cardiopulmonary function as a relevant feature in the determination of death. Judicial decisions can however create the same, if not greater, ambivalence and doubt, as British case law illustrates.

In three recent cases, none of which were cases involving transplantation, the courts in England and Wales have unequivocally declared that a brain-stem-dead patient is dead for legal as well as medical purposes. In *Mail Newspapers* v. *Express Newspapers*[77] and *Re A (A Minor)*[78] the High Court held simply that the brain-stem-dead patients concerned were dead despite the fact that the patients were on ventilatory support at the relevant time.[79] In *Airedale NHS Trust* v. *Bland*[80] by comparison, the House of Lords decided that Tony Bland, who was *not* ventilator dependent, was *not* dead – as his brain stem was still functioning – despite his permanent vegetative state (PVS) condition. Their Lordships however made a number of broad remarks concerning legal and medical definitions of death. Although Lord Keith explicitly stated that 'In the eyes of the medical world and of the law a person is not clinically dead so long as the brain stem retains its function'[81] (a view of clinical perceptions not borne out by many of the NHBD protocols discussed below!), this was not a central facet of the decision and thus amounted to no more than an *obiter dictum*. Tony Bland could not, in the circumstances of that case, have been adjudged dead according to traditional criteria, as his heartbeat and respiration continued to function spontaneously. This ambiguity was not resolved, indeed it was seemingly compounded, by the initial UK Code of Practice issued in 1983 which stated that 'There is no legal definition of death. Death has traditionally been diagnosed by the irreversible cessation of respiration and heart-beat. This Working Party accepts the view held by the Conference of Royal Colleges that death can *also* be diagnosed by

[77] [1987] Fleet Street Reports 90.

[78] [1992] 3 Medical Law Reports 303.

[79] It was fairly recently established as constituting death in Northern Ireland, by the High Court of Justice in *Re T.C. (A Minor)* [1994] 2 *Medical Law Review* 376, so that it was permissible to detach the newborn child from the ventilator.

[80] [1993] 1 All ER 821 (HL).

[81] [1993] 1 All ER 821 at 859C. See also the remarks made by Lord Goff at 865F. Lord Browne-Wilkinson gave an equally clear vision of death in medicine, stating: 'In medicine, the cessation of breathing or of heartbeat is no longer death . . . This has led the medical profession to redefine death in terms of brain-stem death, i.e. the death of that part of the brain without which the body cannot function at all without assistance': at 878C–E.

the irreversible cessation of brain-stem function – ''brain death'' ' (my emphasis).[82] This suggests *alternative* standards of death. The 1998 Code, on the other hand, states that 'brain stem death equates with the death of the individual'.[83] Thus, although the common law in Britain would appear to favour a unitary standard of (brain) death, the status of persons sustaining irreversible cardiopulmonary failure is still uncertain. The NHBD protocols discussed below drive a wedge between these two approaches and illustrate that it is far from a purely 'academic' matter.

A conservative revision?

It may be argued that the traditional cardiorespiratory standard of death was largely self-serving based on the irreversible loss of flow of essential body fluids, and not rooted in any underpinning *concept* of death that such loss represented. However, many have argued that we had always, maybe only subconsciously and implicitly, alluded to a concept of death based on the loss of functioning of the brain. Birnbacher asserts that 'That is why accepting the brain death criterion does not mean ''redefining'' death but only recognising one further criterion for the same fact that is traditionally indicated by the criteria of irreversible heart and respiration failure.'[84] As the President's Commission put it, 'breathing and heartbeat are not life itself. They are simply used as signs – as one window for viewing a deeper and more complex reality: a triangle of interrelated systems with the brain at its apex.'[85] Indeed, even in Japan the traditional criteria were based on not just these two but *three* 'symptoms' and included also the dilation of the pupils, indicating that we were always essentially searching for windows into the mind/brain/soul.[86] McCullagh on the other hand has remarked: 'I am not convinced that cessation of cardiac function, for example, has been traditionally regarded as signifying death because of its consequences for brain function, rather than on account of its intrinsic importance.'[87] There is some force in this, notably

[82] Code of Practice, *Cadaveric Organs for Transplantation*, at para. 28.
[83] Code of Practice, *Diagnosis of Brain Stem Death*, at 4.
[84] Birnbacher, 'Philosophical Arguments', at 341.
[85] President's Commission Report, *Defining Death*, Chapter 3, at 33.
[86] Observing dilation of the pupils would seem to have been the *practice* everywhere (that is absence of pupillary light response), although not accorded a precise status in official statements: see Bernat *et al*., 'On the Definition and Criterion of Death', at 392.
[87] McCullagh, *Brain Dead, Brain Absent, Brain Donors*, at 20.

in so far as religious perceptions of death typically focus upon the separation of the soul from the body, with differences of view as to where the locus of the soul can be found. In orthodox Jewish thought, for instance, reference is made to Genesis,[88] where it is written: 'In whose nostrils was the breath of the spirit of life'.

