

## ABSTRACT

Death Criteria: Social, Religious, and Clinical Considerations on What It Takes to Die

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Advancing medical technology in the twentieth century has blurred the line between certain death and potential life. Patients who would face imminent death without support may now be maintained for a period of time. Efforts to define death according to criteria began in 1968 with arguments for neurological criteria for death. Since then, brain death has become a stage in bioethics for discussions of what constitutes life and what it takes to die. A declaration of death carries social, spiritual, and clinical importance, however defining death requires an examination of what criteria must be met in order to declare death in a clinical setting. A death criterion is a social construct created by people and informed by religion that demonstrates an attempted understanding of what death is and how it may be recognized. Clinicians benefit from a better understanding of death and how patients view death by providing more meaningful care and respectful treatment of such a delicate yet universal topic.

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DEATH CRITERIA:  
SOCIAL, RELIGIOUS, AND CLINICAL CONSIDERATIONS  
ON WHAT IT TAKES TO DIE

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## PREFACE

Taking an interest in and studying death seems contradictory to medical training. So much effort in hospitals and clinics goes into bettering life and increasing the lifespan of patients, even reversing critical states that might lead to imminent death. Death has become a rival to the clinician, but recent developments in medical technology have blurred our vision on what death actually is. If the medical community is to retain authority on when to declare death in patients, there must exist a defensible description of it. Developing such a description of death requires an inquiry into what shapes our understanding of death and what it takes for death to occur.

As a universal phenomenon, death reaches far beyond the realm of medicine. Research on death criteria reveals that our views on death are informed by numerous sources – society, religion, the court system, language, science, and experience. A thorough examination of these influences provides a better understanding of how we recognize death and ways that clinicians can appropriately exercise the power of declaring death. A well-read and prepared clinician will benefit from these death studies by demonstrating social and cultural awareness and applying medically accepted knowledge of human physiology.

The research, preparation, and writing of this thesis have further opened my eyes to the world of thanatology and the importance of studying death in a clinical setting. As the final chapter in a patient's life experience, a patient's death is not the final chapter in the lives of the family, physician, and others whose lives have been touched by the patient and his story. Recognizing this fact has led me to study when death actually

occurs and the consequences of naming and describing such a moment. The interconnectedness of the many perspectives and influences on death shapes a fascinating story about our human desire to put a name to things we observe and to describe the things for which we have names.

I will carry this thesis experience and the interdisciplinary approach to viewing death and bioethics with me to medical school and beyond. Research and discussion in medical humanities will improve the healthcare experience for both the physician and the patient, and I hope that the careful examinations developed in this thesis may further promote our respect for both the life and the death of the patient.

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Put down your foolish pencil, man;  
and think of your position.  
You can defy the laws made by men;  
but there are other laws to reckon with.  
Do you know that you're going to die?

from *The Doctor's Dilemma*  
by George Bernard Shaw



## CHAPTER ONE

### The History of Defining Death

*On April 19, 1957, Hugh Smith was killed in a car accident that left his wife in a critical and unconscious state. Despite efforts by physicians to revive or maintain her, Lucy Smith's heart finally stopped on May 6. She never regained consciousness during those seventeen days. An estate dispute evolved during and after this ordeal that then involved the Arkansas court system. One party argued that because Hugh died first Lucy inherited his estate according to his will, and both estates belong to her heirs. Hugh's brother argued that both spouses lost their will to live together and the estates should be inherited separately. Arkansas' Uniform Simultaneous Death Act accommodated only five days of separation between spousal deaths to consider the deaths to be simultaneous. Asserting that these spouses did not die at the same time, the court sided with the wife's heir. (Smith v. Smith, 1958).*

Thanatology, the study of death, is a rich field covering a vast span of disciplines. Namely, thanatology encompasses topics such as dying, death, bereavement, associated rituals and behaviors, and bioethics. While death has traditionally been considered a taboo topic in modest conversation, a fascination with death develops due to its universal application to all of humanity. No culture, nation, family, or individual can escape the experience of death.

