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But When Did He Die?: Tucker v. Lower and the Brain-Death Concept

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BUT *WHEN* DID HE DIE?: *TUCKER v. LOWER* AND THE BRAIN-DEATH CONCEPT

The surgeons sat anxiously before the bench as the judge charged the jury,

> ". . . you shall determine the time of death in this case by using the following definition of the nature of death. Death is a cessation of life. It is the ceasing to exist. Under the law, death is not continuing but occurs at a precise time. . . . In determining . . . you may consider the following elements . . . [among them] the time of complete and irreversible loss of all function of the brain."[1]

Thus, in May of 1972, in the case of *Tucker's Administrator v. Lower*[2] was the unprecedented final jury instruction given on "brain death" in the nation's first court decision involving a heart transplant. The jury returned a verdict in favor of the defendant transplant surgeons in a wrongful death action brought by the donor's brother.[3] Because it was only the decision of a trial court, the *Tucker* case[4] obviously lacks precedential value. Nonetheless, it represents an historical landmark decision in the development of a new legal definition of death.[5] By their decision in *Tucker*, the jury, in effect, found that death occurs when the brain dies, not when circulation and respiration cease,[6] thereby exonerating the four physicians who had been accused of removing the heart of a living donor for a transplant. This result represented a considerable departure from the existing statutory definition of death in Virginia at the time, but was a logical extension of the recent advances in medical knowledge and understanding of the nature of death prompted by the successes of vital organ transplant surgery in the 1960's.

1. Tucker's Administrator v. Lower, No. 2831 (Ct. Law & Eq., Richmond, Va., May 25, 1972); in THE NATIONAL OBSERVER, June 3, 1972, at 1, col. 1.
2. *Id.*
3. Comment, *The Criteria for Determining Death in Vital Organ Transplants—A Medicolegal Dilemma*, 38 Mo. L. REV. 220 (1973).
4. Or "the Richmond brain case" as it has come to be called.
5. Fletcher, *New Definitions of Death*, PRISM, January, 1974, at 13.
6. *When is Life Out of the Physician's ands?*, AMERICAN MEDICAL NEWS, January 15, 1973, at 10.

In order to better understand the reasons for the jury's finding as they did in *Tucker*, its medicolegal impact and ramifications, the facts of the case and the developments at trial must be considered. This article will also examine existing state statutes (in Kansas, Maryland, and most recently California)[7] that have incorporated the concept of brain death and a proposed model statute to establish a new legal definition of death consistent with *Tucker* and current medical thinking.

Tucker v. Lower: THE FACTS[8]

Bruce O. Tucker was a 56 year old black male resident of Richmond, Virginia, who was separated from his wife and 15 year old son. He had worked for an egg-packing plant for some 25 years and was described by his foreman as being "a good employee".[9] Late on the Friday afternoon of May 24, 1968, Tucker was sitting at a local gas station talking with a friend; Tucker had been drinking. While attempting to stand up, he fell forward and struck his head on the station's concrete apron. The friend called an ambulance to take him to the hospital, but Tucker refused and stumbled off. The ambulance picked him up some time later, however, and took him to the Medical College of Virginia (hereinafter MCV) Hospital's emergency room, where he was admitted, alone at 6:05 P.M. In the hospital at the time was Joseph Klett, Jr., a retired white purchasing agent, who would figure significantly in the course of Tucker's hospitalization and ultimately in medicolegal history.

At 11:00 P.M. a craniotomy (opening of the skull) was performed on Bruce Tucker to relieve brain hemorrhaging and edema (swelling). A tracheotomy (incision in the wind-pipe) was also done to facilitate breathing, and he was returned to his room at 2:05 A.M. on the morning of May 25, 1968, where his condition was described as "slightly improved". Intravenous feedings (IV's) were being administered and he continued receiving medication until 11:30 A.M., when he was placed on a respirator, presumably because

7. KAN. STAT. ANN. § 77-202 (Supp. 1971); ANN. CODE MD. Art. 43 § 54 F., (Supp. 1973); A.B. 3560, Aug. 21, 1974, *amending* CAL. HEALTH & S. CODE §§ 7180-82 (West 1954).

