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# THE TIME OF DEATH—A LEGAL, ETHICAL AND MEDICAL DILEMMA\*

## Introduction

On December 4, 1967 an amazed world learned that a South African physician, Dr. Christian Barnard, had transplanted the heart of one hopelessly injured patient into the body of another man who was dying of advanced cardiac disease.<sup>1</sup> This unprecedented operation brought the remarkable advances of medical technology over the previous fifty years into sharp focus. The major medical obstacle to successful transplants had been the body's production of antibodies which reject the introduction of foreign substances into the system.<sup>2</sup> To fight this rejection process, medical scientists developed a substance known as antilymphocytoglobulin (ALG).<sup>3</sup> This substance performed excellently in preventing the rejection process. However, it created a new medical problem: ALG retards the production of lymphocytes which create the rejection process but lymphocytes are necessary to fight off infection in the body. This complication meant that doctors might be successful in preventing rejection of a transplanted vital organ only to lose the patient to infection.<sup>4</sup>

By 1967, these difficulties were sufficiently overcome to permit the technical possibility of a human heart transplant. Scientists had been

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<sup>1</sup> N.Y. Times, Dec. 4, 1967, at 1, col. 2.

<sup>2</sup> Kutner, *Due Process of Human Transplants: A Proposal*, 24 U. MIAMI L. REV. 782, 783 (1970).

<sup>3</sup> *Id.*

<sup>4</sup> Weathersbee, *Double-Edged Knife: Rejection/Infection*, 93 SCI. NEWS 215 (1968).

experimenting with animals and had managed to keep dogs alive for over a year after performing heart transplants on them.<sup>5</sup> While the technical competence existed, no surgical team was willing to perform the operation on a human until Dr. Barnard did so in 1967. Other doctors were apparently reluctant to begin the human experimentation necessary to perfect this technique because of a fear that they would be compared to physicians of Nazi Germany who experimented on concentration camp prisoners.<sup>6</sup> The tremendous respect shown Dr. Barnard throughout the world allayed this fear by demonstrating to physicians that the public favored transplant operations. The ensuing release of professional anxiety is evidenced by the fact that 101 transplants were attempted in the year following the first heart transplant.<sup>7</sup>

With heart transplants not only technically possible but also a reality after 1967, a long existing difference of opinion between the law and medicine came to the fore. This difference of professional opinion concerned the definition of death. Medical technology had made it possible for a patient to have all his life-supporting organs, except the brain, maintained by machines.<sup>8</sup> *Black's Law Dictionary* defines death as:

<sup>5</sup> Smith, *Someone Playing God*, THE NATION, Dec. 30, 1968, at 719.

<sup>6</sup> *Id.*

<sup>7</sup> *Whatever Happened to . . . Heart Transplants*, U.S. NEWS & WORLD RPT, Sept. 14, 1970, at 84.

<sup>8</sup> See Biörck, *When Is Death?*, 1968 WIS. L. REV. 484, 493. These machines include "artificial respiration, instruments for defibrillation and restoration of cardiac activities, external cardiac massage, heart-lung machines and cardiac pacemakers. . . ." *Id.*

[t]he 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.<sup>9</sup>

Unfortunately, this definition has been cited with approval by some state courts.<sup>10</sup> The problem with the definition as it involves heart transplants is that it requires the total cessation of the heart beat in order for one to be considered legally dead. This requirement has led to some unusual court decisions.<sup>11</sup>

Obviously, for a heart to be transplanted to a recipient, the donor must be dead or the surgical team has committed homicide. The dilemma faced by medicine in this area is that if the surgical team is forced to wait until the donor is "legally dead" that is, until the heart has stopped, the operation is useless. As mentioned earlier, medical advances have made it possible for machines to maintain all a patient's vital organs,

<sup>9</sup> BLACK'S LAW DICTIONARY 488 (4th ed. 1968).

<sup>10</sup> See, e.g., *Smith v. Smith*, 229 Ark. 579, 317 S.W.2d 275 (1958); *Thomas v. Anderson*, 96 Cal. App. 2d 371, 215 P.2d 478 (1950).

<sup>11</sup> In *Gray v. Sawyer*, 247 S.W.2d 496 (Ky. Ct. App. 1952), a husband and wife were both struck by a train at a railroad crossing. The husband's body was completely mutilated and the wife was decapitated. Immediately after the accident, a witness came upon the headless body of the wife. Blood was spurting from the neck. An action was brought by the survivors of the wife who contended that she had survived the husband under the Simultaneous Death Statute of Kentucky. The court held that the wife had indeed survived the "husband for a fleeting moment" as was "evidenced by the gushing of blood" from the neck. *Id.* at 496-97. There was, of course, no question that the wife's brain had ceased functioning during the time she was held to have survived her husband.

except his brain, when the patient himself is incapable of doing so.<sup>12</sup> Thus a patient with a fatal, irreversible brain injury may be kept "alive" indefinitely via medical machines. The financial cost of this care is awesome. It can exceed \$25,000 per year.<sup>13</sup> Besides the financial burden, maintenance of such a patient takes up hospital room and requires staff care.<sup>14</sup> These facts raise a very important question: should the physiological or the vegetative life of man control a realistic twentieth century definition of death? No one would argue that a patient maintained on medical machinery with a dead brain is a whole human being. Yet there are those who would hold a physician guilty of homicide if he unplugs life-supportive machinery. The medical profession believes that if a person's brain is dead, the person is dead and the vital organs maintained by machinery are merely cellulous tissue which can and should be used to aid living human beings.