Defining death is a relatively new problem. In the past, forces of nature and limitations of medicine closed the gap between recognizable life and death. There existed ways to confirm the passage of life, but no reliable measures could prevent an untimely onset of death. Even into the early twentieth century, resuscitation medicine was in its infancy. A surge of medical research and technology after the Second World War led to numerous new discoveries and treatment possibilities. In 1967, the German Surgical Society recognized that applied knowledge of neurology and surgery would

force examination of the line between life and death. Though medicine centers its focus on life, examining the definition of death became “a new challenge resulting from progress in both resuscitation medicine and organ transplantation” (Schöne-Seifert, 1999, p. 258).

### *The Ad Hoc Committee of the Harvard Medical School*

The summer of 1968 proved to be a pivotal time for international and interdisciplinary approaches to understanding death in the context of advanced medical technologies. In Maryland, an *ad hoc* committee of the Harvard Medical School published a landmark work under the direction of anesthesiologist Henry Beecher (1968). The short piece, entitled *A Definition of Irreversible Coma*, examines brain death and related diagnostic criteria. The stated “primary purpose is to define irreversible coma as a new criterion for death” (p. 337) to reduce the burden associated with these patients and address controversies of transplant physicians. Garnering criticism and sparking discussion, this article illuminates a spotlight for debates on brain death and the definition of death.

After declaring the purpose of the document, Beecher (1968) openly acknowledges that multiple disciplines lay legitimate claims to providing an understanding of death. He confirms that discussing death in a clinical context is difficult because “more than medical problems are present. There are moral, ethical, religious, and legal issues” (p. 337). Though the publication focuses on the clinical aspects of a particular patient condition, the committee maintains a forward-looking notion that further discussion would occur across a variety of disciplines. The extent of discussion

since the summer of 1968 confirms that no single perspective can encompass a complete understanding of death.

The content of the report (Beecher, 1968) follows a progression through justification for the investigation, a description of irreversible coma, and commentary to support considering irreversible coma as a criterion for death. Beecher opens with the claim that reducing burden on resources and people and an alleged controversy in organ transplants bolstered the purpose for investigating a definition for death via neurological criteria. Since 1968 in various settings, the impetus for discussing brain death and neurological criteria has been supplementing organ recovery from brain-dead patients. However, the Harvard report mentions transplantation only once in a hesitant suggestion that “obsolete criteria for the definition of death can lead to controversy in obtaining organs for transplantation” (p. 337).

Medical historian Martin Pernick (1999) discusses the incongruity between Beecher’s brief mention of organ donation in *A Definition of Irreversible Coma* and the ties of neurological criteria to organ recovery. At the time of the Harvard committee’s publication, the media attributed the redefinition efforts to transplantation; most news articles on brain death contained direct mentions of potential changes to transplant medicine. Beecher likely avoids committing such a connection to the proposed neurological criteria to prevent any potential vilification of transplant surgeons.

To illustrate this point, Pernick (1999) analyzes films from the 1960s that feature a central focus on the emerging field of transplantation. Following the lead of popular horror films about death, all eleven films depict homicidal organ harvesting, and several carry ominous titles, such as 1963’s *Doctor of Doom* and 1970’s *Scream and Scream*

*Again.* Hollywood and the mass media play a large role in shaping the public's perception on emerging and controversial topics. Though exploiting medical topics may be lucrative for filmmakers, many medical professionals at the time recognize that the mass media may take control of the perception of medical topics away from clinicians.

Despite Beecher's omission of emphasis on transplant medicine in the Harvard publication, personal correspondence between him and Harvard Dean Robert Ebert indicate a greater interest in how the proposed criteria for death might benefit transplant medicine. In Beecher's proposal to start the committee, he cites his own concerns that patients in need of donor organs greatly exceeded the available supply. Ebert recognizes the danger of creating a committee on this premise and "warn[s] Beecher to downplay such references to organ harvesting" (Pernick, 1999, p. 9).

