Les Cahiers de droit

The determination of the moment of death with particular reference to the transplant of human organs

Jack Mooallem

Volume 12, Number 4, 1971

URI: https://id.erudit.org/iderudit/1004988ar
DOI: https://doi.org/10.7202/1004988ar

See table of contents

Publisher(s)

Faculté de droit de l'Université Laval

ISSN

0007-974X (print)
1918-8218 (digital)

Explore this journal

Cite this article

Mooallem, J. (1971). The determination of the moment of death with particular reference to the transplant of human organs. *Les Cahiers de droit*, *12*(4), 613–644. https://doi.org/10.7202/1004988ar

The determination of the moment of death with particular reference to the transplant of human organs

Jack MOOALLEM

		Page
	Introduction	614
I.	The Definition and Determination of Death	614
II.	The Challenge of Human Organ Transplantation	622
III.	Human Heart Transplantation	627
IV.	Ethical Considerations	630
V.	The Decision Not to Prolong Human Life and its Legal Connotations	635
	Conclusion	640

(1971) 12 *C. de D.* 613

INTRODUCTION

We must be humane, but also human.

The determination of the moment of death in relation to the transplantation of vital human organs is of considerable practical interest in view of the astonishing rate at which medical knowledge is currently progressing. The body's rejection against alien substances is the most important single factor which impedes the success of human organ transplants and renders them as still in the experimental stage.

While it is of prime importance to the transplant surgeon that the vital organ be removed from the donor's cavity as quickly as possible in order to increase the chances of success of the operation, it is equally pertinent that the organ not be removed until such time that the donor has satisfied the generally accepted medical and legal criteria of death. The problem that the physician faces is that there is no one generally accepted and enforced criterion of death within each or between the two professions. He must therefore satisfy the most stringent criteria of his particular time in order to escape civil and criminal liability.

Furthermore, the recipient of a vital human organ is faced with the loneliest and most frightening moment of his life. Those vital processes by which he lives and which alone distinguish him from the dead will be undertaken by man-made machines while his body undergoes alteration. He will then wake up with a life-sustaining organ which was extracted from a cadaver. This truly is a most unique feeling.

Then there are the ethical, moral, and religious connotations which must be considered during the formulation of a criterion of when death is held to have occurred.

The following chapters attempt to touch the surface of a satisfactory response to some of the more important considerations in deciding when a person is said to be dead. It is hoped that a greater awareness of the difficulties involved will thereby be achieved subsequent to a reading of this article.

CHAPTER I

THE DEFINITION AND DETERMINATION OF DEATH

A person dying is still a person living, and he keeps his elementary human rights up to the moment when life becomes extinct.

— GIERTZ

Life and death, the two enigmas of human existence, are more difficult to segregate through practical definition than is the determina-

tion of when day has ended and night has begun. The definition of death is burdened by heavy philosophical, religious, legal, medical, cultural, and emotional connotations. Each individual, in his search for such a definition, will unavoidably be influenced by his own background, values, and bias.

Although death is a common and unavoidable human event, it has no quality of its own. While physicians try to forestall it or at least to minimize the pain and suffering of its occurrence, attorneys handle the legal consequences which flow from it. The physician, lawyer, and layman all are aware of what death is and do not need a definition to aid their understanding of its true nature. As a result, what death is involves no mystery; however, how, why, or when it occurs is often difficult to determine.

Since death is such a simple and basic term, any attempt to legally define it may result in confusion rather than enlightenment. The logical purpose of a definition is to make this abstract term more definite and understandable by analyzing and restating it in terms which may lead to workable criteria. It is feared that any attempt to legally define death will probably result in the exact opposite of this purpose.

However, the goal of legal justice is usually enhanced by a clear understanding of the precise meaning of terms and, therefore, definitions play an important role in an attorney's professional manipulation of words. Death, nevertheless, is recognized as one of those terms that are sufficiently understandable without definition in most cases before a court. Courts have therefore rarely attempted to define death as a result of the lack of a general legal necessity to do so.

Within the last century, legal research has disclosed only eight instances in which a court has made any attempt at a definition of death.[1] Only one of these cases concerned a criminal trial related to homicide in which the precise meaning of death could be most critical. Four of these cases involved inheritance and one involving each of insurance, property rights, and judicial procedure.

The sole criminal case was *Evans* v. *New York*, (1872) 49 N.Y. 86. This case concerned a charge that the accused attempted to cause the death of an unborn child through abortion. Two infants were subsequently delivered prematurely and survived. Although there was no need to define death, the court chose to in explaining its ruling by stating at p. 90:

> **Death is the opposite of life ; it is the termination of life, and death cannot be caused when there is no life. There must be a living child before its death can be produced.**

The four inheritance cases arose under statutory provisions which, in effect, divide the inheritance between the heirs of both testators

[1] Richard P. BERGEN, "Death, Definition and Diagnosis": *The Journal of the American Medical Association,* June 9, 1969, Vol. 208, No. 9, p. 1759; and Edwin J. HOLMAN, "The Time of Death": *The Journal of the American Medical Association,* December 9, 1968, Vol. 206, No. 11, p. 2603.

unless there is sufficient evidence to establish that they did not die simultaneously.

In *Thomas* v. *Anderson,* (1950) 215 P. 2d 478, two unrelated owners of a house suffered heart attacks within minutes of each other. While physician witnesses claimed there was no foundation for a medical determination as to which died first, nonexpert eyewitnesses testified, on the basis of observation of respiration and pulse, that one died before the other. The jury believed the eyewitnesses and held that the house was to be inherited by the heirs of only one of the owners. The appeal court justified its acceptance of the jury verdict by stating on page 481:

> As defined in *Black's Law Dictionary,* third edition, "death is the cessation of life; the ceasing to exist; defined by physicians as a total stoppage of the circulation of the blood, and a cessation of the animal and vital functions consequent thereon, such as respiration, pulsation, etc." While it may be said that persons who are alive at the same time are living simultaneously, death occurs precisely when life ceases and does not occur until the heart stops beating and respiration ends. Death is not a continuing event and is an event that takes place at a precise time.

The courts in the other three inheritance cases also accepted this *Black's Law Dictionary*[2] definition which is unchanged in the current edition. *In Re Estate of Schmidt,* (1968) 67 Cal. Reptr. 847, featured the conflicting medical opinions as to whether a wife survived her husband. The trial court accepted the opinion of those experts who claimed that the wife survived the husband by at least a few minutes, on the basis of eyewitness reports of heavy bleeding of some respiration. The court of review upheld the trial courts' acceptance of the *Black's Dictionary* definition and rejection of the suggested definition in terms of the inability to resuscitate or an irreversible coma by stating:

> While interesting, (it) has no relevance to the facts of the instant case, as there was no evidence that Max (the husband) was resuscitable during the period of time in question.

The same dictionary definition was accepted in *Schmidt* v. *Pierce,* (1961) 344 S.W. 2d 120, where there were conflicting opinions of medical experts in the interpretation of autopsy findings in relation to a wife's survival of her husband's death.

The fourth inheritance case of *Smith* v. *Smith,* (1958) 317 S.W. 2d 275, presented an extremely unusual aspect arising from a husband and wife death. Here, the wife remained in an unconscious state for seventeen days until all hope for her recovery was abandoned. The husband's brother had acted for her as executor of her husband's estate on the basis that she was hospitalized in a coma and incapacitated from acting as executor for an undeterminable time period. In spite of these facts, the brother subsequently contended that, "as a matter of medical science" the wife died simultaneously with the husband at the time of

---

[2] H. C. BLACK: *Black's Law Dictionary,* Ed. 4, St. Paul, Minnesota: West Publishing Co., 1951, p. 1073.

the accident since both concurrently relinquished their power to will, to administer the estate of the other, and to enjoy the estate of the other. The court rejected this contention and, after quoting the *Black's Dictionary* definition of death, stated on page 279:

> **Admittedly this condition did not exist, and as a matter of fact, it would be too much of a strain on credulity for us to believe any evidence offered to the effect that Mrs. Smith was dead, scientifically or otherwise, less the conditions set out in the definition existed.**

Even without this dictionary definition, it would be quite inconceivable that anybody would believe that the wife was dead before she arrived at the hospital and was then put under medical attention for seventeen days. The Court was apparently surprised by the notion that death could occur from a legal point of view prior to the cessation of all bodily functions, including the cessation of the heart beat.