A dead brain is a dead person. If the body is still alive, the social being who is a member of the human race no longer can exist nor can he be reincarnated. Many of his organs and tissues are still alive, respiring, using oxygen, emitting carbon dioxide, and burning substrates for energy. There is no reason why they should not be transplanted into the body of another person to help

him continue the life to which he can fortunately still lay claim.<sup>15</sup>

Thus, the battle line between medicine and the law has been drawn. Medicine desires to take advantage of recent technological advances and proceed with heart transplants. To do so safely, it needs a new definition of death. It feels it has one, that is, "brain death," and has established sufficient proof and criteria to effectuate this need. The law, on the other hand, appears to be tenaciously clinging to its outmoded definition. The stubborn position of the law leaves the physician in a precarious position: by proceeding under medicine's "brain death" definition, he risks both civil and criminal sanctions of the law which recognizes only "heart death." This Note will attempt to explore this difference of professional opinion and offer suggestions for a possible resolution.

#### **"Legal Death" and the Problems it Causes Physicians**

As has been mentioned, *Black's Law Dictionary* defines death as essentially equivalent to the cessation of heart beat.<sup>16</sup> To understand more fully the meaning of this definition, it is useful to examine a few cases. Most of the cases concerning the exact moment of death and its definition involve inheritance contests fought under the various Simultaneous Death Statutes. The issue of the exact moment of the cessation of heartbeat arises rarely, if ever, in other contexts.

<sup>12</sup> See, e.g., *Problems in the Meaning of Death*, SCIENCE, Dec. 11, 1970, at 1235, col. 1 (AAAS Symposium); Collins, *Limits of Medical Responsibility in Prolonging Life*, 206 J.A.M.A. 389 (1968); *Death, When is Thy Sting*, NEWSWEEK, Aug. 19, 1968, at 54; *Thanatology*, TIME, Aug. 16, 1968, at 66.

<sup>13</sup> *Death, When is Thy Sting?*, NEWSWEEK, Aug. 19, 1968, at 54.

<sup>14</sup> See generally Note, *Scarce Medical Resources*, 69 COLUM. L. REV. 620 (1969).

<sup>15</sup> Moore, *Medical Responsibility for the Prolongation of Life*, 206 J.A.M.A. 384, 386 (1968).

<sup>16</sup> See text accompanying note 9 *supra*.

In *Thomas v. Anderson*,<sup>17</sup> two men, each of whom had willed his property and assets to the other, lived together in the same house. One had a heart attack. The other, while aiding the first, also had a heart attack. The attending physician arrived at the scene after both had died. He was unable to pinpoint the exact moment that their hearts stopped beating. The court cited *Black's* definition in determining that the cessation of heartbeat is the moment of death and went on to state:

[w]hile 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.<sup>18</sup>

Modern medicine does not agree with this statement. It sees death as a process and not as an event.<sup>19</sup> There can be both "brain death" and "heart death." "Heart death" can be viewed as the final biological death of man, *i.e.*, individual cells of his body no longer receive oxygen, etc. "Brain death," on the other hand, occurs prior to this final biological death of man. Through the use of the aforementioned medical machines,<sup>20</sup> a patient can be maintained indefinitely after "brain death." The *Thomas* decision would mandate this prolongation of vegetative life since it defines death as a single event which occurs upon cessation of heartbeat. If the *Thomas*

holding were followed, a patient in desperate need of a vital organ could die needlessly while a potential donor, plugged into life-supportive machinery, was considered technically alive. Although the second patient would be "alive" in only the vegetative sense of the word, he would be unavailable for organ donation.

In *Smith v. Smith*,<sup>21</sup> involving a husband and wife who both died as a result of an automobile accident, a similar result was reached. Husband and wife had reciprocal wills. The husband was pronounced dead at the scene of the accident. The wife was unconscious and died 17 days thereafter without ever having regained consciousness. The party claiming under the husband in this action contended that both husband and wife died simultaneously and that the physicians had made a "vain attempt" to save the already dead wife. The court held that the wife did survive the husband, it cited *Black's* definition of death verbatim. It took judicial notice of the fact that the wife did not meet the criteria of death as set forth in *Black's*. Once again, a court had held that the moment of "heart death" controls. There are a few other cases which concur with this definition<sup>22</sup> but there are none which accept the medical "brain death" criterion.

The major problem created by the legal concept of "heart death" involves heart transplants. The longer a physician is forced to wait while a donor arrives at technical "heart death," the less likely are

<sup>17</sup> 96 Cal. App. 2d 371, 215 P.2d 478 (1950).

<sup>18</sup> *Id.* at 375, 215 P.2d at 482.

<sup>19</sup> See generally Biörck, *When is Death?*, 1968 Wis L. REV. 484 (1968).

<sup>20</sup> See note 8 and accompanying text *supra*.

<sup>21</sup> 229 Ark. 579, 317 S.W.2d 275 (1958).