The major clinical component of the Harvard report describes the criteria for irreversible coma in five main points. Beecher (1968) constructs the criteria to emphasize the irreversibility of this neurological condition because one could only consider an organ to be dead if the organ could no longer function again. A patient with a "permanently nonfunctioning brain" (p. 337) must be unreceptive and unresponsive to external stimuli, be free from independent movement or spontaneous breathing, and lack reflexes. These characteristics are supplemented by tests that may be performed to rule out residual brain function, such as application of pain, an apnea test, and ocular reflex tests. These three points are followed by a suggested electroencephalogram (EEG) and the exclusion of states that might induce characteristics similar to irreversible coma, such as hypothermia and drug overdose.

The appropriately named Harvard criteria set into motion a whirlwind of discussion. Beyond theoretical bioethics debates, the Harvard report brings forward recognition for “the potential clinical circumstance, a disparity that has been well documented, that a patient may have a dead brain in an otherwise healthy body” (Rosenberg, 2009, p. 1173). This incongruity alone serves to drive much of the discomfort associated with accepting brain death as death. Due to the centrality of physiology and the clinical setting to this puzzle, the medical aspects of death have been placed at the forefront of most discussions.

The authors utilize a legal standpoint to work toward emphasizing the medical nature of death. The report lists three key judicial pieces to formulate an understanding of death’s jurisdiction. First, an entry in “*Black’s Law Dictionary* (fourth edition, 1951) defines death as ‘The cessation of life; the ceasing to exist; *defined by physicians* as a total stoppage of the circulation of the blood, and a cessation of the animal and vital functions consequent thereupon, such as respiration, pulsation, etc [italics added]’” (p. 338). This legal definition reflects the traditional view of death based on the cessation of observable vital signs and cardiopulmonary death. By italicizing the mention of physicians, the authors imply that the legal standard of the time granted jurisdiction of death to the medical community. The second edition of *Black’s Law Dictionary* (1910) includes the phrase “the departure of the soul from the body” in addition to the mention of physicians, but this reference to the spiritual was dropped by 1951. The current and ninth edition of *Black’s Law Dictionary* (2009) simply states that *death* is “the ending of life; the cessation of all vital functions and sign,” with an additional entry for *brain death*.

Next the report refers to the 1950 California appellate court case *Thomas v. Anderson*, which cites *Black's Law Dictionary* to declare death as an instantaneous event rather than a process. The court opinion draws upon the legal definition in determining that two deaths occurred at two distinct and separate moments and that death cannot occur over time. Lastly mentioned is the 1958 Arkansas Supreme Court ruling in *Smith v. Smith* which first introduces the issue of medical technology and prolonging cardiopulmonary death. A car accident left a man dead at the scene and his wife in a non-revivable state for over two weeks. A petition claims that the two both “lost their power to will at the same instant” (as cited in Beecher, 1968, p. 339) though cardiopulmonary criteria was not met in the same month. The court denies this view in favor of a traditional view of death, even stating the “judicial notice that one breathing, though unconscious, is not dead” (p. 339). While the case examines an issue of estate inheritance, the court opinion takes a stand on requiring the cardiopulmonary criterion to confirm death.

The Harvard report (1968) suggests amelioration to this traditional view of death by considering a pronouncement of death in patients who suffer from irreversible coma by brain damage. Despite having mentioned the interdisciplinary nature of death, the report recommends that “judgment of the existence of these criteria is solely a medical issue” (p. 339). Works presented in Chapter Three address this claim and present religious perspectives on authority over describing death.

### *The Declaration of Sydney*

On the other side of the world during the same summer of 1968, an international group of physicians met at the Twenty-second World Medical Assembly in Sydney, Australia. This annual meeting addresses issues arising in medicine and ethics. On the same day as the Harvard publication, the assembly adopted the Declaration of Sydney on the Determination of Death and the Recovery of Organs. Amended in 1983 and 2006, this policy addresses “a new definition of death in an epoch of advances in resuscitation and the increasing need to find organs for transplantation” (Machado et al., 2007, p. 699). The assembly sought to revise time of death to account for artificial circulation and potential organ recovery.