The insurance case of *Douglas* v. *Southwestern Life Insurance Co.*, (1964) 374 S.W. 2d 788, involved a claim for accidental death benefits, payable if death occurred within ninety days after an injury. The insured was maintained in an unconscious state in a hospital for 120 days subsequent to the accident through the use of extraordinary medical measures. Due to the lack of a definition of death in the insurance policy, the beneficiary contended that death should be construed as "the act of dying" and that benefits should be paid since the insured was in the act of dying within the required period. The court rejected this contention and held at page 793:

> **Death is not an ambiguous term, and there is no room for construction. Death has been defined as the termination of life and as the state or condition of being dead.**

In the real estate case of *Finch* v. *Edwards,* (1946) 189 S.W. 2d 665, certain rights depended on whether the resignation or refusal to serve on the part of a trustee was the equivalent of death under the terms of a trust indenture. The appelate court rejected this claim in holding on page 670:

> **"Death" when used with respect to a person is commonly and ordinarily understood to mean departure from life. We are unable to see how it may be constructed as used in this indenture as a resignation of ceasing to function as a trustee.**

The judicial procedure case of *Telefilm Inc.* v. *Superior Court in and for Los Angeles County,* (1948) 294 P. 2d 542, concerned a case where the judge who had presided at the first trial died subsequent to a $300,000 judgment being entered on a verdict in a related suit and a motion for a new trial being filed. The suit was assigned to another judge who ordered a new trial. This action contested the jurisdiction of the court to grant the new trial. *The California Code of Civil Procedure* provided that a new trial could be ordered only by the judge of the original trial, except in the case of this inability of that judge or his absence from the country. The appellate court held that there

was an absence of jurisdiction to order a new trial on the grounds that the terms "inability" and "absence" can only apply to a "person" and that the dead judge was not a "person". The court held on page 547:

> After death one is no longer a person ; he possesses no consciousness, no ability of apprehension or rationality ; he ceases to be a human being and becomes a corpse. "Death" is "the cessation of all vital functions without capacity of resuscitation." *Webster*, p. 676 : It is axiomatic that a corpse is not a person.

Thus, illogical consequences may result from the juggling of definitions and lead to utter confusion. In all these eight cases, it was certainly unnecessary for the court to make an attempt at a definition of death since the issues could have been and were in fact easily resolved on other grounds.

A recently suggested legal definition describes death as the final and irreversible cessation of perceptible heartbeat and respiration. Conversely, so long as any heartbeat or respiration can be perceived, either with or without mechanical or electrical aids, and regardless of how the heartbeat and respiration were maintained, death has not occurred.[3]

Legal as well as medical definitions of death lack any intrinsic uniformity and scientific exactness as evidenced by such diverse phraseology as "somatic death", "physical death", "functional death", and "legal death". Furthermore, legal and medical definitions often circumscribe different areas and consequently different moments of death in similar circumstances or for the same individual. This is largely due to the rapidly changing medical techniques regarding the viability of cells, the artificial postponement of death, and even the reversibility of death through organ transplantation.

The commonly accepted but unofficial medical definition of death as often applied by practicing physicians involves (1) insensibility, meaning clinical absence of cerebral activity and reflexes, (2) cessation of respiration, (3) cessation of circulation, and (4) irreversibility.[4]

Extraordinary medical definitions include the concept of functional death which could apply to a person with a totally and permanently destroyed central nervous system who is sustained by artificial means.[5] This functional concept was also used in the following definition:

> The death of a living organism is the disintegration of its unity, interruption of interrelations of the organs and systems both with each other and the external environment.[6]

---

[3] M. HOUTS: *Courtroom Medicine*, San Francisco: Matthew Bender, 1967, Vol. 3, s. 1, pp. 1–21 at p. 17.

[4] M. Martin HALLEY and William F. HARVEY, "Medical *vs* Legal Definitions of Death": *The Journal of the American Medical Association*, May 6, 1968, Vol. 204, No. 6, p. 103 at p. 104.

[5] *Ibid.*, p. 105.

[6] V. A. NEGOVSKY, "Some Physiopathologic Regularities in the Process of Dying and Resuscitation": *Circulation*, March 1961, Vol. 23, p. 452.

Pope Pius XII in 1957, stated:

> **Human life continues for as long as its vital functions, distinguished from the simple life of the organs, manifest themselves without the help of artificial process.[7]**

The judicial definition of legal death crystallizes around the following criteria: (1) cessation of "vital functions", not specifically defined but at least including the central nervous system, respiration, and circulation; (2) cessation of respiration, indirectly including the brain which is the center of respiration; (3) cessation of circulation, including cardiac action as manifested by pulsation or special tests; and (4) impossibility of resuscitation.[8]

As a result, the legal concept of death rejects theories of functional death while important organ systems remain alive.

Doctors M. Martin Halley and William F. Harvey, concerned over the discrepancy between the legal and medical definitions of death, proposed a general definition of human death:

> **Death is irreversible cessation of *all* of the following: (1) total cerebral function, (2) spontaneous function of the respiratory system, and (3) spontaneous function of the circulatory system. Special circumstances may, however, justify the pronouncement of death when consultations consistent with established professional standards have been obtained and when valid consent to withhold or stop resuscitative measures have been given by the appropriate relative or legal guardian.[9]**

The need for a legal definition of death in precise scientific terms commonly is a result of physicians' fears that such a definition would be necessary in order to afford them legal protection when they declare someone dead. This expected protection is quite illusory since such a legal definition may easily expose them to even greater risks.

Although the meaning of death is quite clear, the accurate determination of the time of death, the cause of death, or the occurrence of death does create some problems. As a general rule, these determinations are usually a matter of differential diagnosis through the exclusive expertise of physicians. Since twentieth century medical conditions certainly are evidence of the need for the establishment of more modernized scientific for such diagnosis, it surely is up to the medical profession to establish such a new criteria. The usual medical process of scientific investigation, scientific evaluation, scientific critiques, and eventual acceptance or rejection by the medical profession should be used in the creation of a scientific definition of death, just as is done for the establishment of a criteria for the diagnosis of any other human condition or illness. In any case, a legal definition of death is certainly not the answer.

---

[7] PIUS XII, "The Prolongation of Life": *Pope Speaks,* 1958, Vol. 4, No. 4, p. 393.
[8] *Op. cit., J.A.M.A.,* HALLEY and HARVEY, p. 105.
[9] *Ibid.*

The *Ad Hoc* Committee of the Harvard Medical School to Examine the Definitions of Brain Death pointed out:

> From ancient times down to the recent past it was clear that, when the respiration and heart stopped, the brain would die in a few minutes; so the obvious criterion of no heart beat as synonymous with death was sufficiently accurate. In those times the heart was considered to be the central organ of the body; it is not surprising that its failure marked the onset of death. *This is no longer valid when modern resuscitative and supportive measures are used.* These improved activities can now restore "life" as judged by the ancient standards of persistent respiration and continuing heart beat. This can be the case even when there is not the remotest possibility of an individual recovering consciousness following massive brain damage (emphasis added).[10]

The Harvard *Report* specifies the following as the characteristics of death: (1) unreceptivity and unresponsitivity — a total unawareness to externally applied stimuli and inner need and complete unresponsiveness; even the most intensely painful stimuli evoke no vocal or other response, not even a groan, withdrawal of a limb, or quickening of respiration; (2) no movements or breathing — at least a one hour observation by physicians is adequate to satisfy this criterion; if the patient is on a mechanical respirator, observation is necessary for three minutes after the respirator has been turned off provided that at the start of the trial period the patient had been breathing room air for at least ten minutes; (3) no reflexes — the pupil will be fixed and dilated and will not respond to a direct source of bright light, ocular movement to head turning and to the irrigation of the ears with ice water and blinking are absent; swallowing, yawning, and vocalization are absent; (4) flat or isoelectric electroencephalogram — of great confirmatory value; and (5) all the above tests shall be repeated at least 24 hours later with no change. The *Report* also flatly states that "the patient's condition can be determined only by a physician".[11]

As far as simultaneous death is concerned, the criteria of the Harvard *Report* appear to be determinative as to which of the deceased persons, if any, survived the others. The testimony of medical expert witnesses, while appropriate, would only be evidence to be appraised along with other evidence before the court.

The Harvard *Report* suggests that if responsible medical opinion is ready to adopt these new criteria for pronouncing death in relation to an individual sustaining irreversible coma as a result of permanent brain damage, the basis for change in the current legal concept of death may be found. Since the courts treat this question essentially as one of fact to be determined by physicians, there would be no need for any statutory changes in the law. Legislation would only become

---

[10] *Ad Hoc* Committee of the Harvard Medical School to Examine the Definition of Brain Death, "A Definition of Irreversible Coma-A Special Communication": *The Journal of The American Medical Association*, August 5, 1968, Vol. 205, No. 6, p. 337 at p. 339.

[11] *Ibid.*, pp. 337-338.

necessary if physicians were unable to agree on these new medical criteria.[12]

The *Report* concludes by stressing that judgment of the existence of these criteria be solely a medical issue to be determined by physicians in consultation so that responsibility is shared over a wider range of medical opinion, thus providing a stronger degree of protection against any subsequent inquiries concerning the particular case. In order to avoid any appearance of self-interest by the physicians involved, the *Report* suggests that the decision to declare a person dead should not be made by physicians who might later be involved in an effort to transplant human organs or tissue from the deceased individual.[13]

The universal acceptance of the Harvard *Report* by the medical community and the coroner would certainly tend to obviate the possibility of disagreement. Any lack of agreement between the human organ transplantation team and the coroner could lead to a judicial confrontation between medical experts resulting in a legal determination of the definition of death.