<sup>22</sup> See, *e.g.*, *Gray v. Sawyer*, 247 S.W.2d 496 (Ky. Ct. App. 1952); *Vaegemast v. Hess*, 203 Minn. 207, 280 N.W. 641 (1938).

the chances for a successful transplant. This is true because the heart rapidly deteriorates upon the cessation of beating. While it is possible that it can be made to resume beating through electrical shock, the probabilities are that many of its cells would have been rendered useless because of lack of oxygen.<sup>23</sup>

Although the ability to prolong some life functions has complicated the issue, physicians now believe that the technical legal definition of death is anachronistic. As a whole, the medical profession appears to be of the view that "[a]t present there is no legal definition of the time of death based on 20th century facts."<sup>24</sup>

A recent transplant case in Houston, Texas vividly demonstrates the medical profession's position. Dr. Denton A. Cooley, a world-renowned heart surgeon, was in need of a heart donor. The proposed recipient was a middle aged man dying from advanced cardiac disease. In a nearby Houston hospital, a patient was admitted with a severely damaged brain; his skull had been fractured during a brawl. The wife of the brain-injured patient was kind enough to consent to a heart transplant when she was informed by physicians that her husband's condition was hopeless. He was immediately transferred to Dr. Cooley's hospital. A problem arose because the donor's death, since it resulted from a

fight, was classified a homicide. The county medical examiner was uncertain as to whether or not an autopsy, required by law in homicide cases, could be performed if the victim's heart was removed. The attending physician for the donor had already declared his patient dead based on "brain death" and he so informed the medical examiner. (The donor had flat brain waves on the electroencephalogram. This is one of the criteria for "brain death" which will be discussed later in this Note.) Dr. Cooley informed the medical examiner that the donor's heart was being kept alive by machine. He stated that without the machine the donor would be dead according to the legal "heart death" requirements. The medical examiner warned Dr. Cooley of the possible legal ramifications but said that he would not press charges for interfering with an autopsy. The doctor went ahead with the transplant. The medical examiner held an autopsy and attributed the donor's death to the brain injury.<sup>25</sup> The obvious problem created by this situation is—in a criminal prosecution for homicide based on assault and subsequent death, how would a court have ruled had the defendant's counsel raised the argument that the victim was not legally dead at the time of the transplant and that the defendant could not therefore be guilty of homicide? If the defendant was not guilty of homicide, would Dr. Cooley and his surgical team be responsible for the donor's death and thus be guilty of homicide? Incidents such as these have evoked much public alarm over the idea that a patient

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<sup>23</sup> See generally Elkinton, *The Dying Patient, The Doctor, and the Law*, 13 VILL. L. REV. 740 (1968); Muller, *Legal Medicine and the Determination of Death*, 14 WORLD MED. J. 140 (1967).

<sup>24</sup> Ford, *Human Organ Transplantation: Legal Aspects*, 15 CATHOLIC LAW. 136, 140 (1969).

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<sup>25</sup> *Redefining Death*, NEWSWEEK, May 20, 1968, at 68.

will be considered dead when his doctor says he is dead.<sup>26</sup> It has been stated that some people now actually fear hospitals because they are apprehensive that their lives may be purposely shortened in order that they may be made transplant donors.<sup>27</sup>

Another area of concern expressed by many physicians in relation to the difference between medicine's "brain death" concept and the law's "heart death" requirement is possible criminal and civil liabilities for following the generally accepted medical practice of "brain death." "Transplants are being undertaken with doubt, in many instances, as to whether the donor was indeed dead."<sup>28</sup> In the realm of criminal law, it is indeed possible for an overzealous surgeon to remove the heart of a "living" donor. If the donor is "living" under *both* medical and legal standards, the physician is guilty of homicide and should be prosecuted. A much more complicated case exists when the patient is medically dead ("brain death") but legally alive (heartbeat continues). Technically the physician could be indicted for homicide.<sup>29</sup> Under New York's Penal Law, a person is guilty of murder when:

with intent to cause the death of another person, he causes the death of such person. . . .<sup>30</sup>

This definition would support an indictment of a physician who transplanted a heart before legal death had occurred.

The possibility of a homicide charge can arise easily even when no transplant is to take place. If a person is medically dead and is on a respirator or some other type of life-supporting machine, it has been said by some authorities that a physician is guilty of homicide if he simply unplugs the machine.<sup>31</sup> To date, in only one such case has a U.S. physician been indicted and he was not convicted.<sup>32</sup> In theory at least, there is no distinction between homicide committed with a gun or by turning off a medical machine.<sup>33</sup> Both acts are committed "[w]ith intent to cause the death of another person."<sup>34</sup> The law so far has not recognized "brain death" as an excuse or justification for the latter type of act.<sup>35</sup> The motive of the physician, as distinguished from his intent, is irrelevant.<sup>36</sup> A few years ago, a Swedish doctor was determined to have "failed to have followed proper medical standards" in turning off a life-sustaining machine. This decision was reached by the Swedish Central Medical Board. The doctor had requested permission of a patient's family to turn off the machinery as

<sup>26</sup> Smith, *Someone Playing God*, THE NATION, Dec. 30, 1968, at 719.

<sup>27</sup> David, *When is a Transplant Legal Murder?*, Chi. Daily News, Nov. 17, 1968 (Magazine), at 3, col. 1.

<sup>28</sup> See Kutner, *supra* note 2, at 787.