The Declaration establishes three main points to accompany the discussion of brain death. First, the assembly emphasizes that death is a process extending from the cellular level up to the person as a whole. When considering resuscitative efforts, the Declaration asserts that “clinical interest lies not in the state of preservation of isolated cells but in the fate of a person” (Machado et al., 2007, p. 701). Second, no single criterion can encompass a diagnostic determination of death. Appropriate clinical tests must be utilized to make such a determination. Lastly, artificial support may be terminated from a brain-dead patient without ethical or criminal implications. However, the assembly places an emphasis on physician responsibility in making a reliable pronouncement of death.

The Declaration of Sydney was amended in 1983 to update terminology and emphasize the importance of determining “the irreversible cessation of all functions of the entire brain, including the brain stem” (Machado et al., 2007, p. 701) – or whole-brain

death. This addition was inspired by the 1981 President's Commission in the United States.

### *The President's Commission*

About a decade later, the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research turns to examine the various issues surrounding a uniform definition of death. The 1981 report to Congress, entitled *Defining Death: Medical, Legal and Ethical Issues in the Determination of Death*, thoroughly details the reasons to consider a uniform definition of death, the views on neurological criteria, and the appropriate avenues to consider adopting such a definition.

Like the Harvard report, the Commission opens with an introduction stating their purposes for addressing the issue of defining death. As an interdisciplinary committee designed to report to Congress, the authors emphasize that their analyses are directed toward developing legislation to address public and professional concerns regarding death. Namely, the Commission wishes to shed light on the growing distinction between patients who are living, dying, and dead. By proposing new legislation on brain death, the report (1981) aims "to regularize its administration and to permit more prudent and humane medical care. These improvements will better protect life and respect the fact of its end" (p. 8).

In past centuries, diagnostic evaluations for death were very limited. The only sure sign of death was the initiation of putrefaction, and in nineteenth century Germany so-called 'waiting mortuaries' developed for a period of time. In a waiting mortuary, bodies were laid in repose and monitored until putrefaction began in order to confirm



death (Roach, 2003, p. 172). The development of medicine and medical technology allows for the extension and recognition of life before death.

Resuscitation medicine has redrawn the line where patients could recover or else would inevitably die. The Commission (1981) recognizes intravenous access, feeding tubes, catheters, and respirators as the key tools that have bolstered the maintenance of patients in critical conditions (p. 21). Supporting acutely ill and injured patients brings the potential to carry them through the period that, without support, would lead to death and offers the opportunity to enter a period of recovery. Patients in the past or without access to this type of medical care would ordinarily die if presenting such an acute injurious state.

In cases of critically ill patients, a major concern is the loss of brain function. Neurological function may suffer or fail due to trauma, hemorrhage, or a period of anoxia. As examined in the Harvard report, mechanical support of a patient may mask permanent loss of brain functioning. In line with the 1968 publication, the Commission (1981) supports the view of “the cessation of the vital functions of the entire brain—and not merely portions thereof, such as those responsible for cognitive functions—as the only proper neurologic basis for declaring death” (p. 18). The publication argues for whole-brain death as a definition of death, ensuring to clarify that brain death and various stages of coma are not identical.

The Commission utilizes its own study to discuss the contribution of organ donation to the consideration of neurological criteria in defining death. While organ recovery often precedes most debates on brain death, the report (1981) finds that “the need for viable organs to transplant does not account fully for the interest in diagnosing

irreversible loss of brain functions” (p. 23), as only six of thirty-six studied brain-dead patients were signed to be organ donors. The authors expect that an even smaller percentage of donors might actually produce viable organs for transplant.