The Canadian Medical Association, before the 65th council session of the Medical Ethics Committee of the World Medical Association on February 10–14, 1969, stated that it has approved the definition of death in terms of cerebral function and has approved the use of the recommendations in the Harvard *Report* as a suggested aid to be used in determining death.[14]

At the same council session, the Royal Netherlands Medical Association proposed that the World Medical Association should formulate and adopt at its 23rd Session in Paris, France, June 22–28, 1969, specific criteria of death and have it accepted by all member countries of the World Medical Association.[15] The World Medical Association subsequently adopted the recommendations of the Harvard *Report* as one of several aids but stressed that no single technological criterion would be entirely satisfactory in the present state of medicine. In any case, the overall judgment of the physician should be the determining factor. Thus, a subjective criterion with objective aids has resulted.

Any anachronism resulting from the dictionary definition of death is solely a matter for its editor. By analogy, if the determination of the time of death for medical and legal purposes is anachronistic, that is a matter of concern for both attorneys and physicians. In the public interest, it is imperative that the medical profession seeks widespread agreement within its membership on scientifically accurate and reliable

[12] *Ibid.*, p. 339.

[13] *Ibid.*

[14] Canadian Medical Association, "Statement on Death, November 1968": presented to the Medical Ethics Committee of the *World Medical Association* at its 65th Council Session in Montevideo, Uruguay on February 10–14, 1969, Document 17.13/69, of the World Medical Association.

[15] Royal Netherlands Medical Association, "Criteria of Death": presented to the Medical Ethics Committee of the *World Medical Association* at its 65th Council Session in Montevideo, Uruguay on February 10–14, 1969, Document 17.14/69 of the World Medical Association.

criteria for the diagnosis of death. The Harvard *Report* seems a solid step in the right direction. Equally in the public interest, the legal profession, after having satisfied itself that these criteria have been accepted by the medical profession on an objective and nonpartisan scientific basis, should recognize them as the basis on which a medical witness is to determine the fact of when death has occurred in every situation where this is a relevant legal issue.

The voluntary acceptance of such medical criteria for the diagnosis of death will offer sufficient flexibility so that medical progress will not be unnecessarily impeded and so that legal issues will not be confused by unnecessary judicial pronouncements as well as legislation on this purely medical issue.

CHAPTER II

THE CHALLENGE OF HUMAN ORGAN TRANSPLANTATION

Science has made us gods before we are even worthy of being men. — ROSTAND

The problems relating to human organ transplantation have been largely obscured by the publicity that such noble medical advances have received in recent years. Nevertheless, these problems fail to lose their staunch reality through their relative obscurity.

For centuries, medical science has sought to elude certain death through the replacement of diseased or injured organs by healthy ones. From 1900 to 1930 only sporadic grafting of skin from one human to another had been attempted. Then in the late 1920's, Dr. Padgett of Kansas and Dr. Brown of St. Louis demonstrated the successful transplant of skin between two twins with identical genetic features. With the advent of World War II, Doctors T. Gibson and P. B. Medawar demonstrated that skin transplants between genetically dissimilar members of the same species was possible. Thus, it has only been within the past two decades that such efforts of transplantation have proved successful.[16]

The initial human organ transplantation was performed in Boston in 1954. This concerned the successful transplant of a healthy kidney from one identical twin into the other who was suffering from a surely fatal case of kidney failure. In 1959 the first successful human organ transplantation between humans other than identical twins was performed. This was a kidney transplantation between two fraternal twins.

[16] Joseph E. MURRAY, "Organ Transplantation: The Practical Possibilities": *Ciba Foundation Sysposium on the Ethics in Medical Progress: With Special Reference to Transplantation*, edited by G. E. W. Wolstenholme and Maeve O'Connor, 1966, J. & A. Churchill Ltd., London, pp. 56-57.

Today, more than two thousand kidney transplants have been performed with a good percentage of the recipients surviving for as much as four years with adequately functioning kidneys. The kidney is the current-day prototype of the spare part organ because kidneys come in twos, because it is not difficult for a person to live normally with only one, and because the characteristics and functions of the kidney lend themselves favorably to transplantation.[17]

In 1963 the first lung transplant took place in the United States. Although several sporadic attempts then followed, none have proved to be truly successful. The lung would also lend itself well to transplantation since it likewise is a paired organ with favorable surgical features; however, its transplantation has not yet proved to be adequately feasible.[18]

The liver seems the most feasible non-paired organ for successful transplantation. Since its surgical technique is more demanding than that of the kidney transplantation and since the sole source of the liver must be a cadaver, its complex function and relative unavailability renders its transplantation extremely difficult. Several fairly unsuccessful yet instructive attempts have been made on humans to date.

Since the heart is principally a pump consisting of tissues from a germinal source and its functions are therefore less complex than that of other organs, it is a feasible organ to transplant. Several relatively successful attempts have been made at its transplantation subsequent to the pioneering Blaiberg operation of December 3, 1967. However, human body rejection problems still impede the way to a truly successful heart transplant.

While endocrine gland transplants have been attempted, the missing glandular secretions have been successfully substituted by replacement drugs and thus their urgency is not imminent. The thyroid, parathyroid, adrenal, ovary, and testes have all been experimentally transplanted in humans but their function is difficult to document and therefore the degree of their transplantation successfulness is yet of unknown quantity.

In the future, it may become possible to transplant human reproductive organs or even the brain. The needs of space travel may conceivably require the grafting of accessory organs to meet the unanticipated physiological requirements. As can be seen, the practical possibilities are so limitless that the future progress of human organ transplantation must anticipate the accompanying problems that are often overshadowed. Thus, the ethical, moral and religious difficulties that arise with the traditional medical and legal implications are of great concern to the community at large.

The most perplexing medical problem is that of obtaining donors of body organs. This problem is burdened by the conditions and

[17] *Ibid.*, pp. 57-58.
[18] *Ibid.*, p. 63.

circumstances under which these human organs are donated. The donation is usually made under circumstances of great emotional trauma since the organ to be transplanted must usually come from a recently deceased person. The decision of granting permission for such a donation, if made by a surviving relative, is usually made during a period of substantial grief and minimum rationality. This is truly a task for the behavioral scientist.

Human organ transplantation also has a substantial effect on religion since it involves the interpretation of the question of death. The reincarnation view contemplates a series of successive spiritual embodiments in different physical bodies. It would be least theologically offensive to this view to have a dispersion of human organs to several persons since the substance of this doctrine is several bodies but only one soul.

The resurrection doctrine would also probably condone human organ transplantation since this view contemplates a spiritually renovated body such that there would be a renewal of life at a future date in a tangible body. Thus, the transformation from physical to essentially spiritual existence could presumably transcend the transplantation of human organs.

However, a completely different problem emerges from the resuscitation view that human bodies will be restored at some future time. This concept seems quite incompatible with the transplantation or even donation of human organs.

As a result, these theological problems will have to be dealt with in the case of the millions of people who hold a religiously incompatible view on the doctrines of re-embodiment.

A major medical barrier regarding human organ transplantation is that the human body regards transplanted tissues as foreign and usually attempts to reject them soon after transplantation. The rejection reaction becomes more rapid and vigorous as the genetic difference between the donor and recipient becomes greater. As a result, animal to human transplants (heterotransplantation) are rarely successful. Grafting procedures between identical twins (isotransplantation) and transplants from one part of a person's body to another (autotransplantation) are almost universally successful unless some technical problems develop.

Although every human organ can withstand a lack of blood supply (ischemia) for a specific period of time, the shorter that time, the greater will be the viability of the organ for the purpose of transplantation. Physicians have therefore been anxious to remove organs from dead bodies as soon as possible, preferably maintaining the circulation by natural or artificial means during the period of removal.

In some cases, a certain period of ischemia has proved advantageous due to its ability to destroy some of the antigenic qualities of the transplant and therefore enable it to be more readily accepted by the recipient.

This has recently proved true in the case of kidneys.[19] The chances for survival of kidneys is quite favorable if they can be removed and perfused in less than one hour after cessation of circulation of the donor. Kidneys usually will not keep for more than four hours. However, in 1968, Dr. F. O. Belzer of the University of California disclosed his invention of a kidney preserver which he anticipates will keep kidneys in useable condition for up to three days. This would enable surgeons to conduct a more thorough test of matching the tissue and selecting a compatible recipient who would accept the kidney with a minimum of bodily rejection.[20] In addition, Canadian researchers at McGill University have also announced the development of a new freezing technique, intra-arterial helium perfusion, that may enable the preservation of kidneys for future transplantation.