<sup>29</sup> See generally Wecht & Aranson, *Medical-Legal Ramifications of Human Tissue Transplantation*, 18 DE PAUL L. REV. 488 (1969); Wasmuth & Stewart, *Medical and Legal Aspects of Human Organ Transplantation*, 14 CLEV.-MAR. L. REV. 442 (1965); Note, *Scarce Medical Resources*, 69 COLUM. L. REV. 620 (1969).

<sup>30</sup> N.Y. PENAL LAW § 125.25(1) (McKinney 1967).

<sup>31</sup> Fletcher, *Prolonging Life*, 42 WASH. L. REV. 999 (1967).

<sup>32</sup> N.Y. Times, Mar. 10, 1950, at 1, col. 6.

<sup>33</sup> Fletcher, *supra* note 31, at 1000.

<sup>34</sup> *Id.*

<sup>35</sup> *Id.*

<sup>36</sup> *Id.* at 1006.

the case was hopeless and the patient's family was suffering needless emotional and financial hardship. The family later complained to the Medical Board which found him guilty as charged. When the doctor sought judicial review, however, he was absolved of all guilt. The court stated that he acted properly. The patient was dying and the doctor was correct in requesting the family to decide whether the fruitless prolongation of life should continue. The physician's use of extraordinary means to keep the patient alive played a major role in the court's holding.<sup>37</sup> Fortunately, at the present time, doctors are not being prosecuted for turning off medical machines. Nor would the Roman Catholic Church hold a physician morally culpable for turning off a medical machine in the case of a hopelessly ill patient whose brain was irreversibly dead. Pope Pius XII stated that life-supporting machinery is an extraordinary treatment, and that a doctor need only give ordinary treatment.<sup>38</sup> Therefore, a doctor may cease to give extraordinary care since it is not the cessation of extraordinary care that kills the patient but rather the disease which caused the physician to resort to the extraordinary means in the first place. While this analysis would appear to be a worthwhile approach for the law to pursue, it is really a short-lived solution to the legal-medical problem because what is extraordinary today often becomes ordinary tomorrow.<sup>39</sup>

<sup>37</sup> Ayd, *When is a Person Dead?*, 4 *LAWYER'S MED. J.* 81 (1968) [hereinafter Ayd].

<sup>38</sup> Ford, *Human Organ Transplantation: Legal Aspects*, 15 *CATHOLIC LAW.* 136, 142 (1969).

<sup>39</sup> See generally Elkinton, *The Dying Patient, The Doctor, and the Law*, 13 *VILL. L. REV.* 740 (1968).

The physician also faces civil liability in connection with both transplants and life-supportive machinery. With regard to transplants, the doctor owes the potential donor all the duties and obligations inherent in the doctor-patient relationship. Should he anticipate the death of the donor and fail to live up to his responsibilities in the doctor-patient relationship, he can be held liable for the wrongful death of his patient under the "abandoned patient" doctrine.<sup>40</sup> Suits have also been commenced or threatened when physicians transplanted organs of donors without permission. It is universally recognized that the deceased's next-of-kin have rights to his body concurrent with their duty to bury it. It is an actionable wrong for the surgeon to remove an organ and thus mutilate the body without permission.<sup>41</sup>

The controversy over transplants has created ethical dilemmas for the medical profession. In the first place, transplants involve experimentation with humans in the place of guinea pigs. In both heart and kidney transplants, an irreplaceable vital organ is actually removed from the recipient's body. If, for any reason, the surgical

<sup>40</sup> See generally, Levin, *The Abandoned Patient*, 1965 *INS. L. J.* 275.

<sup>41</sup> *Transplants, Question of Timing*, *TIME*, June 7, 1968, at 51. This article discusses the case of a victim of a traffic accident in Brazil who could not be identified. The surgeons went ahead with the transplant. Subsequently, the widow of the accident victim-donor threatened to sue. Ironically, there was a bill pending in the Brazilian Legislature which would have made the surgeons' actions legal. The reason the bill was delayed in passage is that it would have granted a deceased's mistress priority over parents, brothers and sisters in granting permission for an organ transplant.

procedure is a failure, the recipient is doomed to die. At present, it can be stated generally that the prognosis for recipient survival in heart transplants is negative.<sup>42</sup> As of September, 1970, 162 attempted heart transplants had been recorded since the first human transplant took place on December 3, 1967. Of these, only 21 recipients were still alive. Of the American patients operated on, two had lived for more than two years and nine had survived for more than one. Worldwide, a patient has roughly a one in six chance of surviving one year. Of those who do not live for one year after the operation, the average survival period is 47 days.<sup>43</sup>

With such a poor record of success, the question whether these experiments should continue has become an ethical one. One professor of moral theology feels that a transplant must meet three criteria in order to be ethical and moral. Basically, these criteria are: (1) the transplant must be a necessary measure of last resort, that is, there must be absolute certainty of immediate death without the operation; (2) there must be a "reasonable hope of substantial benefit to the recipient," that is, the recipient's life will be sufficiently prolonged to justify the dangers inhering in this radical operation; and (3) the surgical team must be fully competent to make the transplant. It cannot be using the recipient to sharpen its skills for a future date.<sup>44</sup>