Interestingly, respect for patients and the preservation of limited resources are the main arguments for implementing neurological criteria. The authors of the report (1981) argue that the medical community wishes “to render appropriate care to patients and to replace artificial support with more fitting and respectful behavior when a patient has become a dead body” (p. 24). Though a brain-dead patient does not appear or behave like a traditional cadaver, the brain-dead patient is dead, and it is unreasonable, illogical, and inappropriate to maintain artificial support on a dead body. There exist acceptable reasons to delay the withdrawal of mechanical support from a brain-dead patient; these reasons are further discussed in Chapter Four. However, for most cases the futile continuation of this patient on ventilation and maintenance prevents the body from respectfully transitioning out of animation.

The Commission (1981) further supports this argument by observing that animating a brain-dead body “may not only prolong the uncertainty and suffering of grieving families but also preclude access to the facilities for patients with reversible conditions” (p. 24). Survivors of a brain-dead patient must bear the burdens of atypical bereavement and medical costs associated with animating a dead body. The medical community has a responsibility to serve the living population with available resources, and intensive care units may experience limitations when survivors refuse to accept a declaration of death based on neurological criteria. The development and acceptance of

neurological criteria in the definition of death would require public involvement, understanding, and enforcement.

The President's Commission report (1981) describes the process through which defining death should be governed. Similar to the Harvard report, the Commission grants deference to medical authority in traditional jurisdiction over determining death in clinical cases. However, the authors take careful and explicit note that "the standards by which death is determined have significance and consequences that are not limited to medical ones" (p. 6). Clinical criteria and authority may dominate in the final application of the report's conclusions, but the standards under consideration require public involvement.

After deferring to medical authority, judicial hearings and court cases become the next venue for discussing the determination of death. Courtrooms provide a means to examine individual cases and determine an appropriate action based on statutory or common law. Placing jurisdiction of determining death in the judicial system allows for special considerations to be made on a case-by-case basis but risks long wait times, places increased burden on resources and family, and limits the potential for a uniform understanding of clinical death among various judges. American courts work on a system of precedents, but without a statute outlining the determination of death, each case may be forced through judicial proceedings simply to confirm what the medical and legal communities have agreed upon.

To reduce these risks and burdens, the Commission (1981) suggests to Congress a statute on the determination of death, worded to encompass both cardiopulmonary and neurological perspectives on death. The report briefly affirms that states retain power to

establish laws on determining death, but in the case of death this implementation of federalism presents a unique issue – a dead patient could simply cross state borders and be considered alive. For this reason, the Commission strongly urges uniformity across the states, and that federal powers need only intervene if efforts to encourage uniformity and consistent language were to fail (p. 52).

### *Determination of Death in Legislation*

#### *The Uniform Determination of Death Act*

As a result of the President's Commission, the National Conference of Commissioners on Uniform State Laws (NCCUSL) drafted the Uniform Determination of Death Act (UDDA) in 1981. The Act serves as a template for states to each adopt legislation for the determination of death that might be consistent across state borders. The NCCUSL encourages states to follow suit with this Act to prevent the paradoxical possibility that a patient may be considered dead in one state and alive in another. As of April 2014, thirty-seven states, the District of Columbia, and the U.S. Virgin Islands have enacted the UDDA. The exact text of the law reads:

An individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain, including the brain stem, is dead. A determination of death must be made in accordance with accepted medical standards (§1, Determination of Death).

The drafters of the UDDA purposefully leave room for interpretation in each state and potential changes in resuscitation medicine in the future. The title and content avoid attempts to define death but restrict itself to determining death in a medical context. The specific tests for confirming the determination of death are also excluded to allow for the

varied criteria maintained in different states and medical communities. By requiring declarations of death to align with “accepted medical standards” (§1), the UDDA optimistically covers potential advances in the understanding of death and in medical technology.