8. Adapted from *When Does Life End?* by Mosher, THE NATIONAL OBSERVER, June 3, 1972, at 1, col. 1.

9. *Id.* at 18.

of respiratory distress. Shortly before this, at about 10:00 A.M., Dr. Abdullah Fatteh, then deputy state medical examiner, and one of the physicians later to be indicted, told future co-defendant Dr. David M. Hume (chief of MCV's department of surgery) that he should attempt to locate Tucker's family to obtain permission to use his heart and kidneys for transplantation purposes. However, no immediate action was apparently taken on this recommendation. The patient's condition must have been felt sufficiently grave the night before (i.e., May 24) that another member of the transplant team[10] had already notified the police at midnight in an attempt to contact the family.

At 11:45 A.M. on May 25th, Tucker's attending physician noted in his chart that "prognosis for recovery is nil and death imminent."[11] Shortly thereafter, MCV staff neurologist, and later co-defendant, Dr. Hooshang Hooshman, was called in to examine the patient and an EEG (electroencephalogram, or brain-wave recording) was run; on the basis of a 25-minute EEG tracing, Dr. Hooshman concluded that Tucker's brain[12] was dead. It was also determined that Tucker's heartbeat, pulse, blood pressure and temperature were "normal for his condition." He was, however, unable to breathe without assistance of the respirator. Dr. Hume was then apprised to Tucker's condition and at about 2:00 P.M. again called the police to try to notify Tucker's family. Some 30 minutes later the police returned the call indicating their inability to reach Tucker's next of kin, whereupon the patient was returned to the operating room to be prepared for transplantation of his heart and kidneys: the die was cast. At 3:30 P.M. the respirator was disconnected by the attending physician and there being no spontaneous respirations for a 5-minute period, Tucker was pronounced dead.[13]

At 3:40 P.M. on May 25, 1968, Dr. Hume called Dr. Fatteh to report that Tucker had expired, whereupon the medical examiner gave permission to remove Bruce Tucker's heart and transplant it into the body of Joseph Klett, Jr.

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10. *Id.* The identity of the individual was not mentioned in Mosher's report.

11. *Id.*

12. Or more correctly, the cerebral cortex, since it is the function of this area of the brain that is measured by the EEG.

13. Comment, *supra* note 3, at 223. Although three to six minute anoxic (without oxygen) survival maxima are cited by this Comment, the so-called "four-minute threshold" is most commonly employed in clinical practice; if anoxia has persisted (by way of absent respiration and heartbeat) for four minutes or longer, efforts at resuscitation should probably be terminated since brain damage (cerebral cortical function) will be permanent and irreversible at this point.

It is of interest to note that during the "critical period" (11:45 A.M. - 3:00 P.M.) in which relatives were being sought to obtain permission for transplantation, that a woman friend of Tucker's was roaming the corridors of the MCV hospital complex trying to find him, but without success. Furthermore, Tucker's brother, William, a shoe repairman, whose shop was only 15 blocks from the medical center, was not contacted, despite the fact that his business card and phone number were in his brother's wallet and available to the hospital authorities.

