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Death As a Legal Entity

Death is the inevitable concluding event of life. Though a physician and his associates struggle valiantly to alleviate pain and suffering, prolong life, and delay death, they are ultimately and invariably unsuccessful. Death is an event established by a medical diagnosis based on signs that are considered evidence of its occurrence. As our society has grown more complex and sophisticated, death also has legal implications, some of which are profound and complex in character.

When man was aware only of the concepts of life and death, there were very few problems regarding the conceptualization and definition of death. Until recently, death was considered a term so simple, basic, and well understood that a legal definition was considered not only unnecessary but possibly confusing, rather than enlightening. The law has always accepted medicine's definition of death.

Death has generally been defined as the cessation of life or a ceasing to exist. Medicine has traditionally defined it as a total stoppage of the circulation of blood, followed by a cessation of the vital functions consequent thereon, such as pulsation and respiration. From ancient times down to the recent past, it was clear that when the heart and respiration stopped, in a few minutes all other organs and tissues, including the brain, would stop functioning. Therefore the criteria of absent heartbeat, pulse, and respiration as synonymous with and tantamount to death were considered sufficiently accurate. In those past times the heart was considered to be the central organ of the body. Thus, it is not surprising that the failure of the heart was thought to mark the onset of death, particularly when its status was readily ascertainable. For all these reasons the status of the brain was not considered in diagnosing death.

Recent medical advances involving modern resuscitative and supportive measures have invalidated the concept that stoppage of the heart is always tantamount to death. These improved activities can now restore life when it is based on the presence of heartbeat, pulse, and respiration. Now these functions can sometimes be restored and maintained when there has been brain insult or damage and there is not the remotest possibility of an individual recovering consciousness and brain function. Because of these recent medical advances and innovations that have revolutionized medical care, there have been attempts to reevaluate the medical criteria for death and define them legally. This has been considered necessary in light of the legal implications incident to these advances. Unfortunately, these efforts have had an effect opposite to the intended purpose.

Physicians, lawyers, and the courts can no longer assume that determining whether and when a person has died is always a relatively simple medical matter. The development and

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use of sophisticated machinery to artificially maintain both circulation and respiration have introduced difficulties in making this determination in some instances. The concept of vital signs—pulse, heartbeat, respiratory movements—has been muddled by artificial support systems. Furthermore, the ability of an organ recipient to go on living after his or her own heart has been removed and replaced by another's has further undermined the status of the beating heart as one of the most, if not the most, reliable evidence that a person is still alive. All of these events have converged to bring about a reevaluation of the criteria by which death is diagnosed by physicians. In turn, the legal profession had been reconsidering its stand on the definition of death.

Although dying may be a continuing process, death is not [1]. Clinically, death is an event that takes place at a precise time, even though some minor biological functions continue for a short period of time [2]. Death is the concluding event of dying and requires medical criteria and possibly some form of definition to make recognition of death dependable, reliable, and accurate. This is necessary because there are significant legal problems involving the duties, obligations, and responsibilities of both physicians and lawyers when death occurs. Relatives and even the public may be affected. What must be kept in perspective and stressed is that the solution to these problems is neither exclusively medical nor legal, but rather medicolegal, or perhaps sociological [3]. To more completely comprehend the problem and arrive at a solution, it is essential to understand death as an entity.

Although there are a few medical conditions that simulate death and occasionally lead to an erroneous diagnosis, these situations are extremely infrequent. Rarely is there a problem arising as a result of the failure to detect feeble cardiac and respiratory movements. As a result of these inadequacies, however, physicians have expressed concern about the diagnosis of death generally and, on occasion, when specifically to pronounce a person dead. For these reasons physicians have continued to look for an absolutely reliable, foolproof method of ascertaining death.