On the other hand, the ischemia time in the transplantation of human hearts is shorter, and a sucessful transplant may even require the removal of a beating heart.

It is therefore medically imperative that the moment of death be specifically determined so that transplantation procedures may commence as rapidly as possible in pursuance of a successful operation. It is suggested that the criteria in the Harvard *Report*, discussed in the previous chapter of this article, be favored in defining death in terms of "brain death" rather than the traditional "heart death". This innovation should satisfy the current requirements of the modern age of heart transplants. This would enable the removal of an organ while the heart is still beating and, if the transplanted organ is the heart itself, this would enable the transplantation of a still beating heart, so long as brain death has been declared to have occurred.

The essential problem in the field of human organ transplantation concerns those transplants that are said to occur in the "twilight zone" between life and death of the donor. The two functions of respiration and of the heart beat may now be maintained by artificial means. Forceful massage of the heart by stimulation through an electric pacemaker may cause the heart to continue to beat. Many instruments are now able to artificially ventilate the patient. Although a patient suffering from a massive brain hemorrhage is often unable to breathe, an automatic respirator will prolong his life considerably. However, if the artificial respirator is turned off, the circulation and heart will quickly stop.[21]

On the other hand, it would be incorrect to define death solely in terms of dependence on artificial means. Artificial respiration may

---

19 Gunnar BIÖRCK, "When is Death?": *Wisconsin Law Review*, 1968, Vol. 484, No. 2, p. 491.

20 J.-G. CASTEL, "Some Legal Aspects of Human Organ Transplantation in Canada": *The Canadian Bar Review*, September 1968, Vol. XLVI, No. 3, p. 350.

21 David W. LOUISELL, "Transplantation: Existing Legal Constraints": *Ciba Foundation Symposium on the Ethics in Medical Progress: With Special Reference to Transplantation*, edited by G. E. W. Wolstenholme and Maeve O'Connor, 1966, J. & A. Churchill Ltd., London, p. 91.

support a patient who is unable to breathe due to paralysis by poliomyelitis, yet this individual may be in normal mental condition.

People have even subsisted for considerable lengths of time at a vegetative level due to considerable brain destruction, still sustaining the basic breathing, circulation, swallowing, and excretion functions. Nevertheless, this has not been termed synonymous to death.

The following case report is truly a prime example of what may result in the absence of universal criteria for the definition of death:

> Recently, physicians from the Karolinska Institute received international attention when they removed a kidney from a 40-year-old dying woman and transplanted it into the recipient. The donor had suffered a cerebral hemorrhage and was brought into the neurosurgical clinic in a comatose condition. Her condition had been pronounced hopeless. While she could not, herself, be asked to consent to the removal of the kidney, the operation was performed with her husband's approval. She died in a respirator two days after operation. Professor Craaford defended the action and the principle. He said that he and his staff had previously agreed that in cases in which irreparable damage to the central nervous system had occurred, and which the prognosis with 100 per cent certainty could be deemed hopeless, the possibility could be considered of removing a kidney for transplantation before what is currently interpreted as "death" had occurred. It was his opinion that if the physician were to wait until death, in the conventional sense, the possibility of a successful transplantation would have decreased tremendously. The position taken by the Swedish physicians is based upon a liberal interpretation of the definition of death. In their particular case, neither respiration nor circulation had ceased and the patient was not, according to the information at hand, dependent upon either of these mechanical means for support. The brain may have been irreversibly damaged, although neither respiration nor circulation had failed.[22]

The unreported case of *R.* v. *Potter* provides an insight into the need for a universal definition of the moment of death:

> An inquest was held in Newcastle on a man who fell backwards on to his head after being butted in a fight. About fourteen hours after admission to hospital he stopped breathing and was connected to an artificial respirator. Twenty-four hours later, with his wife's consent, a kidney was removed and grafted into another man. After the nephrectomy the respirator was disconnected and it was found that there was no spontaneous respiration or circulation of the blood. A medical witness said that the man had virtually died at the time when he was put on the respirator, although it would be legally correct to say that death did not occur until 24 hours later, when breathing and the heart heat had ceased.
>
> The cause of death was cerebral damage associated with a fractured skull. A neuro-surgeon said that there was no hope of survival from the brain injury and that the patient was only put on the respirator because a kidney was wanted for transplantation. The recipient of the kidney died 3 weeks later. The assailant was committed for trial by the Coroner after a jury's verdict of manslaughter. The Coroner had consented to the removal of the kidney

[22] C. E. WASMUTH and B. H. STEWART, "Medical and Legal Aspects of Human Organ Transplantation": (1965) 14 *Cleveland-Marshall Law Review* 467.

> in accordance with the Human Tissue Act, 1961, section 1 (5) and the jury found that this had not contributed to death.[23]

As a result, the traditional classical indications of death require re-examination in the light of current medical requirements for prompt removal of organs for transplantation. This may be achieved by the collaborative and precise thinking of the behavioral scientist, theologian, physician, and lawyer. It is respectfully submitted that the Harvard *Report* is a giant step in the right direction.

CHAPTER III

HUMAN HEART TRANSPLANTATION

> *One small step for man, one giant leap for mankind.* — ARMSTRONG

In February of 1969, a doctor in Japan was indicted for double murder for transplanting a human heart from one individual into another, both of whom subsequently died.[24] This truly focuses the spotlight on the problem confronting the medical and legal professions in this age of organ transplantation.

With the advent of the transplantation of non-paired human organs such as the liver and heart, the physician was faced with a unique situation since the donor could not survive the operation. It was therefore necessary that the organ be extracted from the donor after he had been declared dead. However, in order for the organ to remain viable during the process of the transplantation, it was necessary that it be removed as close to the time of death of the donor as was possible. Since the successfulness of the operation was relatively proportionate to the time of the organ's extraction from the donor, the transplanting physician was truly confronted with a dilemma. Furthermore, the possibility of obtaining a viable organ would be substantially improved with an earlier declaration of the time of death of the donor, and this, of course, would directly affect the successfulness of the entire operation. In order for the transplanting physician to avoid both criminal and civil liability, it was necessary for him to abide by both the medical anl legal criteria of when death is deemed to have occurred. This truly focused attention on the need for uniformity between the two professions as to the universal determination of death.

This dilemma was vividly emphasized when the first heart transplant had been performed in 1967 :

> Denise Darvall was semi-decapitated when she arrived at the Groote Schuur Hospital in Capetown. The physicians in attendance were

[23] David W. LOUISELL, *op. cit.*, pp. 92-93.

[24] Theodore N. SOMMER, "Additional Thoughts on the Legal Problems of Heart Transplants": *New York State Bar Journal*, April 1969, Vol. 41. No. 3, p. 196.

> convinced her brain was hopelessly damaged. Her heart was kept beating by a mechanical means. According to one account, a difference of opinion developed between Dr. Christiaan Barnard and his brother, Dr. Marius Barnard, who was part of the transplant team. According to Marius Barnard, prior to the operation which was to place Denise Darvall's heart in the body of Louis Washkansky, he was of the opinion that the heart should have been removed from Miss Darvall's body before it has stopped beating. His theory was that the responsibility of the physician was to the recipient patient rather than the donor. In his opinion, although her heart was beating, Miss Darvall was dead since her brain was irreversibly damaged. However, Dr. Christiaan Barnard insisted that her heart stopped before the operation. He had his way.[25]

Dr. Christiaan Barnard might have been subject to criminal and civil liability under South African Laws had he extracted the heart from the donor prior to its cessation. This surely indicates how critical the determination of the time of death has become.

The previously cited definitions of death have thus become obsolete and modern criteria are essential in order to serve current needs. The Harvard *Report,* discussed in the first chapter of this article, clearly would serve this purpose. It has been alleged that the fourth criterion in the *Report* (that an isoelectric or flat E.E.G. is of great confirmatory value) opens the possibility for an erroneous diagnosis. This would be due to the fact that an overdose of barbiturates could render a flat E.E.G. for several hours. This possibility was recognized by the *Report* when it stated:

> The validity of such data as indications of irreversible cerebral damage depends on the exclusion of two conditions : hypothermia (temperature below 90° F. (32.2° C.)) or central nervous system depressants, such as barbiturates.[26]

Furthermore, the suggestions made in the Harvard *Report* seem unopposed to the contention that death may be pronounced as soon as it is certain that the function of any of the irreplaceable vital organs has ceased irrevocably.

The Royal Academy of Medicine in London reported that out of a group of 102 head injury victims who remained unconscious in excess of one month subsequent to their injury, as many as 63 survived and 48 of them were able to apply themselves to productive employment.[27]

On the other hand, Dr. Henry K. Beecher, chairman of the *Ad Hoc* Committee of the Harvard Medical School to Examine the Definition of Brain Death, testified at the initial hearing of the New York State Commission on Transplant of Vital Organs that out of 1,665 patients at the Massachusetts General Hospital who satisfied the Committee's definition of brain death, as indicated in the Harvard *Report,* as many as 1,662 failed to recover. Dr. Beecher indicated that the three remain-

---

[25] *Ibid.*

[26] *Ad Hoc* Committee of the Harvard Medical School, *op. cit.,* p. 338.