It was this very lack of notice and consent that probably provoked the suit filed by the brother, as administrator of Tucker's estate. However, the issue of consent, by either donors or their survivors, to transplant vital organs was not raised in the *Tucker* trial because of a legal technicality, the running of the statute of limitations. The MCV surgical team had relied in the *Tucker* case, as in others before, upon the State of Virginia's "Unclaimed Body Act",[14] which permits the state medical examiner to donate unclaimed bodies to medical schools and hospitals for educational and scientific purposes.[15] However, the statute also requires that the body be held at least 24 hours to permit a reasonable search for next of kin.[16] Such a delay would obviously preclude most transplant procedures.[17] Bruce Tucker's body was not held for the 24-hour period mandated by the statute; indeed, less than four hours after he was adjudged "neurologically dead" by Dr. Hooshman, Tucker's heart was placed in a bucket of iced saline solution in preparation for implantation into the recipient, Klett. Despite this apparent violation of the law, the question could not be litigated because consent for transplantation involves a *personal* right under Virginia law and the suit was not filed until after the one year statute of limitations on personal rights suits had expired.[18]

14. CODE OF VIRGINIA 1950 § 32-356 (Supp. 1974).
15. Mosher, *supra* note 8, at 18.
16. *Id.*
17. One authority states, "It is estimated the surgeon has only ten minutes to remove a heart, liver or lung from the donor and transplant it into the donee." Wasmuth, *The Concept of Death*, 30 OHIO ST. U. L.J. 32, 36 (1969). While cryo (cold) preservation and other techniques may prolong the viability of the organ, it has been noted by the *Journal of Forensic Medicine* that, " . . . [in a patient dead for two hours] organs removed from such a donor will be of notherapeutic use at all [because of deterioration and biochemical changes]." 16 J. FOR. MED. 1 (Jan. 1969).
18. Mosher, *supra* note 8, at 18.

Nonetheless, William Tucker did file a tort action for wrongful death, naming as defendants Dr. Richard H. Lower, chief operating surgeon in the Tucker-Klett transplant, Dr. David H. Sewall, his assistant, Dr. Hume, Dr. Fatteh, and ten other physicians involved in the operation. A total of $1,000,000 in damages was sought. Tucker was represented by State Senator Lawrence Douglas Wilder.[19]

The Trial: "The Richmond Brain Case"

Trial was commenced in Richmond's Law and Equity Court, a "somber old granite courthouse"[20] on May 18, 1968. A jury of seven white businessmen heard the case, under the watchful guidance of Judge A. Christian Compton, whose ultimate instruction on the definition of death would begin to write a new chapter in medicolegal practice. The drama that unfolded over the seven-day period of the trial was heightened by the coincidental meeting of some 150 transplant surgeons at a hotel only a few blocks from the courthouse.

Since this was a wrongful death action, one of the fundamental questions raised was *when* did death occur? Dr. Fatteh, relying upon the conclusions of Dr. Hooshman, the neurologist, had determined that Bruce Tucker was in fact dead when his brain functions had been shown by EEG to have ceased. The plaintiffs contended this decision was incorrect and that according to law Tucker was still alive at the time his heart was removed from his body, for he still had a heartbeat, respiration (albeit artificially maintained), blood pressure, and body temperature.

At the outset of the trial, Judge Compton had decided that it was the court's duty to apply and interpret the existing Virginia law on when death occurs. This definition of death coincided with that of Black's Law Dictionary, which states that,

> ". . . [death is] a total stoppage of the circulation of the blood, and a cessation of the animal and vital functions consequent thereto such as respiration and pulsation."[21]

Compton therefore held, in the traditional conservative justice's fashion, that if medical opinion has swung in favor of a neurological definition— i.e., "brain or coma death"—this new position should be a question for the legislature, not the courts. Midway through the

19. Wilder, like his client, was also black, and there were some early fears that racial factors might influence the case; fortunately, this seems not to have happened.

20. Mosher, *supra* note 8, at 1.

21. Black's Law Dictionary 488 (4th ed. rev. 1968).

trial the judge ruled that he would "adopt the legal concept of death and reject" the defense's attempt to develop the medical concept of "neurological death as establishing a rule of law."[22] This announcement quickly silenced the courtroom, since it virtually assured that the jury would be compelled to reach a verdict adverse to the accused physicians.

