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'Nor can we remain silent in the face of other more furtive, but no less serious and real, forms of euthanasia. These could occur for example when, in order to increase the availability of organs for transplants, organs are removed without respecting *objective and adequate* criteria which verify the death of the donor.'

Evangelium Vitae 15

The definition of death

Sometimes it will be obvious to any reasonable observer that someone is dead, or alternatively, that someone is still alive. Someone who is breathing and talking and walking around is obviously alive. Someone whose body is rotting away and hanging off the bones is obviously dead. However there are some cases, perhaps many cases, where it will not be obvious to an unqualified layman whether someone is alive or dead. In these cases it is the decision of competent physicians that decides the issue. In the UK the independent judgement of two physicians is required before someone can be declared dead. Thus, the judgement of the moment of death in the *particular case* is obviously a clinical one.

However it is possible to push the question back a stage and ask by what *criteria* the doctors are to make their decisions. Who decides what are general sufficient conditions to be fulfilled before someone is declared to be dead? This is not simply a matter to be left up to individual practitioners, but seems to demand some generally and publicly agreed standards against which individual judgements can be tested. Here it is not the individual

physicians but the professional body as a whole that should, and has, laid down procedures to be followed, and criteria to be fulfilled before someone is declared dead. Thus, the BMA has acted responsibly in laying down guidelines for the diagnosis of death in ordinary and in extraordinary circumstances.

Yet, behind questions of the *particular* judgement and agreed *criteria* there is a further question to be asked. This is the broader question of the *definition* of death that is embodied in these criteria: With any injury, disease or syndrome a doctor's *judgement* is measured against general and agreed *criteria* of clinical judgement. These criteria concern what effects are symptomatic of what diseases. Fever may point to infection, but it may be caused by something else; pain may be caused by an injury, but injuries may have been sustained without the same telltale pain. It requires some *understanding* of the underlying state and the cause of the trouble if correct criteria are to be established.

In the area of human death the increasing complexity of the cases, which medical technology has itself produced (because of the development of intensive care medicine), has led to questions not only at the level of particular *cases* or *agreed criteria*, but questions about the very *meaning* of human death. Death is not just another disease that can be specified, analysed, and catalogued as viral or bacterial, infectious or auto-immune. Death is the final cessation of life. Thus defining death requires more than medical and technical expertise: It

requires also some agreed understanding of what is constitutive of human life, and what it is that must be absent before the person can be said to be dead. This is not a simple worry about misdiagnosis (as though everyone agreed about *what* it is that is to be diagnosed and disagreed only about the safety of present *criteria*). One must first ask the question about *what it is* that is supposed to be being diagnosed. For if there is confusion at this level, there will be confusion all the way along the line. To gain an understanding of this question, it is helpful to trace the history of the development of definitions of death in the UK.

Development of the definition of death in the UK

Before the 1960s human death was primarily understood and diagnosed by *cardio-pulmonary* criteria. The irreversible cessation of breathing and heartbeat, of the functioning of the lungs and heart, constituted the death of the person as a whole. This seemed quite obvious, for the heart and the lungs comprise the delivery system necessary for the rest of the body to receive oxygenated blood. Without functioning heart and lungs the rest of the body could not survive. A person might die from being crushed or incinerated so that the whole body was destroyed together, but if death were slow and lingering the *final* moment was determined by the fact that breathing and heartbeat could no longer be maintained. For generations of doctors the two most significant signs of life were heartbeat (and so pulse) and breathing. On the basis of the confirmed and persistent absence of these vital signs, the person was to be declared dead.

This longstanding definition of death was critically undermined by developments in medical technology. First, the introduction of assisted ventilation and heart-bypass machines showed that the biological functions of lung and heart could be maintained artificially. The delivery system could be replaced, and thus they could no longer be considered *constitutive* of human life. Then in 1967 the first human heart transplant operation was successfully performed. If the heart could be bypassed or even entirely replaced then it could not contain the essence of the human person. Every organ seemed to be replaceable in this way apart from one, the human brain. Your heart can die without you dying, but it would seem that, if your brain dies, *you* die.