[27] *New York Times Magazine,* April 21, 1968, p. 120.

ing patients were victims of barbiturate poisoning and would therefore never be considered as potential donors.[28]

Although brain death, as described by the Harvard *Report,* would certainly be consistent with the current demands of transplant surgery, it would be confronted by moral and philosophical problems as pointed out by Dr. Gunnar Biörck:

> Quite another problem is whether the demands of such surgery shall be allowed to determine our concepts of life and death and medical practice. Many people feel that transplantationists should be particularly careful to urge new standards in this field which has a great risk of backlash. Any change in our concepts has to evolve gradually from a reappraisal of the biological and medical foundations of life, as they become exposed *inter alia* through the use of new, refined techniques of lifesaving and life support.[29]

Dr. Biörck is therefore suggesting that death may only be defined as the end of life. He proposes a definition of life in either a wide or more restrictive sense and puts forth the following levels, going from a wider to a more narrow concept:

Social Life : freedom, mobility, contacts.	Social Death : restrictions, loneliness, isolation.
Spiritual Life : intellectual activity, emotional experiences.	Spiritual Death : no capacity to understand and remember, emptiness.
Vegetative Life : basic life processes function spontaneously.	Vegetative Death : basic life processes cease.
Metabolic Life : basic life processes continue with the aid of artificial support.	Metabolic Death : final disintegration of cells and tissues.[30]

Therefore, while the definition and determination of death must ultimately be determined by physicians, a change in the medical definition must be considered in view of possible adverse reaction from the non-medical sphere.

The heart is not only an organ which has a biological function, for many generations it has had a great symbolic significance which has added dimension to the ethical concerns in the matter of heart transplants. As a result, a universal criterion for the determination of death must encompass these non-medical considerations in order to achieve uniform acceptance throughout the world. "Death, in other words, is endowed with positive significance when it is accepted as a necessary instrument of life, but not when it is sought as the destruction of life."[31]

---

28 *New York Times,* December 13, 1968, p. 17.

29 Gunnar BIÖRCK, *op. cit.,* p. 492.

30 *Ibid.*

31 Rev. Raymond F. COLLINS, "Heart Transplants: Ethical Considerations": *The Catholic Lawyer,* Winter 1969, Vol. 15, No. 1, p. 59.

CHAPTER IV

ETHICAL CONSIDERATIONS

Death's a great disguiser. — SHAKESPEARE

The problem surrounding the uniform determination of the signs of death is complicated by the fact that physicians rarely, if ever, deal with life and death in the abstract. They inevitably treat the problem pragmatically and consider someone as living if he has a living body which is either conscious or has a potentiality of developing into or returning to at least a minimum degree of consciousness.

An assessment of the value placed on the body of an individual before it is considered as a person must be achieved. Current medical science could probably achieve the preservation of human limbs and even a severed head and body in a "living" state. All that would presumably be necessary is that the head be attached to a heart-lung machine while the severed body and limbs be interconnected to a respirator and cardiac pace-maker. The problem would then arise as to which portion of the human anatomy would carry the personality of the individual. This situation could be brought closer to current reality by considering an analogy which would relate the severed head to an individual suffering from paralysis of the entire body below the neck and the remaining body to an infant born with merely a rudimentary brain. Most people would consider the severed head as comprising the person, but then they would be confronted with the problem of labeling the remaining body. The only logical reason for refusal to consider the severed head as the person would necessarily lie in its lack of continuity with a proper mass of anatomy which would then comprise the complete body.

There is also a problem concerning those who believe that an individual's personality lies within his soul and that the body is merely the cavity in which the soul achieves material habitation. This concept can even be carried forward to India where cows are not killed because they are believed to harbor human souls and to sailors who refrain from shooting seagulls who are believed to harbor sailors' souls. These considerations have great significance in the concept of death in a religious context. There is also widespread belief that the soul is immortal and disengages itself from the body at the moment of death in order to ascent to an unknown world as a representative of human individuality, to enter into another material cavity, or to rejoin a universal soul. Therefore, this seemingly simple medical problem is burdened by religious, ethical, philosophical, and moral complexities.

From a religious viewpoint, physicians often state there is no conflict since the religious deal largely with the meaning of death rather than the determination of the time of death. This view is supported by

Dr. J. Joncheres who stated before the 22nd World Medical Assembly in 1969 (translated from French):

> **The statement of Pope Pius XII (November 24, 1957) is quite clear: "It is for the doctor, and more especially for the anesthetist, to give a clear and precise definition of death and of the time of death of a patient who dies in a state of unconsciousness..."**
>
> **Following the recent statement by Father Riquet of L'Académie de Sciences Morales et Politiques, in which he recalled the words of Pope Pius XII and concluded that the theologians and the philosopher should not substitute themselves for the physician, who is the only one allowed to make the decision, the Great Rabbi Kaplan and the Reverend Boegner agreed.**
>
> **Monsieur Rouhani, religious head of the Moslem Shiites in Europe, declared that the Koran does not oppose the transplantation of an organ from a corpse, in order to save a human life.[32]**

The primary concern that must reach the forefront is the value of human life. It is upon human life that other human values are dependent. Consequently, the truly ethical man has consistently sought the protection of life. On the other hand, religious man considers human life as a privilege. While he acknowledges it as the source of human achievement, he more radically esteems human life as God's gift to him. He feels that life only has value insofar as it is related to God, and therefore readily admits that he does not have the final authority over its disposition. The statement of ethical principles and moral norms are now the result of a reflection of existing circumstances in the light of a particular value system.

The avoidance of death therefore has moral value only insofar as it is a means by which life itself is protected. Theological tradition interprets and celebrates death as a passage to a fuller life. As a result, the consideration of human life as a basic value, and of death as a negation of life and therefore a disvalue, is of paramount importance in the consideration of human organ transplants, especially heart transplants. The simple reason is that man initially questions the death of the donor which itself is a complex issue.

When the death of the donor is viewed as the paramount ethical issue in the matter of human organ transplantation, attention must be brought to the rights of such a donor.

The initial right of a transplant donor is his right of life. It is essential that all reasonable efforts be expended for the restoration of his state of health and well-being. In order to accomplish this end with the minimum of conflict of interests, it is suggested that two teams of surgeons be involved in every organ transplant operation. One should be charged with the duty of care for the donor, while the other team would be given the duty of care over the recipient. Only after the first

---

[32] Dr. J. JONCHERES, "Definition of Death": presented to the Committee on Medical Ethics of the *World Medical Association* at its 65th Council Session in Montevideo, Uruguay on February 10–14, 1969, Document 17.11/69 of the World Medical Association.

team has concluded that it is no longer possible to arrest the impetus of death of the donor, would the second team be given the right to involve itself with him. As a result, the patient is not treated as a donor until the first surgical team has used its prudent judgment in affirming that he has reached the point of being categorized as a deceased.

Here is where the problem of defining death will arise. Philosophically, death may be defined as the final separation of the soul from the body; clinical death may be described as the cessation of vital functions; and biological death may be characterized as the cellular decomposition of the brain. As stressed earlier in this article, the definition of death proposed in the Harvard *Report* seems to fulfill the purpose of human organ transplantation most favorably, so long as the rights and well-being of the donor are adequately safeguarded.

However precisely the determination of death may be refined, it is pertinent that the indication of death must not be equated with death itself. The personal reality of man transcends his bodily expression from a philosophical viewpoint. Man's physical body has been deemed merely as an expression of his personal being. As a result, while physical signs of death are an indication of death, they are not death itself. Rather, death itself is an irreversible and imperceptible cessation of man's vital activity. As a result, medical responsibility lies in the preservation and development of human life and not in the mere avoidance of death.

Nevertheless, the prospective donor does have the right to die since death is an irrevocable part of the human condition. Ethical, religious, and moral standards prescribe his inalienable right to die within an atmosphere of peace and dignity. It is therefore of questionable ethical quality to prolong the life of the donor in a physical rather than a personal sense with the view towards the utilization of his organs for the purposes of transplantation. While this goal is a laudable one, its procedure is quite questionable especially if it is employed contrary to his previously expressed wishes.

The donor also has the right of freedom to personally determine the final disposition of his body and its organs. The donor's right to self-disposition may never legitimately be usurped. The donor must therefore be protected from any danger of coercion, especially in this day and age where compatible donors are scarce. This right to personal autonomy also requires that the donor be supplied with all the information which may be necessary in order to permit him to make an informed and considered decision. This is principally the responsibility of the particular physicians attending the potential donor. In the United States, this right is preserved and insured through Uniform Anatomical Gift acts which recognize the prior claim of the potential donor's expressed will concerning his bodily organs and therefore facilitate the rapid execution of human organ transplantations. This results in a greater benefit to the beneficiary and recognizes the value of the donor's concern for his fellow men as the summit of moral perfection.