In response to this need a group denoted as the Harvard Medical School Ad Hoc Committee to Examine the Definition of Brain Death was created in 1968. The committee proposed a new set of criteria for death [4,5]: (1) unreceptivity and unresponsivity, (2) no movement or breathing, (3) no reflexes, and (4) a flat electroencephalogram (EEG). Unreceptivity and unresponsivity means there is a total unawareness of externally applied stimuli and inner need and complete unresponsiveness. It has been proposed that the requirements of no movement or breathing can be satisfied completely only by observations covering a period of at least one hour by a physician. As far as "no reflexes" are concerned, the pupil should be fixed and dilated and not respond to a direct source of bright light, in addition to the absence of the deep tendon reflexes. Swallowing, yawning, and vocalization obviously should be absent. Furthermore, there should be no uncertainty as to these findings. In order to ensure absolute reliability in establishing death, it has been proposed that ocular movement to head turning be ascertained by the irrigation of the ears with ice water and, in addition, that blinking be absent. Generally it is agreed, however, that the first three tests are not particularly helpful in ascertaining death as they do not provide the absolute accuracy desired. They are invariably inferior to the detection of death by the conventional, traditional signs—cessation of heartbeat, pulse, and respiration. It is furthermore recommended that they be employed only if there is serious doubt and uncertainty concerning circulatory and respiratory function. They have not been accepted because they are cumbersome, awkward, and difficult to perform.

Over the last few years electroencephalographic monitoring has evolved as an accepted technology. As a result of these studies and observations, a new concept, "brain death," was advanced, based on extensive studies using electroencephalographic monitoring [6,7]. The results of these studies indicated that a flat or isoelectric EEG evidenced cerebral inactivity and death. It was also shown during the early studies involving comatose

patients that although in some persons the EEG became flat, circulation and respiration would persist for a brief period of time. With life-supportive measures those vital functions could usually be continued for only relatively short periods of time. Without treatment they stopped promptly after the EEG became flat. It was originally reported that once the EEG became flat it was not possible to revive the patient or restore life in the meaningful way in which it is generally understood. Until the availability of the flat EEG information, the patient was considered to be alive as long as there was a heartbeat or a detectable pulse and evidence of respiration.

The use of the EEG as the principal criterion for determining death has received considerable attention and support because it was thought to be of uncontroversial diagnostic value. Some proponents suggested that not only should the EEG be used to diagnose death, but that it be required to confirm death. It should also be employed routinely prognostically to ascertain the certainty and imminence of death in selected coma situations.

With the more extensive use of the EEG in comatose patients, and on the basis of these reported observations and experiences, a movement developed within medicine for the use and acceptance of the flat EEG as evidence of "brain or neurologic death" [8-10]. In turn, "brain death" was to be used as the criterion of "actual death." The impetus to accept a flat EEG as evidence of death was readily subscribed to by physicians because it was believed to be a reliable, accurate, objective method of ascertaining death. It was thought not to be subject to the perils of human error that are inherent in the use of the conventional signs of cessation of circulatory and respiratory functions. At least a standard of medical care and management in such cases would be established. The legal implications become obvious.

The intensive efforts of some physicians to have the flat EEG be declared the sole required criterion as evidence of death resulted in the appearance of proponents from other disciplines. Because of the legal implications, some members of the legal profession, also desirous of a concrete definition and a conclusive standard, became advocates of this movement. Furthermore, definitions are important to lawyers since the goal of justice is usually enhanced by a clear understanding of the precise meaning of terms. As a result, efforts to have this test accepted as total evidence of death, either alone or in addition to signs of cessation of respiratory and circulatory functions, were undertaken. As further evidence of this developing philosophy, it was suggested that the "law" establish a legal definition for death by statute. Bills to this effect were introduced in several state legislatures. Most were unsuccessful, but bills were adopted in Virginia, Kansas, and Maryland [11-14].² Opponents argued that this would create a very rigid definition of death with all the legal consequences of rigid criteria. Their concerns have since been found to be justified and confirmed [15]. At this time there is support for the legal philosophy that death be established judicially when necessary, on a case-to-case basis. Although this method perpetuates the problem of uncertainty and the legal implications incident to a lack of definiteness, there is apparently no more reliable method.