Prior to the UDDA, states with legislation on determining death generally followed one of two major formats. In 1970, following the publication of the Harvard criteria, Kansas adopted the first brain death statute in America. Stemming from judicial proceedings, the lengthy and complex piece features a “dual nature” approach to defining death (President’s Commission, 1981, pp. 62-3). The duality of the law refers to two nearly identical paragraphs describing medical and legal death – the first for loss of cardiopulmonary function and the second for loss of spontaneous brain function (Kan. Stat. Ann. §77-202). The Kansas model separates the two methods of determining death and fails to conclude that only one set of criteria is sufficient to determine death.

Capron and Kass (1972) recognize this ambiguity in their proposal for a modification of the duality perspective legislation. The Capron-Kass model acknowledges the two methods of determining death and appends the key phrase “Death will have occurred at the time when the relevant functions ceased” (p. 111). In a footnote, the proposal clarifies that the phrase “refers to whichever functions are being measured: cardiopulmonary functions in the usual case, or brain functions where the others are obscured by the artificial means being employed” (p. 116). This key phrase became popular in various state legislatures and marks the main difference between UDDA compliant states and noncompliant states.

Compared to the Kansas statute, the Capron-Kass model removes the complexity of two constructions of death, and its key phrase functions to add an *or* between the two methods of determining death, leaving the decision up to an appropriate party. In fact, after the 1972 criticisms published by Capron and Kass and the 1981 President's Commission report, Kansas repealed its original brain death statute in favor of the UDDA in 1984 (Kan. Stat. Ann. §77-205).

#### *Texas' Mosaic Statute*

Texas has opted to incorporate the Capron-Kass model rather than adopting the UDDA as is. The Texas Health and Safety Code details how death may be determined in a medical context. The act was adopted and made effective in 1989. The text of the Texas Health and Safety Code §671.001 (Standard Used in Determining Death) contains familiar wording:

- (a) A person is dead when, according to ordinary standards of medical practice, there is irreversible cessation of the person's spontaneous respiratory and circulatory functions.
- (b) If artificial means of support preclude a determination that a person's spontaneous respiratory and circulatory functions have ceased, the person is dead when, in the announced opinion of a physician, according to ordinary standards of medical practice, there is irreversible cessation of all spontaneous brain function. Death occurs when the relevant functions cease.
- (c) Death must be pronounced before artificial means of supporting a person's respiratory and circulatory functions are terminated.
- (d) A registered nurse or physician assistant may determine and pronounce a person dead in situations other than those described by Subsection (b) ....

While following the Capron-Kass model, the expanded legislation on determining death in Texas echoes the UDDA and Kansas statute. The act refers the criteria of brain function to a physician "according to ordinary standards of medical practice"

(§671.001(b)), reminiscent of the UDDA. Rather than delineating specific criteria, the clause leaves room open for case-by-case issues and anticipates any developments in neurological diagnostics. True to the Capron-Kass model, Texas legislators leave ambiguous the phrase “when the relevant functions cease” (§671.001(b)), which could potentially allow relatives or clinicians to favor either cardiopulmonary or neurological criteria for death in brain-dead patients. The termination of support in subsection (c) clearly protects clinicians from threats of criminal charges should the determination be made to withdraw mechanical support from a brain-dead patient. The act requires a pronouncement of death prior to any actions so there can be no confusion over the status of the patient. This aspect of subsection (c) derives from the forward-looking considerations on the importance of declaring death in the 1970 Kansas statute.

### *International Discussions*

Sparked by international motions such as the Declaration of Sydney, other nations began to enter their own discussions on defining death and the consideration of neurological criteria. Three nations with unique histories and cultures – Denmark, Germany, and Japan – each demonstrate how various factors impact the development of a cohesive approach to handling death. Denmark addresses concerns of cross-disciplinary opinions by involving the public. The Germans anticipate a debate but instead meet controversy when areas of bioethics cross paths. Japan’s culture and public distrust of the medical community create a lasting hesitancy to accepting brain death.