Furthermore, the donor is entitled to enjoy the fundamental human right of privacy which should not be disturbed by curiosity or untimely publicity.

Finally, the donor has the right to bodily respect — the right to expect considerate treatment of his body once he has succumbed. His religious beliefs and traditions must be respected in yielding to his right to a proper burial with an atmosphere of reverence and respect.

The physician is ethically and morally bound to protect and promote human life and to care for the life and health of his patients. His prior training and experience gives him the ability of being the most prudent judge in matters of life and death. Consequently, his expressed or implicit judgment carries great weight for the ethically concerned. In order to permit him to express an unrestricted medical opinion, society has a duty to insure the protection of his rights so as not to impede medical progress through fear of action.

Although experimentation is necessary for the advance of medical knowledge and the science of surgery, it is only justifiable when the welfare of man is in view and sufficient preparations have been made through experimentation on sub-human life. Society has the right of protection of its values. Human life must not be reduced to an object of clinical manipulation; it must be preserved as a subjective personal element of society. It is therefore society which is confronted by the question of who is to live and who is to die with respect to human organ transplant operations.

Society must carefully weigh the relative chances for the success of a transplant operation and the prospects of the recipient's return to normal activity. Morally, the individual with the greater possibility to return to a normal life will have the greater claim than he who may merely benefit from a prolongation of life without a restoration to a normal condition due to the deterioration of his other vital organs.

Furthermore, society will usually establish a hierarchy of potential organ recipients, placing those individuals who provide the greater benefit to society and on whom society looks for leadership at the top. Thus, although society will try to achieve protection for all its members, it affords special protection and priority of claim to people like the Prime Minister or the President who enjoy a priviledged position at the top of this hierarchy.

The time factor also plays an important role in the case of potential recipients. In order to preserve equity, all other things being equal, a first come, first served basis should be employed. The solution to this problem seems near through the establishment of human organ banks in which vital organs may be preserved for future use.

The rights of the potential organ transplant recipient must also be preserved. He also has a right to his own humanity and a right to life. Each prospective recipient has the same right to life that others have. Wealth, status, and other accidental considerations must remain independent of man's fundamentally equal right to life.

The recipient also has his right to personal identity. Especially in the case of heart transplants, problems concerning identity may arise as a result of moral, religious, and philosophical associations surrounding the heart. For example, a male recipient of a female heart may feel that the operation constitutes the basis of a threat to the recipient's sexual identity. This is a problem for the psychologist to deal with.

Although the recipient is usually left with little choice, he has the right to expect reasonable success in the transplant operation. When such success cannot be reasonably assured, he has the right to sufficient comprehensible information in order to enable him to achieve an educated decision.

Finally, the transplant recipient has the right to privacy, sheltered from the public gaze. He should not be treated as if he is public property.

Dr. J. Joncheres stated before the Committee on Medical Ethics at the 65th Council of The World Medical Association in 1969:

> Modern techniques of resuscitation have created a new pathological state called "extended coma", during which heartbeat and circulation can be maintained, but not what Father Riquet calls "that which characterizes human life — integration in a conscience, a thought, a freedom, of all the functions and all the physiological activities of the higher mammal. The organ responsible for this integration is the brain, with the central nervous system. Therefore, as long as a possibility of reviving or repairing this coordinating organ exists, the person is not really dead... But as soon as the anatomical and physiological conditions necessary to the expression of spiritual activities, are irreversibly damaged, these, having lost their terrestial support, can only continue unto God. As for the bodily organs, having ceased to be the instruments of a soul which departed after the death of the brain, there is no reason why they could not belong to another set of organs, in which life is still tied to a human soul". On the other hand, to be successful, organ transplant requires among other conditions, that it be done immediately, as soon as death has been established.[33]

As a result, it is imperative that the physician define sufficiently precise rules to assure that the rights of all men to life, as defined by Father Riquet, are respected.

It is appropriate at this point to reflect on the words of Dr. J. Hamburger spoken during a panel discussion at the Ciba Foundation Symposium on Ethics in Medical Progress:

> To produce doctors who are strong men, who are not only honest and just in thought but efficient in action ; to develop in them an awareness of the value of human life ; to convince them that their vocation is an extensive obligation to the individual and to the group ; such, it would seem, are the best means of facing the ever-increasing difficulties of medical ethics.[34]

---

[33] *Ibid.*

[34] J. HAMBURGER, "Panel Discussion. Some General Considerations": *Ciba Foundation Symposium on the Ethics in Medical Progress: With Special Reference to Transplantations*, edited by G. E. W. Wolstenholme and Maeve O'Connor, 1966, J. & A. Churchill Ltd., London.

CHAPTER V

THE DECISION NOT TO PROLONG HUMAN LIFE AND ITS LEGAL CONNOTATIONS

Thou shalt not kill, but need'st not strive
Officiously to keep alive. — CLOUGH

Modern medical techniques have succeeded in prolonging life to such an extent that traditional attitudes toward life and death must be re-examined. These techniques have even reached a stage where preventive transplantation seems to have succeeded.

On January 7, 1970 it was reported that Dr. William M. Lougheed, a Toronto brain surgeon, had developed a vein transplant technique to aid stroke victims. He had successfully transplanted a vein deep in the brain of a stroke victim. This operation involves the transplant of a vein from the patient's leg to his brain in order to replace the blocked section of an artery which could cause a stroke. Dr. Lougheed reported that the operation was performed for the first time on December 5, 1969 and the 54 year old female patient has recovered. Two teams of surgeons removed the woman's leg vein and inserted it into a small opening cut above the blocked section of the artery. The vein was then threaded out of the skull under the skin and reconnected to the artery in the neck below the blockage, thus acting as a bypass. Immediately, the bypassing vessel succeeded in pulsating blood to the starved area of the patient's brain. Dr. Lougheed stated that this technique could be used on patients in the early stages of hardening of the arteries before they had suffered strokes.[35] Cases such as this are indicative of the great advances of medical science in recent times.

It would be erroneous to feel that legal tradition has been able to accommodate the quick pace of medical progress in this field. The law is not in a position to provide answers to the physician who is confronted with a comatose patient with a flat electroencephalogram reading who, in his opinion, has an infinitesimal chance of recovery, although the patient can still be sustained by intravenous therapy. The physician, in making his decision, is at a loss as to the weight he should give the wishes of the patient's family and to the prospects that his time might be profitably used in caring for patients who have a reasonably better chance of recovery.

In confronting this type of case, the demands of the physician's moral sensitivity are only exceeded by the expected reaction from the legal theorist. The physician's sensitivity to the moral issues as well as any dominating influence arising from lesser motives are equally the concern of the legal theorist. It is the task of the legal profession to endorse norms which would permit a just resolution and still minimize the opportunity for abuse. Although such legal criteria must necessarily

[35] *The Montreal Star*, January 7, 1970, pp. 1-2.

be based on those adopted by the medical profession, the attorney must provide some support for these norms such that they may be justly enforced and clearly understood.

In determining a legal standard which would endorse the criteria for the physician's decision not to prolong life, the medical basis of such a standard is difficult to formulate. If the standard is limited to the case where a patient has a flat electroencephalogram reading and is given little chance to live, several unanswered questions will arise. Should the terminal comatose patient who still shows some signs of brain activity be kept alive even though he could never enjoy conscious life? What about the terminal but conscious patient who although able to perceive his environment, is suffering from excruciating pain? In any case, is the fact of an electroencephalogram reading and consciousness sufficient to require that the patient be kept alive? In a legal analysis of the physician's obligation to prolong a patient's life, the attorney is handicapped by a difficulty in formulating a modern standard which will accommodate the clear cases as well as those which are on the border line of death.

In recent years, efforts have been made in legalizing voluntary euthanasia — cases where the patient has consented to the termination of his own life. However, the prolongation of life connotes an entirely separate meaning than that suggested by euthanasia. The prolongation of life reflects the suggestion of the artificial lengthening of a life which reflects the suggestion of the artificial lengthening of a life which would otherwise sink into certain death. On the other hand, euthanasia is tantamount to mercy killing — a beneficient termination of a life that might otherwise continue. The subject of human organ transplantation is therefore more closely related to the problems confronted during a consideration of the prolongation of life.