The donor's exact moment of death poses a different ethical problem. Since medicine must respect the sanctity of human life, it cannot ethically anticipate the death of a donor in order to save the life of another through the transplant of a vital organ. Physicians feel that they can prove that the moment of "brain death" is the true time of death for a human being.<sup>45</sup> To ensure that this definition is followed carefully and to prevent the unethical practice of anticipating the death of donors, the medical profession has set up admirable self-policing policies.<sup>46</sup> One guideline, for example, prohibits the physician who pronounces the donor dead from being a member of the surgical transplant team.<sup>47</sup>

The new medical definition of death poses another ethical problem for a physician when he determines that his patient has suffered "brain death," a determination permitting the life-supportive machinery to be turned off. Many a physician has great hope that a cure for whatever fatal ailment his patient is suffering from will be discovered imminently. In some cases, this false hope subconsciously makes the physician refuse to accept the fact of death. While such devotion and dedication is admirable, a question arises as to its wisdom. Is it ethical to maintain this false hope and thus prolong the indignity to which the machine subjects the body, as well as

<sup>42</sup> Smith, *Someone Playing God*, THE NATION, Dec. 30, 1968, at 719; *A Plea for a Transplant Moratorium*, 93 SCI. NEWS 256 (1968).

<sup>43</sup> *Whatever Happened to . . . Heart Transplants*, U.S. NEWS & WORLD RPT, Sept. 14, 1970, at 84.

<sup>44</sup> Lynch, *Ethics of the Heart Transplant*, AMERICA, Feb. 10, 1968, at 194.

<sup>45</sup> See *A Definition of Irreversible Coma*, 205 J.A.M.A. 337 (1968).

<sup>46</sup> Kutner, *supra* note 2, at 789-93.

<sup>47</sup> *Supra* note 45, at 338; *Ethical Guidelines for Organ Transplantation*, 205 J.A.M.A. 341, 341-42 (1968).

the emotional and financial burden experienced by the patient's family?<sup>48</sup>

### Some Attempted Legal Solutions

As this Note already mentioned, physicians following the "brain death" criterion are theoretically criminally liable for homicide when they either turn off life-supportive machinery or transplant vital organs before "heart death" has occurred.<sup>49</sup> With regard to culpability for turning off medical machinery after "brain death," one scholar has persuasively contended that no criminal guilt should attach to this procedure because it is an omission as opposed to a commission.<sup>50</sup> He suggests that merely because an act involves physical movement, it is not necessarily an act of commission for which criminal penalties should attach. Most criminal statutes defining homicide require the perpetrator to do some act which is intended to cause death.<sup>51</sup> Both the *Restatement (Second) of Torts* and Dean Prosser define an act of commission as "[a]n external manifestation of the actor's will."<sup>52</sup> In attempting to overcome this definitional obstacle to his theory, Professor Fletcher contends that an act of commission is one which causes harm as opposed to an act of omission which merely permits it.<sup>53</sup> The question would then be—does the turning off of a medical machine

cause the death of a patient or merely permit it? He maintains that the machinery merely prolongs life and that, therefore, if we cease prolongation, we are merely permitting death to occur, not causing it. The hopeless condition of the patient is the actual cause of death and not the turning off of the machine.<sup>54</sup> This position is somewhat tenuous and has never been judicially accepted.

Physicians have also attempted to justify the turning off of medical machinery on the theory that the machines became necessary for another patient's well-being and the disconnected patient would have died in any event.<sup>55</sup> A similar justification has been rejected by at least one court.<sup>56</sup>

The medical profession's attempted use of the omission-commission distinction fails completely in the area of heart transplants. It is not possible to argue logically that removing the heart of a donor who has suffered "brain death" is anything other than an act of commission which causes harm. For this reason it appears that the only real solution to the problem is a new definition of death based on modern medical advances.

Perhaps the most sensible step taken by any legal body with respect to the definition of death was that of the commissioners who drafted the Uniform Anatomical Gift Act. They refused to define death. It was their feeling that "[t]his was a medical question currently in a state of flux rather

<sup>48</sup> Lewis, *Machine Medicine and Its Relation to the Fatally Ill*, 206 J.A.M.A. 387, 388 (1968).

<sup>49</sup> See text accompanying notes 29-39 *supra*.

<sup>50</sup> See Fletcher, *supra* note 31, at 1007.

<sup>51</sup> See, e.g., text accompanying note 30 *supra*.

<sup>52</sup> RESTATEMENT (SECOND) OF TORTS § 2 (1965); W. PROSSER, *THE LAW OF TORTS* 335 (3d ed. 1964).

<sup>53</sup> Fletcher, *supra* note 31, at 1007.

<sup>54</sup> *Id.* at 1008.

<sup>55</sup> Kutner, *supra* note 2, at 797.

<sup>56</sup> *United States v. Holmes*, 26 F. Cas. 360 (No. 15, 383) (E.D. Pa. 1842).

than a problem for legal codification."<sup>57</sup> They therefore inserted a section into the Act which simply requires that the decision as to the time of death be made either by the attending physician or the doctor who certifies death.<sup>58</sup> This position has been praised by the medical community.<sup>59</sup> By June of 1971, 48 states had adopted the Uniform Anatomical Gift Act, including the language supporting medicine's position that the individual physician should be the one to decide the exact time of death.<sup>60</sup>

In 1970, Kansas became the first state to recognize "brain death" as legal death.<sup>61</sup>

<sup>57</sup> Smith & Smith, *Kansas and the Uniform Anatomical Gift Act*, 19 KAN. L. REV. 547 (1971).