However, the passage of time, reflection, and possibly the testimony of witnesses and arguments of counsel must have softened Judge Compton's views on the issue, for in the end, his jury charge, quoted above, included both the legal and medical definitions of death and ultimately allowed the jury to decide which should apply. They seemed to have little difficulty deciding, for some 77 minutes after the judge's charge, the jury returned a verdict in favor of the transplant surgeons, clearly relying on the "brain-death" concept. That they did so is readily apparent from their comments on being interviewed after trial: One juryman stated that, "It was clearly proved in the trial a man . . . cannot live without a functioning brain."[23] Another jury member suggested that the existing legal definition of when death occurs was no longer acceptable.

The jury did not, it should be admitted, appear to understand the depth of the question they were deciding, nor the concept of "brain death" itself as well as they might have. For example, the presence of a "flat (or isoelectric) EEG" is *not* conclusive evidence of death, nor even of brain death much less actual death:[24] the EEG measure only *cerebral* (or upper brain, cortical) function. Thus, especially where spontaneous cardiac (heart) action and/or respiration persists there is evidence of continued brainstem (lower brain) function although the EEG may be "flat".[25] But is this kind of strictly vegetative brain activity one which deserves to be maintained artificially for days, weeks or months when there is no *other* element of humanity present in the patient? On this question of "quality of life" the *Tucker* jury was permitted to hear a rather unusual witness for a medical case: Dr. Joseph Fletcher, Ph.D., professor of medical ethics at the University of Virginia, a theologian, philosopher and author. As a non-physician, Fletcher's

22. Mosher, *supra* note 8, at 18.
23. *Id.* This was *not* clearly demonstrated at trial.
24. Hirsh, *The Most Unvital Sign: The Stopped Heart v. The Isoelectric Brain*, 3 MEDICAL DIMENSIONS 23, July/Aug., 1974, at 24.
25. *Id.*

grounds for testifying were sharply challenged by Tucker's attorney, Senator Wilder, but in the end the philosopher prevailed. Fletcher stated to the court in essence that,

> ". . . When [cerebral function] is gone, nothing remains but biological phenomena at best. The patient is gone even if his body remains and even if some of its vital functions continue.[26]

That is, a patient might still be technically "alive" but no longer "human." For it is the extensive development of the frontal lobes of the brain, the *cerebral* cortex, that distinguishes men from sub-human animals. As to time of death, Fletcher posed the question recently as follows:

> "When, then, *should* a person be considered dead? The death of the individual is the irreversible loss of whatever component in his biological system holds the essence of the person and that component is the cerebrum . . . *not* the *whole* brain. This is the crucial point. . . .
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> . . . .
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> . . . [I]t is *cerebral* [not visceral] function that is the key to 'authentically human life' and therefore the key to human death.[27]

Tucker: et sequellae

What are the implications of the decision in *Tucker v. Lower*? Unfortunately, they are not as clear-cut as one might hope. Since the jury was given considerable latitude and was not compelled to accept brain death, Virginia still still has no guiding law on the subject.[28] And even an appellate decision in *Tucker* will be binding, in the strict legal sense, only in Virginia.[29] Other states will have to go through the same slow and painstaking decisional process unless circumvented by statute, as in Kansas and Maryland[30] and (in 1974) California.[31] That some sort of statutory guideline of brain death is essential and should be evident from case-holdings such as that in *Gray v. Sawyer*.[32] Though not a recent case, the judge's reasoning in rejecting the concept of brain death seems even more far-fetched, from a medical standpoint, than

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26. Fletcher, *supra* note 5, at 14.
27. *Id.* at 36 (emphasis added).
28. A recent amendment to the Virginia codes apparently delegates the power to the state medical examiner to apply the criteria of brain death in specific cases, upon request. Hirsch, *supra* note 24 (personal conversation). The current status of this legislation had not been determined as of the date this article went to press.
29. Mills, *Statutory Brain Death?*, 229 J.A.M.A. 1225, Aug. 26, 1974.
30. *Id.*
31. A.B. 3560, Aug. 21, 1974, *amending* CAL. HEALTH & S. CODE §§ 7180-82 (West 1954).
32. 247 S.W.2d 496 (Ky. Ct. App. 1952).