A legal evaluation of this problem may well have its foundation in the law concerning the distinction between acts and omissions. One acts by interceding to terminate human life, while one omits to act by failing to intercede (in order to preserve life) which consequently results in death. This is the difference between active behavior or causing harm and passive behavior or permitting harm to occur. The law is indisputably clear that acting to terminate human life with a planned and deliberate intention to do so is capital murder. This is true regardless of the motives of the actor, be they based on mercy or spite. However, it must be recognized that this is only a principle of law. The uncompromising and severe nature of this principle has been softened by the interpretation given it by the administrators of the legal system. A court would rarely if ever convict a physician of murder or manslaughter for having killed to end the suffering of his patient. On March 6, 1950, it was reported that Dr. Herman Sander was brought to trial for injecting air into the veins of his patient who was suffering from a terminal case of cancer. Although he confessed the deed and the attending nurse testified that the patient was still gasping for breath when the doctor injected the air, the motive of mercy prompted the jury to

acquit him.[36] This is evidence of the moral influence on the strict rules of law.

When the concern is over criminal or tort liability for omitting to render therapy and therefore permitting a patient to die, the distinction between theoretical law and law in practice becomes critical. It is rare that an individual would be convicted for omitting to take steps which would have proved avertive to the death of another. Yet, as a matter of legal principle, a physician would certainly be held liable for failing to take the necessary steps to preserve and save the life of his patient.

An example would well serve to amplify this problem. Suppose that Dr. Layzy had been the Ill family physician for several years. Subsequent to the Ill family child becoming sick, Dr. Layzy visited the Ill residence to administer the required therapy once or twice. Suddenly one cold and snowy evening while Dr. Layzy was cuddled up in front of his fire place with one Miss Energetic, he received a telephone call from the Ill residence that the Ill child was in critical condition. Dr. Layzy decides that he would prefer to remain cuddled with Miss Energetic rather than to visit the Ill child. As a result, Dr. Layzy does not render aid to the child in this instance. It would be unquestionable that Dr. Layzy would be criminally and civilly liable of death ensued. There is no difference in assessing his liability because he merely omitted to act rather than intentionally ending a life.

There is a difference between a physician's obligation to a stranger and his obligation so someone who has put himself under the care of the physician. Naturally the physician would be under no strict legal obligation to respond to the call from a stranger who said that he needed help. It is the factor of reliance and reasonable expectation that the physician will render aid that puts the physician under a legal obligation to do so. As a result, his failure to render aid becomes tantamount to his intentionally causing harm. His motive, be it good or evil, is irrelevant in analyzing his liability for omitting to render aid when he is obligated to do so, as well as in analyzing his liability for the commission of a harmful or fatal act. Therefore, it is of no relevance whether Dr. Layzy omits to render aid because he prefers the affections of Miss Energetic or whether he does so in the benevolent hope that the Ill child will naturally overcome his misery.

As a result, a physician may incur criminal and civil liability for either intentionally taking a life or for permitting death to occur by omitting to act. This intrinsic legal differentiation may serve as the basis of an analysis of a physician's liability for failure to prolong life. With respect to instances of action causing death, the physician's duty arises from the simple fact that both he and his patient are human beings. With respect to instances of omissions resulting in death, the physician's duty arises from the relationship between him and his patient. Thus, an act causing death renders the doctor-patient relationship

[36] *Time*, March 6, 1950, p. 20.

irrelevant while, in the case of an omission, this relationship is the controlling factor.

The initial problem in an analysis of specific aspects of the medical decision not to prolong life to isolate the relevant medical activity. The usual steps in removing artificial life sustainers include the discontinuance of cardiac resuscitation, the turning off of the respirator, and the removal of the needle used in intravenous therapy. The problem confronting the physician is whether these activities are to be considered as acts terminating life or omissions to render aid to sustain life. The subsequent legal analysis of the case is dependent on how these activities are classified — as omissions or actions. Should the turning off of the respirator constitute an act under the law, then it is unequivocally forbidden because it constitutes capital murder. However, should it be classified as an omission, whether or not it is legally forbidden would be dependent on the requirements arising from the doctor-patient relationship.

It is legally quite difficult to determine whether the process of turning off the respirator is an act or an omission. While some acts require physical movement, others do not. For instance, an individual remaining motionless at the wheel of his car is surely not exercizing any physical movement when his car subsequently runs over a pedestrian. Nevertheless, this would definitely constitute an act causing death and would carry the resulting legal sanction of capital murder if it was planned and deliberate. Similarly, the effort required to turn off the respirator may constitute an omission requiring physical exertion. Therefore, the existence of physical movement is not an adequate test for the differentiation between acts and omissions.

An alternative method of possibly achieving the needed distinction would be to equate an act to the causing of harm and an omission to the permitting of harm. As a result, the injection of air into a terminal patient's veins would constitute the cause of harm; while the fact that a physician failed to stop on a highway in order to aid an injured stranger is certainly not the cause of the harm. However, it may well constitute the permitting of harm to occur.

As a result of the linguistic sensitivity of the English language, an individual would be reluctant to consider the turning off of the respirator as the cause of death of a patient who is beyond recovery and on the verge of death. It would infinitely be more natural to consider this as permitting death to occur since the respirator is inclined to be treated as merely suspending certain death to a later date. This same perception of reality would lead us to consider the prolongation of life as an act permitting life to continue since the use of the respirator would be perceived as an artificial interference of the natural pattern of human events. However, what may seem natural today may have seemed artificial yesterday and thus this criterion is a function of time, culture and environment. Nevertheless, the numerous uses of the respirator are generally considered as artificial prolongations of life in this day and age. This general consensus and feeling of artificiality should be

sufficient to determine the resultant legal classification of the case. Thus, the turning off of the respirator may be considered as an omission rather than an act due to its classification as an activity permitting death rather than causing death to occur.

Nevertheless, it must be stressed that the description of the activity as an omission may still render the physician liable if he has omitted to carry out an obligation which he was legally obligated to perform; although the transition from an act to an omission does yield greater flexibility. Since not all omissions are illegal, the problem would be to determine which ones are. As previously mentioned, the legality of an omission to render aid is dependent on the doctor-patient relationship. Therefore, if a patient suffering from a terminal illness demands that his physician keep him alive as long as possible, even if there is a flat electroencephalogram reading, and the physician agrees to this demand, then the physician is obligated to indefinitely retain the assistance of the respirator. However, usually such a demand is not made of a physician and a physician is unlikely to allude to it in any case. The resulting problem therefore turns to a consideration of whether there is an implicit understanding between the physician and patient as to the requirements of the patient during his last stages of terminal illness. This is tantamount to the existence of an expectation which the patient would derive from his knowledge of usual practice and past experience. While the average individual would conceivably expect a train to stop at the usual intermediate points during a journey, it would be a rare case where the average patient would have any expectation relating to the procedures a physician would follow if the patient was in a coma and dependent on a mechanical respirator. However, a patient may expect that this physician would sustain him on a respirator in the same manner in which other patients in a similar position have been sustained in the past.

The resulting conclusion of this analysis is that it is the physician's duty to prolong life. This duty, in turn, is a function of the physician's relationship to his patient. In normal circumstances, this relationship dissolves into the patient's expectations of the treatment he will receive The prevailing practice of a particular community at the time will govern the nature of these expectations. However, the usual practice in the use of respirators to prolong life is dependent on what the customary practice of physicians in an analogous case is. A seemingly circular reasoning results by responding to the legal admissibility of physicians to turn off respirators used to prolong the life of terminal patients as being dependent on the usual custom of physicians in such a case. The legal admissibility of such a practice is therefore dependent on the normal medical custom in each particular instance.

Physicians are surely the most capable to fashion their own legal criteria to accommodate cases of prolongation of life. Through the establishment of customary standards, the expectations of their patients may be determined and thus the relationship and understanding between physician and patient may be regulated. As a result of regulating their

relationship with their patients, they may control their own legal obligations towards terminal patients.

It is therefore up to the medical profession to develop the needed customary standards which would guide decisions pertaining to the prolongation of life of terminal patients. Since the physician's legal duties are derived from his relationship with his patient, it is the responsibility of the individual physican and individual patient to develop a customary relationship which would yield the expectations which the patient is entitled to entertain. However, since the problems relating to the prolongation of life are rarely a topic of discussion between the physician and his patient, it is the whole medical profession's task, duty, and responsibility to formulate a basis from which the patient may derive his expectations.

It is truly no solution for the medical profession to request that attorneys devise a legal definition of death. Medical practitioners basically require a clear standard on which they may depend in deciding whether or not they are legally required to render aid to their terminal patients and the degree of discretion they may exercize in rendering such aid. A legal standard of death which would define the limits of the physician's duty to his patient would result in an inflexible and rigid solution which could not keep pace with the continually changing dimensions of medical progress.

CONCLUSION

The law hath not been dead, though it hath slept. — SHAKESPEARE

During the late summer of 1971, at Cape Town's Groote Schuur Hospital, Dr. Christiaan Barnard transplanted a heart and two lungs into a Cope Colored (racially mixed) patient named Adrian Herbert.[37] Upon leaving Groote Schuur after the five and one-half hour operation, Barnard cheerfully proclaimed the transplant a clinical success. However, later the same day, Rosaline Gunya, wife of the dead donor, Jackson Gunya, indicated that Groote Schuur authorities had not even informed her of her husband's death before his organs were removed, much less even asked her permission for the transplant.