The concept that the flat EEG evidences not only "cerebral and brain death," but, except in children and when caused by hypothermia or sedative, represents death in its finality, has gained support in the last few years. In 1971, in a case involving this issue, a jury in Portland, Ore. convicted a defendant of second-degree murder [16]. Their decision was predicated on their conclusion that the bullet wound, rather than the removal of the victim's kidneys for transplantation, had caused death. The kidneys had been removed when the victim demonstrated a flat EEG, even though respiration and circulation continued by means of artificial support.

In 1972 a Richmond, Va. jury, given a choice, in the course of deliberating a number of

² California enacted a "brain death" statute 28 Sept. 1974.

issues, accepted the concept of "brain death" [16-18], then ruled that death occurs when the brain dies, as evidenced by the flat EEG, and not necessarily when circulation and respiration cease spontaneously. Four physicians were consequently held not liable for medical negligence or malpractice in a civil suit brought by the family of the deceased donor for the wrongful removal of the heart. In this case, supportive measures were promptly discontinued when the EEG became flat, with resultant immediate cessation of circulatory and respiratory functions. The transplant operation was underway meanwhile.

Early in 1973, in Detroit, a family of a potential donor withdrew permission to use the victim's kidneys for the purpose of transplantation because they feared the state's case against the assailant might be jeopardized by the donor transplant procedure [17]. Again the flat EEG was going to be used as the evidence of death even though circulatory and respiratory functions continued. The surgeons, on the other hand, were unwilling to delay the transplantation until these functions ceased because of the higher probability of failure with such delays.

Whether the removal of a shooting victim's beating heart for use in a transplant operation means that death was still caused by acts of violence was the key issue in two recent homicide trials in California [19,20]. The assailants in the case, who were accused of homicide, had pleaded not guilty. The defenses were that the victims were not dead when the hearts were removed. In these cases the victims had flat EEGs but they continued to breathe and the hearts continued to beat with the use of mechanical, life-supportive measures. The defense attorneys contended that a flat EEG in the presence of heartbeat, detectable pulse, and breathing was not absolute, conclusive, legal evidence of death, despite the need for artificial support. The importance of resolving these questions and problems is vividly exemplified in these two cases. There were no statutory criteria in California at the time. In the first case [19] in Los Angeles, the driver of a car who was charged with manslaughter and felonious drunken driving after killing a young girl had the charges dismissed by the judge. The heart of the girl had been taken for transplant based on the medical diagnosis of "cerebral death" or "brain death syndrome" made by a neurologist. The diagnosis was made and the organ removal performed on the victim based on the flat EEG. Cardiorespiratory support had been maintaining the pulse, heartbeat, and breathing. The judge, in dismissing the manslaughter charge, upheld the defense contention that death according to traditional judicial definition is total cessation of vital functions—heartbeat, pulse, and respiration—and not "brain death," regardless of its ultimate prognostic and diagnostic value.

A completely opposite result was obtained in the second case [20] in Oakland, where the assailant was accused of shooting the victim. Despite a flat EEG, the victim's heart was kept beating and pulmonary function maintained by means of a respirator before it was removed for the transplant. Before sending the jury out to consider the case, the trial judge ordered the murder jury to accept an irreversible cessation of brain function as a definition of death. The accused assailant was convicted of voluntary manslaughter. It is noteworthy that the defense attorney suggested that perhaps the physicians involved in the case should be tried for homicide.

This has given new impetus to the quest not only for the legal acceptance of "brain death" as death but for a statutory definition of death. The lack of criteria has invoked the paraphrased query, "O death, what is thy definition?" If a murder victim's heart is transplanted, who is the killer? The implication of this decision is that a physician might be charged with murder while it could also permit assailants to go free. An immediate answer is for transplant teams to turn down organs from victims or any person mortally injured. This, however, begs the entire problem.