Assisted ventilation had altered people's understanding of death but also it produced a new *clinical condition* that could not have been observed before. This occurred in several patients who had suffered massive head trauma (due to external or internal causes) but who were sustained in intensive care. Some such patients were discovered to have lost *all* responsiveness, even the ability to breathe spontaneously. This very severe and short-lived syndrome was first investigated in France where it was called *coma depasse*. It only existed under conditions of assisted ventilation, for without such assistance the patient could not breathe and the rest of the system soon collapsed. In the UK this clinical syndrome was identified with the complete functional destruction of the brain, hence it was called *brain death*.

The first pronouncement from the British medical establishment on brain death was made in 1976 in a paper of the Conference of the Medical Royal

Colleges entitled "Diagnosis of brain death". This document describes the procedures for the diagnosis and asserts that for a diagnosis of brain death what is required is the irreversible loss of all function of the *brainstem* [whence the term 'brainstem death' was coined]. However, nowhere in this document is brain death equated with the death of the patient. Rather, brain death is described as "accepted as being sufficient to distinguish between those patients who retain the functional capacity to have a chance of even partial recovery from those in whom no such possibility exists." In other words, a diagnosis of brain death implies that the patient will certainly not recover, *not* that the patient is dead already.

A second pronouncement was published in 1979, also from the Conference of the Medical Royal Colleges, and is entitled "Diagnosis of death" [note the shift in title]. No change was made to the diagnostic protocol, but now it is stated that: "brain death represents the stage at which a patient becomes truly dead." No explanation is given for this massive leap in interpretation. All that is said is that brain death is the point at which "all functions of the brain have permanently and irreversibly ceased."

During the 1980s and 1990s significant medical evidence has mounted against the claim that brainstem death, as diagnosed by UK criteria, is the point at which "all functions of the brain have permanently and irreversibly ceased." In the face of medical uncertainty, and the consistent confusion over *why* brain death should be identified with the death of the *patient*, a third document was published in 1995. This appeared in the Journal of the Royal College of Physicians, and is entitled "Criteria for

the diagnosis of brain stem death". This document encourages the use of the more 'correct' term, 'brainstem death' rather than 'brain death' and, for the first time, attempts to give a *definition of death* that will explain why brain death implies the death of the patient.

'It is suggested that 'irreversible loss of the capacity for consciousness, combined with irreversible loss of the capacity to breathe' should be regarded as the definition of death'

While this definition seems curiously *ad hoc*, it is certainly helpful in making explicit the definition of death that underlies the present criteria. However, before analysing this proposed definition, it would be useful to examine the divergent views that underlie the present practical consensus.

Practical pressures

The acceptance of the equivalence of brain death with the death of the person has not been made in a vacuum. Various practical pressures have also shaped this consensus. Two are most prominent [Younger (1992), McCullagh (1993)]. First a declaration of death can allow costly intensive care to be withdrawn. Perhaps there are other circumstances that would allow medical support to be withdrawn, but none are so clear and free from ethical difficulties as the fact that the patient is dead!

The second, and without doubt the major factor behind the political acceptance of brain death as death, is the development of *transplant medicine*. Transplant techniques require a source of donor organs in good condition. The organs must be alive even if the donor is dead.

Traditional moral and legal norms have only allowed the taking of organs from live donors if the process of donation did not seriously harm the donor. Transplant teams have therefore come to rely heavily on *post mortem* organ retrieval. So as to obtain organs in good condition, the organs need to be 'harvested' as soon as possible after death. If brain death is equivalent to death then surgeons can remove organs while the heart is still beating and the organs are still perfused with oxygenated blood. Many sorts of transplantation are only possible because organs can be taken in this way. The great rise of transplant medicine has, then, been wholly dependent upon organ harvesting from so called '*beating-heart cadavers*', that is, patients who are determined to be dead on the basis of brain death criteria.