<sup>58</sup> UNIFORM ANATOMICAL GIFT ACT § 7(b) (1968) reads:

The true time of death shall be determined by a physician who tends the donor at his death, or, if none, the physician who certifies the death. The physician shall not participate in the procedure for removing or transplanting a part.

<sup>59</sup> Moore, Burch, et al., *Cardiac and Other Organ Transplantation*, 206 J.A.M.A. 2489, 2496 (1968)

In considering the question of when death occurs in a transplant situation, it is believed that the determination of "the time of death" must be a medical determination and is not the proper subject for codification by law. The subject is correctly treated in the Uniform Anatomical Gift Act . . . .

<sup>60</sup> Featherstone, *The Uniform Anatomical Gift Act, The Law's Approach to a Human Need*, 110 TRUST & ESTATES 468 (1971).

<sup>61</sup> KAN. STAT. ANN. § 77-202 (supp. 1971) provides:

#### Definition of Death

A person will be considered medically and legally dead if in the opinion of a physician based on ordinary standards of medical practice, there is the absence of spontaneous respiratory and cardiac function and, because

The purpose of the law was to make clear the exact moment of death in order that heart transplant operations could proceed.<sup>62</sup> The statute was apparently passed in reaction to the decision in *United Trust Co. v. Pyke*.<sup>63</sup> This case had stated that "death is the complete cessation of all vital functions without possibility of resuscitation."<sup>64</sup> When Kansas passed the Uniform Anatomical Gift Act in 1968, it was felt by physicians that an enabling step had been taken by the legislature. They quickly learned, however, that, the 1968 Act notwithstanding, if the *Pyke* decision was strictly enforced, heart transplants would not be feasible in Kansas. *Pyke* introduced

of the disease or condition which caused, directly or indirectly, these functions to cease, or because of the passage of time since these functions ceased, attempts at resuscitation are considered hopeless; and, in this event, death will have occurred at the time these functions ceased; or (a) person will be considered medically and legally dead if, in the opinion of a physician, based on ordinary standards of medical practice, there is the absence of spontaneous brain function; and if based on ordinary standards of medical practice, during reasonable attempts to either maintain or restore spontaneous circulatory or respiratory function in the absence of aforesaid brain function, it appears that further attempts at resuscitation or supportive maintenance will not succeed, death will have occurred at the time when these conditions first coincide. Death is to be pronounced before artificial means of supporting respiratory and circulatory function are terminated and before any vital organ is removed for purposes of transplantation. These alternative definitions of death are to be utilized for all purposes in this state, including the trials of civil and criminal cases, any laws to the contrary notwithstanding.

<sup>62</sup> 39 J.B.A. KAN. 107, 188 (1970).

<sup>63</sup> 199 Kan. 1, 427 P.2d 67 (1967).

<sup>64</sup> *Id.* at 4, 427 P.2d at 71.

the concept of "heart death" into Kansas. Previously, there had been no actual definition of death there. This is true of most states. The 1970 statute was passed in order to return the decision as to the exact moment of death to the medical profession, where the legislature obviously felt it belonged.<sup>65</sup>

#### **"Medical Death" and the Role of the Physician**

In 1964, Doctor Hannibal Hamlin encouraged physicians to judge the time of death through the use of the electroencephalogram (EEG). He felt that a flat brain wave recorded by this instrument was generally proof of death. He acknowledged that there were a few times when a flat EEG would not support a death diagnosis. Those few instances, he felt, were known and physicians would not rely on the EEG alone. Doctor Hamlin pointed out that, because of life-supportive machinery, it was then possible for a patient to have a flat EEG but a "respectable EKG" (electrocardiogram). He also noted that man is distinct from all other life on earth because of his brain and not his heart. The definition of death as proposed by Doctor Schwab, Chief of the electroencephalograph unit at Massachusetts General Hospital was discussed by Doctor Hamlin. Doctor Schwab outlined a procedure for ascertaining death. He recommended four criteria. They are:

1. No spontaneous respiration for a minimum of 60 minutes.

2. No reflex response (superficial, deep, organic, etc.). No change in heart rate on ocular or carotid sinus pressure.
3. EEG: Flat lines with no rhythms in any leads for at least 60 minutes of continuous recording. No EEG response to auditory or somatic stimuli or to electrical stimulation. Two longer periods of total flat recording some hours apart may be preferred by some.
4. Normal basic laboratory data including electrolyte pattern.<sup>66</sup>

This paper presented by Dr. Hamlin at the 1964 American Medical Association (AMA) meeting is evidence of the fact that concern was being expressed over the legal definition of death long before the first heart transplant in 1967. Unfortunately, the theory of a flat EEG as being sufficient evidence to prove death has been shown to be erroneous. In 1969, an Israeli boy was admitted to Hadassah Hospital with severe brain damage. He met all five criteria of death as had been set forth in June of 1968 by the Council for International Organization of Medical Science. One of these criteria was a flat EEG.<sup>67</sup> The physicians in charge of the boy refused to abandon hope. The child remained on drugs and an artificial respirator for a two week period and was medically dead by the Council's criteria during the entire time. Suddenly there was a change in the "dead" boy's condition. He regained brain activity and, eventually, normal health. This incident demonstrated vividly that the Council's criteria needed revision. It obviously would have been fruitless to re-

<sup>65</sup> Letter from Loren F. Taylor, M.D., J.D. to the *Journal of the American Medical Association*, 215 J.A.M.A. 296 (1971).