Equally as important as the status of assailants and physicians who remove organs from victims is the determination as to when organs may be removed for transplantation [21-28]. During the last few years the science of transplantation has been developing. The success of transplantation is significantly affected by the period of time elapsing between the time the organ is removed from the donor, who is declared to be dead on the basis of a flat EEG, as compared to an organ removed from a donor after cessation of circulatory and respiratory functions. Observations, studies, and investigations have demonstrated that transplantation is most successful when the donated organ is "fresh" [29]. This means that little time has elapsed between "brain death" and circulatory and respiratory function cessation. The desirability of having fresh organs has increased the great impetus to have "brain death" considered both the medical evidence and the legal definition of death. This would obviate the requirement of attempted resuscitation, consideration, duty, responsibility, or obligation on the part of the physician to institute or maintain supportive measures. If "brain death," as evidenced by the flat EEG, is to be the accepted criterion by which a person would be considered dead, then medically and legally the body and its organs could be subject to donation and transplantation immediately. In these instances the diagnosis of "brain death" would be made on the basis of a single flat EEG, albeit an acceptable EEG.

Largely as the result of the development of transplantation procedures and improved methods of life support, plus some problems with the detection of cessation of vital functions, a search for a statutory definition of death has been going on for several years. There are those who believe that despite the potential problems of whether the criteria will be too rigid or vague and ambiguous, a legislated statute is necessary and preferable to the current variable judicial definitions.

As has been noted, two states have enacted a statute defining death. These have been widely criticized for their alleged ambiguities. These laws, it is contended, seem to postulate two separate kinds of death. They were drafted in response to development in organ transplantation and medical support of dying patients, and provide alternative definitions of death. Under one of the provisions, a person is considered medically and legally dead if a physician determines that there is an absence of spontaneous respiratory and cardiac function and attempts at resuscitation are considered hopeless. In the second, death hinges on the absence of spontaneous brain function, as evidenced by a flat EEG, if during a reasonable attempt either to restore or maintain spontaneous circulatory or respiratory function it appears that further attempts at resuscitation or supportive maintenance will not succeed. Regardless of which provision is used to determine death, both state that before any vital organ is removed for the purpose of transplantation, a person is not to be pronounced dead until all artificial means of supporting respiration and circulation are terminated.

The attempts to have a statutory definition of death enacted received a severe blow when, at a recent meeting of the American Medical Association, the House of Delegates voted to adopt the recommendation of its Judicial Council that at present a statutory definition of death is neither desirable nor necessary [30]. Furthermore, the Council recommended that the state medical associations urge their state legislatures to postpone enactment of legislation defining death by statute. The Judicial Council also recommended that the House of Delegates affirm that death be determined by the clinical judgment of the physician using the necessary available and currently acceptable criteria.

Aside from the question of "brain death," some physicians are demanding a legal definition of death in precise terms because they think it is needed to protect them from legal problems that may arise when they declare someone to be dead. The expected

protection is illusory, however. A definition established by law may expose them to greater risks.

The meaning of death clinically is clear. The problems that arise relate to the accurate determination of the time of death, the cause of death, or the occurrence of death. These determinations are matters of differential diagnoses within the exclusive expertise of physicians.

Perhaps the scientific criteria for such diagnoses which were acceptable in the past are no longer good enough under present conditions [31,32]. If so, it is up to the medical profession to find better scientific criteria, by the same process that it uses to establish criteria for diagnosis of any other human condition or illness—scientific investigation, evaluation, critiques, and eventual acceptance or rejection by the medical profession in general. It should not be accomplished by the fiat of a committee or by a legislative enactment. If physicians agree on the scientific criteria, the courts will undoubtedly accept their diagnosis, as in the past. A definition of death created by law is not the answer.