These two practical pressures have ensured a consensus as to what may be done with patients declared to be brain dead. However, there is in fact no such consensus as to *why* brain dead patients can be treated as dead. The 1976 declaration on the diagnosis of brain death did *not* describe a brain dead patient as being *actually* dead, but brain death was thought a reliable test for hopeless *prognosis* and thus for the removal of unnecessary treatment. Many in the profession still talk and act as though the essential question were the one of prognosis. If brain dead patients have no hope of recovery then, seemingly, medicine can do them no good, and therefore removal of their organs can do them no harm. The debate about brain death often focuses narrowly on recovery. The latest official document on brain death continues a long line in repeating that "Even if ventilation is continued, both adults and children will suffer cessation of heart beat within a few

days, very occasionally a few weeks." Even if this assertion were true, and it is not incontrovertible, this does not resolve the question of the status of those patients during those days or weeks. Certain prognosis is not the same as present status. Certainly-dying-in-days- or-weeks is not the same as dead!

Perhaps it is thought that patients who are unconscious and who are dying are not significantly harmed by having their life shortened, while the recipient is helped enormously. A survey among healthcare professionals in the USA found almost a third of respondents thought this was the reason why brain dead patients were counted as being dead [Younger (1989)]. It seems likely that many people in the UK, even within the medical profession, also think in this way. This contributes to the appearance of a consensus, but it is a fragile one. How should we treat patients who are certainly dying but who are not unconscious? If someone who is dying wishes to donate his organs, why could they not be harvested before his death? [For otherwise it might be impossible to retrieve his major organs.] How should we treat patients who are unconscious but who are not dying, like those in a so-called 'persistent vegetative state'? Could they be used for their organs?

Whatever our answers to these questions it is clear that they take us far away from the simple identification of brain death with death itself. These further questions are closely linked to support for euthanasia [explicit in Singer (1995)], which again is an issue that needs to be examined explicitly and publicly and not simply taken for granted. Even if this utilitarian mindset does exist within the medical profession in the UK, which one hopes is rarely the case, it is *not* the official

rationale for identifying brain death with death. It is here made explicit only so that it can be set aside. The medical profession clearly thinks that brain dead patients are actually and truly dead, not just 'as good as dead'.

Personal death

There is however a further confusion that is much more evident in the official and unofficial statements of the British medical profession on this issue. The profession is confused as to whether brain death is thought of as death because it implies the death of the *body* as a whole, or whether brain-death is thought of as death because it signals the irreversible end of *mental* life.

On the one hand it has been argued that the brain is the organ that integrates and organises the rest of the body. So, it is argued, when the brain is completely dead, the body has no centre and cannot be thought of as a living organism. The organs may still be alive but the system as a whole is defunct and only the continual support of artificial ventilation gives the temporary appearance of continued life. In reality the body is dead.

This argument has the great benefit of keeping the traditional account of death: death is the death of the body as a whole. It explains why brain death can be thought of as death, and does not involve any new and intractable ethical problems - like those of euthanasia. However, this approach, which is the standard approach in the USA [Presidents Commission (1981), Lamb (1985), (1996)] and has been used very widely in this country, suffers from empirical counter-evidence. First it is not clear that, in the syndrome usually diagnosed as brain death, the *whole* brain is *entirely*

destroyed. Residual hormonal function, maintenance of blood pressure and the presence of certain reflexes, as well as the presence, in some cases, of measurable electrical activity in the brain, particularly in response to stimuli, all cast doubt of the supposedly 'total' character of brain death [McCullagh (1993), Byrne (1993), Kaukinen (1995)]. Most strikingly, the beating-heart cadaver often has to be *anaesthetised*, or paralysed, to prevent it reacting to the operation; otherwise blood pressure sometimes rises dramatically when the incision is first made [Evans (1989)]. The supposition that the body cannot maintain itself as a system without a functioning brain is also one that is open to question. There have been cases, particularly among children, where brain dead patients have been 'maintained' for many weeks. The continued functioning of the body as a whole - blood flow, metabolism, body heat, blood pressure, growth, healing - is evidence that the body is not dead [Seifert (1989), Jones (1995), Shewmon (1997), cf. Jonas (1974)]. For such reasons many people, again including medical professionals, prefer to believe that what is significant is not the death of the body, but the 'death of the person' [Gillon (1990), Gillet (1990), Lizza (1993)].