the legal fiction of the "fertile octogenarian"; it is indicative of the illogical lengths to which the law will proceed in order to protect an established concept. In *Sawyer* the court held that, although the victim had been *decapitated* she was still *alive* because of testimony that blood was spurting from the body![33]

In short, one can not necessarily rely on instructions as liberal as Judge Compton's in *Tucker v. Lower* as being typical, nor even of the jury's finding in favor of brain death as being representative. In fact, a 1968 survey in the Journal of the American Medical Association indicated that the majority of the public still held to the traditional notions of death: some 67% felt death was correlated with cessation of cardiopulmonary (heart-lung) functions, while only 9% thought of death in terms of irreversible cerebral damage.[34] The findings of the *Tucker* jury become all the more remarkable in view of this survey. The probability is thus considerable that a jury even today would be likely to reject the brain death criteria—even if presented with it as an alternative choice. Furthermore, judges are not generally disposed to accept new and relatively untested concepts: e.g., two California municipal judges recently dismissed criminal charges in cases wherein death was brought about by termination of life-support measures; both judges contended that "brain death" is not defined and acceptable under California law.[35] Thus it might reasonably be concluded that the likelihood of a jury's rejection of the brain death notion "would be eliminated only if the courts accepted brain death as the sole criterion for determining death."[36] But while this degree of exclusivity may not be absolutely necessary, it is apparent that some sort of clarification is in order.

STATUTORY DEVELOPMENTS

Certainly the most reasonable and rapid method of creating a new definition of death which would be adequate to meet the needs of both the courts and the transplant surgeons is by statute. A legis-

33. *Id.* at 497.
34. Arnold, Zimmerman and Marks, *Public Attitudes and the Diagnosis of Death*, 206 J.A.M.A. 1949 (1968).
35. Hirsh, *supra* note 24, at 24. Obviously, this situation has changed with the recent change in the California law.
36. Comment, *supra* note 3, at 233.

lative enactment provides the persuasive force of definitive law which would eliminate the necessity of the courts having to dismiss or defer to the insecurities of a jury's interpretation as to what death is and when it occurred. Ideally, a statute would increase the level of certainty and uniformity in decisions by the courts on the question of time of death and the factors to be considered in determining that someone is legally and medically dead.

Interestingly enough, considering that most transplants are done elsewhere, Kansas was the first state to enact such a new statutory 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 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.
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> These alternative definitions of death are to be utilized for all purposes in the State, including the trials of civil and criminal cases, any laws to the contrary notwithstanding.[37]

The Kansas statute of 1971 was followed *verbatim* by Maryland in 1972,[38] although the language seems hardly worthy of such emulation.

The chief criticism levelled at the Kansas/Maryland statutes has been their attempt to resolve too many collateral issues simultaneously, and their creation of alternative definitions of death.[39] Practically speaking, the Kansas model simply seems unnecessarily verbose and decidedly lacking in both precision and informative authority.

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37. KAN. STAT. ANN. § 77-202 (Supp. 1971).
38. ANN. CODE MD. art. 43, § 54 F (Supp. 1973).
39. Hirsh, *supra* note 24, at 24.