The efforts to have "brain death" first recognized as a medical entity and later accepted by law, whether by statute or judicially, are based on facts that have not withstood the test of time. From the beginning there was an apparent fallacy to the proposition regarding the usefulness of the EEG in these situations, which has been confirmed by recent studies [33,34]. The use of the flat EEG as a criterion for "brain death" is not valid for young children [33]. It is well established that a flat EEG represents evidence only of absent cerebral activity. Since the cerebrum is the site of the most complicated and sophisticated activity of the brain, the flat EEG represents at most only "cerebral death." This is particularly true when there are persistent signs of circulatory and respiratory functions in the presence of a flat EEG. These vital signs are evidence of continued brain stem activity, that portion of the brain controlling these basic vital functions. Furthermore, the diagnosis of "brain death" should be made only after repeated EEGs over at least a 24-hour period [34].

A recent report by a group of French investigators [35] and a study at Northwestern University [36] definitely indicate that a flat EEG is not even conclusive evidence of "cerebral death," much less "brain" or "total" death. Resuscitation is still possible in patients comatose due to hypothermia or an overdose of sedatives, tranquilizers, or narcotics. The Northwestern study indicates that resuscitation is still possible during the first six and possibly twelve hours after the appearance of the flat EEG. The French group reports further that the flat EEG is not absolute evidence of death unless the spinal fluid also shows abnormal elevations of certain chemical enzymes (lactase dehydrogenase-type 5, other transaminases, and alkaline phosphatase). They did conclude that the combination of these two twists were reliable prognostically as to the imminence of death. It should be noted that there are technical and interpretative problems inherent in performing these chemical tests.

All of these studies cast an indelible shadow on the reliability of a flat EEG as the final and absolute evidence of death or even of its prognostic value. The result is that the unqualified acceptance of the concept of "brain death" is now seriously challenged. These studies lead to the concern that there is no absolute certainty that the flat EEG alone is an adequate or complete indication as to the imminence or occurrence of death. Its acceptance for such purposes now appears premature.

There is still significant support for the "pulling-of-the-plug" philosophy in the presence of a flat EEG, despite the proven shortcomings. Some of this support comes as the result of problems related to medical practice, considered in the light of the remoteness of revival once the EEG has become flat. Consideration must be given to the emotional strain and

mental anguish that the relatives are subjected to during this period. Furthermore, the choice of whether to continue or stop treatment imposed on the relatives is often devastating, as is seeing the patient in this morbid state. This would be eliminated by the acceptance of the concept of "brain death" and the right of the physician to stop treatment.

There is also the problem of the availability of hospital beds which are, on occasion, in short supply. Patients who might be helped medically may be denied admission because of a "brain death" patient. Skilled hospital personnel are also frequently in short supply. Their time and energy are diverted when they must care for a "brain death" patient until the vital signs cease. The cost of medical care during this period is not insignificant and could be avoided by withholding treatment after the diagnosis of "brain death." Although there are some medicolegal considerations to be resolved when sustenance measures are continued, it is obvious that imposing problems are invoked when treatment is not instituted or maintained.

There are, on the other hand, significant objections to withholding treatment or pulling the plug. There is in fact, as has been reported, no absolute certainty that revival is impossible with "brain death." There is always the possibility that medicine will achieve some scientific breakthrough or discovery that will revive at least some of these people when resuscitative measures are employed or administered. The pain and suffering of the patient and the mental anguish of the relatives can be relieved by proper medication. Many are concerned with the possibility of setting a precedent for this practice in situations where there is less certainty of death or as a pretext in others.

As has been pointed out, when considering the problem of instituting or maintaining supportive measures in situations involving a flat EEG with persistent evidences of circulatory and respiratory functions, the physician is faced with several conflicting interests. He or she is well advised to entertain these various considerations. There is the balancing of the duty to relieve pain and suffering and save life, and the inclination not to prolong life when it is hopeless. There are conflicting reports as to what physicians do under these circumstances [37, 38]. It appears that most institute and maintain supportive measures until circulatory and respiratory functions also cease.