Cold Lazarus

The traditional cardiorespiratory *standard* cannot, it seems, continue to be supported though, except based upon certain religious beliefs where arational rather than rational factors predispose one to conclusions. However, irreversible cardiopulmonary cessation should rightly continue to be supported as a proper *criterion* for the determination that the brain death standard has been satisfied. However, as we have seen, some commentators regard death in purely cellular terms as a wholly biological phenomenon. Taylor for instance argues that death occurs at the point when the overall process of bodily disintegration begins, which he takes to be the point at which the cessation of the circulation of vital fluids occurs. Veatch counters though that if the critical function here is the circulation of fluids, this is not only simplistic but *biologically reductionist* and makes no distinction between the human and the human body. He adds: 'It can at least be said for the defenders of the idea that death occurs when the soul departs from the body, that they recognised that a human is more than his body and some of its lesser functions.'[89] The isolated functioning of individual parts of the human body does not signify life in the 'individual' as opposed to life in that individual part. As Birnbacher observes, 'The physical aspect of death is the disintegration of the *organism* rather than the cessation of all life and growth processes in its parts and subsystems' (my emphasis).[90]

Commentators such as Bernat and Lamb contend that brain death is the appropriate standard of death because individuals die when they cease to be both conscious and working as an integrated functioning unit as a whole.[91] The President's Commission contended that 'what is missing in the dead is a cluster of attributes, all of which form part of an

[88] Chapter 7, verse 22.
[89] Veatch, 'The Definition of Death', at 32.
[90] Birnbacher, 'Philosophical Arguments', at 341.
[91] D. Lamb, *Organ Transplants and Ethics*, Routledge, London, 1990, at 36–7.

organism's responsiveness to its internal and external environment', that is either the triangular organ functions of the body (lungs, heart and brain) have ceased to work as a functional integrated unit, or the brain, as the primary organ of the body, has ceased to be able to regulate the functioning of the body.[92] In Britain, the Royal College of Physicians (RCP) recently advanced a definition of death based upon 'The irreversible loss of the capacity for consciousness combined with irreversible loss of the capacity to breathe'.[93] Pallis and Harley proffer the same view.[94] These formulations concededly amount typically to no more than an *ex post facto* rationalisation of the prior adoption in practice of brain death. This is so as regards the RCP in Britain, in much the same way that Bernat *et al*.'s formulation rationalised the whole-brain formulation of death developed by the Harvard Committee in the US. In Britain they have underpinned a brain-*stem* death standard and elsewhere a *whole*-brain death standard.

Brain death therefore ordinarily rests on two separate but connected justifications, that is loss of mental life (cognitive capacity/awareness) *and* loss of biological functioning. Birnbacher comments that

> The human individual is not only body, but a unity of both physical and mental aspects. To be dead or living is not a property of the human body but of the full human individual. It is the human individual as a complex whole that is born, grows old, and finally dies . . . Life and death are, accordingly, distinguished by the functioning and non-functioning of two systems: of consciousness and of the physical organism.[95]

Thus, the notion of brain death does not entirely depend upon physicalism or a mind/body duality. Where higher brain activity controlling consciousness continued to function but the body had otherwise ceased

[92] President's Commission Report, *Defining Death*, at 36. Engelhardt states though that 'This has been the difficulty with the strategic ambiguity built into the understanding of the meaning of death forwarded by the President's Commission, which incorporated both a "primary organ view – [which] would be satisfied with a statute that contained only a single standard – the irreversible cessation of all functions of the entire brain" and an "integrated functions view [that] would lead one to a definition of death recognising that collapse of the organism as a whole can be diagnosed through the loss of brain functions as well as through loss of cardiopulmonary functions" ': see Engelhardt, 'Redefining Death', at 325.

[93] Review by a Working Group convened by the Royal College of Physicians, 'Criteria for the Diagnosis of Brain Stem Death' (1995) 29(5) *Journal of the Royal College of Physicians of London* 381.

[94] Pallis and Harley, *ABC of Brain-stem Death*, at 3.

[95] Birnbacher, 'Philosophical Arguments', at 340.