In one such criticism of the above-quoted statutes, the authors of a 1972 University of Pennsylvania Law Review article offered a "proposed model statute" which reads as follows:

> A person will be considered dead if in the announced opinion of a physician, based on ordinary standards of medical practice, he has experienced an irreversible cessation of spontaneous respiratory and circulatory functions. In the event that artificial means of support preclude a determination that these functions have ceased, a person will be considered dead if in the announced opinion of a physician, based upon ordinary standards of medical practice, he has experienced an irreversible cessation of spontaneous brain functions. Death will have occurred at the time when the relevant functions ceased.[40]

Here, although there has been some improvement on the Kansas-type statute, the appearance of differing criteria for determining death is retained, based upon the presence or absence of artificial life-support. According to Don Harper Mills, probably one of the foremost experts on medicolegal problems today,

> The great stumbling block has been the necessity to feel that a brain-death statute must be an explicit definition; whereas the only need is to establish the legality of the *concept* of brain death.[41]

California has provided the most recent addition to the growing number of states that have confronted the brain-death question by statute, having enacted on September 27, 1974, sections 7180-7182 of the Health and Safety Code, portions of which are as follows:

> 7180. A person shall be pronounced dead if it is determined by a physician that the person has suffered a total and irreversible cessation of brain function. There shall be independent confirmation of the death by another physician.
>
> Nothing in this chapter shall prohibit a physician from using other usual and customary procedures for determining death as the exclusive basis for pronouncing a person dead.
>
> 7181. When a part of the donor is used for organ transplantation . . . and the death of the donor is determined by . . . cessation of brain function, there shall be an independent confirmation of the death by another physician. *Neither the physician making the determination of death under Section 7155.5 nor the* physician making the independent confirmation shall participate in the procedures for removing or transplanting a part.[42]

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40. Capron and Kass, *A Statutory Definition of the Standards for Determining Human Death*, 121 U. PENN. L. REV. 87 (1972).

41. Mills, *supra* note 29, at 1226.

42. A.B. 3560, Aug. 21, 1974, *amending* CAL. HEALTH & S. CODE §§ 7180-82 (West 1954). Denominated an "urgency statute" it is effective immediately.

While the California version of the brain-death statute is a stylistic improvement upon the Kansas model, it still retains the alternative criteria criticized by Mills. What would have been preferable is the proposal submitted to the legislature by the attorney-general's office, namely that,

> A person may be pronounced dead if, based on usual and customary standards of medical practice, it is determined that the person has suffered an irreversible cessation of brain function.[43]

This latter definition has the beauty of simplicity, yet at the same time is broad enough to provide for any additional refinements that may be made in detrmining the precise criteria to be applied in reaching a diagnosis of "irreversible cessation of brain function"; it does not, however, preclude judicial scrutiny of the standards applied. This should have been adequate to protect the rights of individuals from the over-zealous, "organ-hungry" or unscrupulous surgeon. It is unfortunate that the lawmakers in Sacramento were so skeptical of physicians as to require the double—and disinterested—certification standard. Whether the alternative definition portion will create any problems remains to be seen, but at least it is couched in terms which permit the physician to apply *medical* rather than *legal* standards for determining *when* death has occurred. But most importantly, there is now the specific authorization of the law in California to apply the criteria of brain death, which should once again dispel the uncertainties in the courts and restore the confidence of both the public and the transplant surgeons.

However, in the final analysis, it may not be the doctor, the lawyer or society which will be most clearly benefitted by the widespread application of a new definition of death, but rather the agonal and moribund patient, whose personal wishes are all too often forgotten in the sometimes frantic efforts made to prolong his "life". According to Fletcher, today's dying patients,

> . . . die comatose, betubed and sedated and aerated and glucosed and *non compos mentis*. It has come to be a pretty ugly business.[44]

In short, the availability of a statute defining death neurologically (i.e., "brain-death") and which protected the physician might well facilitate decisions to "pull the plug", i.e., terminate artificial life support systems, and give the patient as well as his relatives

43. Mills, *supra* note 29, at 1226.
44. *When Is Life out of the Physician's Hands?*, AMERICAN MEDICAL NEWS, January 15, 1973, at 10, col. 1.

once again the right to die with dignity, a concept which is rapidly gaining support in the medical community. Neither the dying patient nor the practicing physician or attorney should have to wait for future *Tucker* cases to resolve this dilemma. The solution lies in the hands of the legislatures.

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