As for the patient, there is the recognized right to refuse treatment and die with dignity. If the patient is legally disabled, a minor, incompetent, or medically incapable, relatives may have the prerogative to decide. In any event, implicit in any decision is the requirement that the physician satisfy the legal requirements of "informed consent." Since the patient is almost always incapable of giving consent in these situations, the physician must abide by the decision of the next of kin, or retire from the care of the patient if it violates the physician's principles, ethics, and morals. There is judicial recognition of the right of the next of kin to refuse treatment under these circumstances [39, 40].

A great deal of controversy concerning the "pulling-the-plug" approach revolves around the concept of the "right to refuse treatment" and the "right to die with dignity" [30, 39-43]. Although death is both inevitable and unpredictable, the physician must keep in mind that our social and judicial systems allow the litigation of the issue when the patient or those empowered to act for him want the dying process to begin or death to occur. The physician should be aware of the fact that there has been a significant amount of litigation regarding the "right to refuse treatment" [39-45]. The court decisions have varied. Some have imposed treatment, while others have accepted the doctrine of the "right to refuse treatment." The verdicts were based on a number of factors, particularly prognosis, age, and religious and socioeconomic conditions. It is not the purpose of this paper to discuss the legal doctrines, considerations, and philosophies.

The logical purpose of a definition is (1) to make a complex and obscure term more definite and understandable in analysis and (2) to make the term restatable in words that are simpler and better known. Death is no longer a simple and basic term. A legal definition may be confusing rather than enlightening. Although what death involves is not a mystery; how, why, or when it occurs may sometimes be difficult to define. This underlies the basic dilemma regarding death and the desire and attempts to define it. The attempt to define death legally has brought about the exact opposite of a definition; instead of clarity and simplicity it has brought about uncertainty. A definition of death may be necessary from a medicolegal point of view because death is often an essential factor in many kinds of litigation—homicide, taxation, inheritance, property rights, insurance, personal injury, and workmen's compensation, to name those which are obvious. Another medicolegal problem in which a definition of death is involved concerns the legal liabilities, civil and criminal, of the attending physician in a "brain death" situation. One of the resultant critical problems, from both a medical and legal point of view, involves the physician's duty to treat. Is he required to treat a patient with a flat EEG even though the patient's cardiac and respiratory functions will be maintained for only a short period of time? On the other hand, may he withhold life-supportive treatment? If the physician fails to institute or continue this treatment, will he incur criminal liability for homicide or civil liability for negligence or abandonment? Removal of organs from such a patient for the purpose of transplantation accentuates these problems of questionable liability.

One would expect by now that the criteria and definition of "death," both as a medical and a legal entity, would be well established [46,47]. Basically there is no accepted legal definition of death, since the law essentially relies on medical judgment. The recent attempts, both medical and legal, to utilize the flat EEG as evidence of death have brought forth evidence that it is fallible, and sometimes unreliable or undependable [48-55]. The use of the flat EEG alone is fraught with legal consequences.

It would appear that at best, in our present state of knowledge, a flat EEG is only confirmatory evidence of death after the appearance of the signs of cessation of respiratory and circulatory functions. It cannot be used with absolute certainty to determine death. Physicians should therefore take the indefiniteness into account and conduct themselves accordingly, and lawyers' actions should be similarly appropriate. Lawyers are aware that some terms are sufficiently precise and understandable without definition. In any event, a legal definition at present is not required, but has been shown to be undesirable and even inappropriate. For the present at least, the long-accepted, traditional, conventional evidences of death appear basically adequate, both medically and legally. Although not completely problem-free, they still remain the accepted method of ascertaining death.

In the meantime, medicine and law must continue to seek to resolve the uncertainty, so that physicians will know the proper course of action under the law and lawyers will be able to perform their functions appropriately when death appears imminent or occurs. For the time being, both the physician and the lawyer are best advised to rely only on the standard, conventional criteria and definition of death—cessation of circulatory and respiratory functions.

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