The hospital authorities defended their action by proclaiming that they were not aware that Gunya was married and that they and Cape Town police had taken all reasonable precautions to locate his next of kin before allowing the operation to take place. It was later learned, however, that Mrs. Gunya had visited her husband in Groote Schuur the night before he died, and it took local reporters no more than half an hour to discover the donee's relatives.

[37] *Newsweek*, August 9, 1971, p. 63.

Criticism of Barnard was common-place in Cape Town, and he was attacked for his inconceivable statement that he thought Gunya was a bachelor, for even African bachelors have brothers and sisters. Furthermore, a group of eminent French doctors went on television in Paris condemning Barnard's actions and casual attitude. Barnard defended himself by responding that Herbert was in grave condition before the operation and would have been dead in one or two days.

This case vividly characterizes the unenvious position in which a physician will find himself when he embarks upon the transplantation of human organs.

In August 1971, the legal profession in Quebec, Canada, took a pioneering step in the right direction when it recommended certain guidelines which physicians would be required to follow in order to limit the legal consequences resulting from organ transplantation.

The Quebec Civil Code Review Office indicated that physicians should be allowed, in some urgent cases, to remove organs from a cadaver for transplant purposes without first seeking permission from next of kin. However, three stringent conditions would first have to be met:[38]

1. The physician who performs the transplant must not be the one who has pronounced the patient dead.
2. The organ removal must "immediately" be followed by the transplant or other treatment.
3. The organ removal must be intended only for the saving of another life.

In such urgent cases, the Office's Committee on the Law of Civil Rights and Duties stated that the age of the donor is irrelevant. It justified the transplantation recommendation on the premise that the human body has now acquired a "social dimension". The Committee stated:

> **Modern man's attitudes on the subject of the human body have changed. The body, it is now recognized, has a social dimension. Blood transfusions, organ transplants and the discovery of new kinds of medication through experiments conducted on living persons have brought about this change.[39]**

In a determination of when the donor of a vital human organ is to be considered dead so as to justify the excision of this organ for the purpose of transplantation, it is imperative that the essential requirement of quick removal be considered in relation to the need for an accurate and precise medical definition of death. The physician requests the legal profession to supply him with a definition of death which would enable him to effect a vital organ transplant without the threat of legal liability. On the other hand, the legal profession is ready to recognize that a number of serious legal consequences would flow out of a legal definition of death but is unable to adopt a useful definition

[38] *The Montreal Gazette*, August 5, 1971, p. 3.
[39] *Ibid.*

unless the medical profession establishes definite and valid criteria of when physical death is held to occur. Throughout this inter-professional exchange, a number of criteria have been advanced, such as "brain death", "heart death", "psychological death", or some variation or combination of these concepts. It has become clear, as a result of this inter-professional dialogue, that the precise time when death is deemed to occur is not a simple achievement to undertake. In fact, the formulation of a satisfactory definition of death involves more than a mere mechanical formulation. It involves a reflection of a view of life. It involves the primary obligation to sustain life. It involves human nature which is imperfect.

Although recent developments in human organ transplant surgery have brought the dilemma to the forefront, the determination of the nature and degree of care to be given to terminal patients or those which are at the threshold of imminent death is a variation of an age old question of the extent and nature of care that a patient who has lost the mental capacity to make essential human judgments or a patient who is very old and is suffering from excruciating pain is entitled to receive. It is essential that clear ethical rules be postulated to provide a standard by which physicians may perform their critical function and still remain reasonably certain that they will be insulated from legal liability. While such a standard should be established by the medical profession, it should meet the approval of the legal profession and be formulated on an inter-professional basis in the light of currently established human values. It is truly more a task for the legal profession to shape the orientation of society rather than to establish medical criteria.

The essential issue related to the right of a physician to employ a new technique which, while offering little hope in aiding the terminal donee who is yet not faced with immediate death, is likely to hasten his inevitable death. It is also quite important to distinguish therapeutic procedures from those which are experimental. Perhaps the vast expenditure of time, personnel, and capital brings the social cost of human organ transplantation to such a prohibitive height that it is too great to permit its use on behalf of merely one donee. In fact, the *New York Times* reported that Mike Kasperrak's new heart cost a modest $28,845.83 for his two-and-one-half week stay in the Palo Alto-Stanford Hospital.[40] *Fortune Magazine* devoted its January 1970 issue to an analysis of the ailing medical system. On page 92 of that issue, *Fortune* reported:

> **Research and innovation in this age of technology have had their most dramatic impact on human welfare in the realm of health. The new artifacts of medicine are often as complex and impressive as those on that more visible frontier of technology, space, and they are considerably more relevant to the urgent needs of mankind... Like space hardware, the new devices are usually expensive. The hyperbasic pressure chamber cost Mount Sinai Hospital in New York City about $800,000 to install four years ago. The linear accelerator... is valued at $200,000, a new cyclotron would cost about**

[40] *New York Times*, April 4, 1968, p. 1.

> $300,000 today, and the neurosurgery suite at Mount Zion Hospital in San Francisco $200,000. Once the equipment is procured, the costs have just begun. Mount Sinai is spending an estimated $550,000 annually to maintain and operate its pressure chamber. The widely used kidney machine can cost $15,000 annually per patient to upkeep materials and staff. Patients are unable to cover expenses on such a scale themselves, and with hospital endowments and federal subsidies failing to keep pace, hospitals are hard pressed for funds to operate these advanced facilities. Both in rural areas and city slums, patients die each year for lack of treatment that is within technical, but not financial reach.
>
> Other glamorous modern facilities, such as the heart-transplant operating rooms or intensive care units installed by well-endowed but less busy hospitals, stand idle most of the time, their purchase motivated by prestige more than necessity. More than 700 hospitals, for instance, are equipped to perform open-heart surgery.[41]

Other deterring problems relate to the scarcity of available donors, the limited number of available physicians and hospital facilities for this purpose, the relatively small minority who may benefit from transplants, and the very slim chance of success of most vital organ transplant operations.

The coordinated activities of the brain, heart, blood, and lungs are essential to maintain life. The failure of any one of them to properly function will almost instantaneously interfere with the action of the others. If the failing activity is not rapidly restored or compensated for through artificial means, the fundamental interaction between the organs is impeded and death is certain to ensue. The unconditional interplay between circulation, respiration, and brain activity have now been replaced by artificial dependence on a machine. Although life-supporting techniques are not available everywhere, where they are available, the physician is forced to decide on whether to make use of them and the extent to which they should be so utilized.

In the cases where the patient is not subjected to life-supporting techniques, the difference between brain death and heart death could prove to be minimal and therefore the time-honored methods of determining the moment of death seem satisfactory. However, when the brain-damaged patient is kept "alive" by artificial life supporting techniques, the interval between brain death and heart death may become relatively considerable. This is where the root of the problem of the determination of the time of death lies, and the existence of this interval easily provides the opportunity for juridical consequences. Several criteria for the determination of death have been proposed, the most noted and well-received being the proposals of the *Harvard Re-*

[41] *Fortune*, January 1970, p. 92.

port[42] and the *Philadelphia Protocol.*[43] These should receive serious consideration.

It seems most appropriate to close with the words of Dr. Gunnar Biörck:

> Death is an event where medicine, religion, and law meet around a human being in his last minutes. Medicine has done its share as physical life has come to an end. Religion claims the soul in the very moment it becomes separated from the body. Medicine and religion together render services to the corpse. When somebody is dead, he is no longer "somebody". The responsibility for his rights is taken over by law. At that moment, medicine has no more to offer and respectfully steps aside, while religion continues to support the parted soul, and law perpetuates the abstract intentions of somebody, who is no more.[44]

---

[42] *Ad Hoc* Committee of the Harvard Medical School, *op. cit.*, p. 337. Dr. Frank J. Ayd, during his talk before the American Medical Association's Second National Congress on Medical Ethics in Chicago on October 5, 1968, stated that the World Medical Association, the Council for International Organizations of Medical Sciences, the French Academy of Medicine, the National Academy of Sciences of the United States, and many other reputable medical groups have adopted the criteria of brain death similar to that proposed in the Harvard *Report* (World Medical Association, document 17.10/69 of February 1969).

[43] H. A. SHAPIRO, "Criteria for Determining that Death Has Occurred — The Philadelphia Protocol": *Journal of Forensic Medicine*, January-March 1969, Vol. 16, No. 1, pp. 1–6. The Philadelphia Protocol has not been considered here because it seems inadequate for the purpose of human organ transplantation since it proves, not that the deceased is dead at a certain moment, but rather that he has been dead for two hours.

[44] Gunnar BIÖRCK, *op. cit.*, p. 497.