<sup>66</sup> Hamlin, *Life or Death by EEG*, 190 J.A.M.A. 112, 113-14 (1964).

<sup>67</sup> *Defining Death Anew*, 95 Sci. News 50 (1969).

quire that each person who met these criteria remain in such a state for a two week period. This would frustrate all transplant possibilities. The problem faced by the Council was to find the exact point where the brain is completely and irrevocably lost and the organs are intact for transplant.<sup>68</sup> The surgeons who cared for the boy were able to develop a new criterion to be added to the Council's five,<sup>69</sup> namely, the brain's consumption of oxygen must be measured. If the brain is alive, it must consume oxygen, no matter what the reading may be on the EEG.<sup>70</sup> Another problem with relying wholly upon a flat EEG for a determination of death is that patients with flat EEGs who are on anesthetic drug levels or in hibernation, may recover some brain activity.<sup>71</sup>

One dispute that broke out in the medical fraternity concerning EEGs centered around a difference of opinion as to how long the EEG had to be flat in order to declare the patient dead. Although physicians disagreed among themselves, the commonly accepted time was 24 hours.<sup>72</sup>

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<sup>68</sup> *Id.*

<sup>69</sup> The five criteria are:

1. Loss of all response to environment.
2. Complete abolition of reflexes and loss of muscle tone.
3. Cessation of spontaneous respiration.
4. Abrupt fall in arterial blood pressure.
5. Flat EEG.

<sup>70</sup> Letter of Loren F. Taylor, *supra* note 65.

<sup>71</sup> Silverman, Saunders, Schwab & Masland, *Cerebral Death and the Electroencephalogram*, 209 J.A.M.A. 1505 (1969). A questionnaire was sent to members of the American Electroencephalographic Society. The results showed that of 1665 isoelectric EEG's, only seven patients recovered any cerebral function. *Id.* at 1505-09.

<sup>72</sup> *Id.* at 1509; Ayd, *supra* note 37, at 81.

While the EEG has not proven to be 100 percent reliable, medicine has not been deterred in its attempts to have "brain death" recognized legally. Physicians set out to find the criteria which, when coupled with a flat EEG, would establish beyond refute that the brain was irreversibly lost and the patient was therefore dead. One doctor went so far as to establish a score card for death. He used five criteria in his theory and assigned two points to each. If a person scored four or under, he would be considered dying. If he received a grade of five or over, he would be viewed as a possible recovery. A decreasing score indicated impending death while an increasing one indicated a chance of recuperation.<sup>73</sup> In order to perform heart and liver transplants, medical science needed a reasonable set of criteria which could be verified in order to demonstrate that a man was dead when his brain died.

In support of the "brain death" test, two internationally known experts have stated:

The basis for such a definition must be—you are dead when your brain doesn't function anymore—not when your heart has stopped beating. When the electrical activity of one's brain stops—which can be measured—life is gone and what is left is only a surviving organism which can be used to save the lives of other people.<sup>74</sup>

We should distinguish between being

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<sup>73</sup> Dr. Vincent J. Collins of Cook County Hospital devised this plan. The five criteria he used were: heartbeat; pulse; brain activity (as shown by EEG); reflexes; and breathing. *Scorecard for Death*, NEWSWEEK, July 1, 1968, at 61.

<sup>74</sup> Statement of Professor Crafoord of the Karolinska Institute of Stockholm, quoted in Ayd, *supra* note 37, at 85.

alive and a live state that can be maintained artificially. We can say that death has occurred if the brain is no longer in a living state, even if it can be maintained as a living tissue by artificial means.<sup>75</sup>

In 1968 the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death issued a report entitled *A Definition of Irreversible Coma*.<sup>76</sup> The Committee stated that any organ that did not function was dead. Medicine's goal then, was to arrive at a definition of a non-functioning brain. They listed three steps involved in a deep and irreversible coma. These were:

1. Unreceptivity and unresponsivity—this entails total unawareness of externally applied stimuli.
2. Neither movements nor breathing—if the patient is on an artificial respirator, it must be turned off for at least three minutes to ascertain whether the patient attempts spontaneous respiration.
3. Absolutely no reflexes—the pupils must be fixed and dilated and must not respond to direct light. There can be no ocular movement, blinking, postural activity, swallowing, yawning, vocalization, nor corneal or pharyngeal reflexes.<sup>77</sup>

If the patient meets all three of these criteria he is in an irreversible coma, according to the Ad Hoc Committee, and will die. An EEG should be taken for "con-

firmary value." It should be taken again 24 hours later and, if there is no change after this second EEG, the physician may declare the patient dead. He should declare the patient dead before turning the respirator off.<sup>78</sup> The Committee states that death is an irreversible coma. There is no need to change any statute in its opinion since the law in most states has always treated the moment of death as a question to be determined by physicians. The only time a statute would be necessary is if the subject becomes too controversial.<sup>79</sup> The Harvard Committee also stated that the only reason that the legal definition went unchallenged for so long was that, until recently, there had never been medical machinery available to support life.