The complete functional destruction of the brain cuts the person off from all personal life and consciousness, not temporarily but permanently. What is most characteristic of human life - personal interaction - is now impossible. It seems that whatever we wish to say about the continued sustaining of the body, the *person* is 'gone'. The only thing that stops persistently 'vegetative' patients from being defined as brain dead is the greater possibility of recovery or of

misdiagnosis. PVS is a less reliable diagnosis than brain death.

However, while this solution [explicitly proposed as early as Beecher (1968)] has the virtues of being clear and of side stepping the empirical evidence for continued *biological* life for the body-as-a-whole, it represents a radically new definition of what constitutes human death. The human being is no longer seen as a living bodily organism, as a rational *animal*, but rather as a consciousness, a *res cogitans*. So being human and a living organism is not enough to qualify as being a person. It is also necessary to be able to *demonstrate* consciousness. This is presumably because it is our rational, linguistic abilities that distinguish us from other animals. But, in that case, human beings who do not possess the ability to communicate linguistically, such as babies and the severely mentally handicapped, should also be excluded as non-persons. Life is no longer defined as human bodily life, and death is no longer defined as human bodily death, but extra qualifications are now being demanded. This attitude relies at some level on a *dualistic* separation of the human person from the bodily animal. While this idea appeals to a sort of popular philosophy, or popular religious separation of body and soul, in fact there are strong philosophical and theological arguments against this sort of dualism [Braine (1992), Kerr (1997)]. However we resolve the question, it is clear that it is not simply a medical matter or an uncontroversial piece of 'common sense'. Rather, it is a subtle conceptual or, if you like, *metaphysical*, argument and one that impinges on the traditional medical and legal understanding of death.

An agreed UK definition of death

In this context one can see what led to the curious and *ad hoc* 1995 proposal for a definition of death. On the one hand brainstem death as it is diagnosed in the UK clearly does not exclude all bodily functions. It excludes many but not all. Thus one basic vital function, the ability to breathe spontaneously, has been picked out as somehow the 'essential' sign of the life of the body. However, lack of spontaneous breathing on its own is clearly insufficient on its own, for it is possible to be dependent on a ventilator while still being conscious! So breathing and consciousness are just put side by side as two signs of life, either of which is enough to count in favour of still being alive. But why just these two signs of life? Why is breathing so much more important than heartbeat, body heat or blood pressure? There is no convincing reason that can be given for just picking out this one sign of bodily life. If, on the other hand heartbeat and body heat do not count, why bother so much about spontaneous breathing? Surely once the 'person' is gone then *all* these functions are at the level of autonomic biological reflexes.

The proposed definition is, however, helpful for several reasons.

- First it calls attention to the need for a *definition* of what constitutes death, which is more basic and more general than the current agreed *criteria* for the *diagnosis* of death.
- Secondly it shows up vividly the weakness of the present working definition of death, more a reflection of actual practice than a rationally based definition in its own right.
- Thirdly it shows how the question of the definition of

death, while it has important medical implications, is not itself a *medical* question, and thus the opinions of medical professionals have no more weight than those of other thinking people.

A widespread consultation and examination of the question of a definition of death, at the political and legal level, would place this decision where it belongs, at the level of society and not just with medical practitioners. The combination of reasons behind the current practice has led to a consensus that is intrinsically unstable and a pattern of practice that is more questionable than it at first appears. The suggestion of this writer is that death should be defined as:

The irreversible cessation of all integrated functioning of the human organism as a whole, mental or physical.

Medical practitioners could argue in practice to what extent and how brain death or brainstem death fulfilled this definition, but death itself should not be defined in 'personal' or neuro-physiological terms. Developments in intensive care and transplant medicine have raised questions that are not only of a practical but also of a conceptual kind. Before discussion of particular *medical criteria* can start there must be a clear idea of what constitutes human death.

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