While the Ad Hoc Committee was meeting at Harvard, the World Medical Association met in Sydney, Australia in order to explore this medical-legal dispute.<sup>80</sup> The documents produced by the two committees were so amazingly similar that it would serve no useful purpose to list the criteria set forth by the World Medical Association, having already enumerated the criteria in the Ad Hoc Committee's report. Both the Harvard group and the Sydney group agreed that at least two physicians should share the responsibility of determining death and that the doctors declaring death could not take part in a transplant involving that particular patient.<sup>81</sup>

The Ad Hoc Committee Report raised a question as to exactly what procedure a

<sup>75</sup> Statement of Dr. Keith Simpson, Director of Forensic Medicine, Guy's Hospital Medical School, London, *id.* at 86.

<sup>76</sup> *A Definition of Irreversible Coma*, *supra* note 45; *Science and the Citizen; What is Death?*, SCIENTIFIC AM., Sept. 1968, at 84.

<sup>77</sup> *A Definition of Irreversible Coma*, *supra* note 45, at 338.

<sup>78</sup> *Id.*

<sup>79</sup> *Id.*

<sup>80</sup> *Thanatology*, TIME, Aug. 16, 1968, at 66.

<sup>81</sup> *Id.*

physician should follow when he feels his patient is dying and meets most but not all of the criteria set forth in the Ad Hoc Committee Report. Three physicians authored a paper on this point, which now seems to be standard medical practice. They recommend that the doctor: (1) have an EEG taken; (2) call in a neurosurgeon or a neurologist; (3) both should examine the patient and record their findings, and repeat this procedure 24 hours later; and (4) if, after the second examination, both feel that the patient is dead—take away the machine and notify the family.<sup>82</sup>

It has been suggested that if doctors can prove that the criteria they have set up are genuine tests of death of the cerebrum, the law must then decide exactly when this cessation of cerebral activity without the stoppage of heartbeat, etc., would be recognized as legal death<sup>83</sup> and thus allow a heart transplant while the heart is still beating. One legal writer has recently agreed with the medical theory and has proposed that a statute be enacted which would enumerate the following six criteria as a definition of death:

1. complete bilateral mydriasis;
2. complete absence of reflexes, both natural and in response to profound pain;
3. complete absence of spontaneous respiration;
4. falling blood pressure, necessitating increasing amounts of vasopressive drugs;
5. a flat electroencephalogram; and

6. measurement of oxygen consumed by the brain.<sup>84</sup>

### Conclusion

This type of proposed statute is open to much criticism. It involves highly technical terms which, as evidenced by the past few years, are subject to rapid change and obsolescence. The Uniform Anatomical Gift Act appears to be working extremely well without a definition of death at all. Many physicians have expressed doubt as to whether the law should even attempt to define death.<sup>85</sup> The recent Kansas statute which theoretically redefines death so as to recognize "brain death" really does no more than cast the burden of deciding when death occurs back to the parties to whom this decision belongs—physicians. Furthermore, by enacting a statute which details today's medical advances, would we not run the risk of hindering tomorrow's breakthrough? The reason for proposing such a statute is that the law has retained an outmoded standard despite medical proof that the definition is no longer useful. Medicine has not reached perfection, however. There will be new discoveries and developments. Why chance having this proposed statute retard the advancement of medical science? Admittedly, it is difficult to envision such a statute hindering medical progress. But then again, how many people fifty years ago would have predicted that there would be

<sup>82</sup> Beecher, Adams & Sweet, *Procedures for the Appropriate Management of Patients Who May Have Supportive Measures Withdrawn*, 209 J.A.M.A. 405 (1969).

<sup>83</sup> Elkinton, *The Dying Patient, The Doctor and the Law*, 13 VILL. L. REV. 740, 745 (1968).

<sup>84</sup> Kutner, *supra* note 2, at 804.

<sup>85</sup> See, e.g., Page, *The Ethics of Heart Transplantation*, 207 J.A.M.A. 109 (1969); Sadler, Sadler, and Stason, *The Uniform Anatomical Gift Act*, 206 J.A.M.A. 2501 (1968); Collins, *Limits of Medical Responsibility in Prolonging Life*, 206 J.A.M.A. 389 (1968).

a controversy concerning the difference between "heart death" and "brain death"? Altogether, it seems wisest that we follow the lead of the drafters of the Uniform Anatomical Gift Act by leaving the decision as to the time of death to the physicians.

### Postscript

The medical concept of "brain death" received jury endorsement shortly after research for this article was completed. On May 26, 1972, a jury sitting in Richmond, Va., found doctors associated with the Medical College of Virginia free of liability for the death of a man whose heart had been transplanted.<sup>1</sup> The landmark verdict

was based on the panel's determination that Bruce O. Tucker, who suffered massive brain damage in an accident, was dead at the moment his heart was removed although his respiration and circulation were being maintained by machines. The plaintiff, Tucker's brother, claimed that, since Tucker's heart was beating, he was alive despite the fact that, under "brain death" criteria, he had been dead for several hours. The decision was praised by medical authorities.<sup>2</sup>

*Editors*

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*Does Life Cease*, N.Y. Times, June 4, 1972, § 4, at 7, col. 1.

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<sup>1</sup> Harold A. Schmeck, Jr., *Brain Death: When*

<sup>2</sup> *Id.*