## *Denmark*

The efforts to define death in Denmark during the late twentieth century provide a strong representation of the desires in Western culture to need established facts and efficiency. The debates surrounding the issue traverse through the ideas of organ procurement, death as a process, public involvement, and the role of medical professionals in discussions. Denmark's public and policymakers entered the brain death controversy in the 1970s and underwent numerous marked phases of thought and attempts to initiate legislature.

In line with American discussions on brain death, Danish physicians first consider a death criterion in the context of organ procurement. Danish organ procurement was limited to kidney transplants from dead donors for many decades. Following a dead-donor rule bound by a traditional cardiopulmonary criterion of death, physicians are required to wait for cardiac arrest after discontinuation of artificial respiration to procure the organs. This process leaves other fragile organs unsuitable for transplantation. In fact, transplant teams would often resuscitate newly deceased donors behind closed doors to preserve the kidneys from lack of oxygenation (Rix, 1999).

Danish patients could seek other organs in neighboring countries, but international healthcare tensions arose as German administrators threatened restricted access to donor hearts if Denmark would not also supply organs other than kidneys. An availability of local hearts, lungs, and livers could not begin until a new standard for death was accepted.

In 1985, a committee of physicians reported that brain death suggests inevitable and imminent cardiac death and is a key criterion to defining death. This



recommendation would allow brain-dead patients to remain on a respirator and provide multiple viable organs. The committee's report led the way to a 1987 bill to add neurological criteria alongside the preexisting cardiopulmonary criteria in determining death. Though this bill was eventually passed in similar form in 1990, legislators rejected the first attempt due to a media outcry that began a three-year public debate (Rix, 1999).

In response to the failed legislation, the Danish Parliament gathered seventeen members of various backgrounds into the Danish Council of Ethics in 1988 to examine and make recommendations "on the ethical issues raised by new medical technology" (Rix, 1999, p. 228). Interestingly, the involved discussion led the council to reject brain death as a criterion of death, despite its acceptance in the rest of the Western world. Rather, the Danish Council recognized brain death as the start of a 'death process' that would lead to true death when cardiopulmonary function ceases.

This take on the death process was developed to protect physicians and respect the philosophy of Westerners. The report allows brain-dead patients to serve as donors and to cease treatment "so that the death process [could] continue and the relatives may witness the death process come to an end" (Rix, 1999, p. 230). The council believed that this system would close the gap on medical death and the traditional understanding of death. In this way, a transplant surgeon could not be considered a murderer and families could still experience death in a familiar way.

However, the Danish Parliament rejected this proposal in favor of adopting brain death as a criterion of declaring death. The issue brewing among the public and Danish physicians was the need for a concrete declaration of death, rather than the blurred realm of a death process. In attempts to bolster the view of death as a process, the council

involved the public by issuing education material, airing television programs, and hosting debates and contests (Rix, 1999).

The campaign allowed for a large-scale public debate, but it back-fired on the council's report. Politicians took issue with the council's suggestion of recovering organs from patients whom they could not consider legally dead. Opponents of the report acknowledged that "time of death has important psychological, social and legal implications. ... For the relatives, it is important to know that a person is dead and not dying." (Rix, 1990, p. 6). These troubles in the Danish debate indicate the power society maintains over determining what characteristics define death. Additional examinations on death as a social construct are presented in Chapter Two.

### *Germany*

While the Danish debate occurred much later than the general international consensus, the discussion in Germany appears to anticipate the growing debate on the subject and acts swiftly. In response to the American and Australian suggestions, the German Surgical Society produced a report similar to the Harvard publication. The Germans found it convenient and effective to produce a list of neurological criteria for death rather than attempting to define death itself (Schöne-Seifert, 1999). The report lists a set of tests for neurological examination over twelve hours to diagnose brain death. This unique approach offers a means to support organ procurement without entering the ethics battleground of defining death.

The early German debate on neurological criteria for death begins in the context of organ procurement. Two main supporting arguments consider both permanent loss of

consciousness or mind and loss of integrative functioning to be indicators of death (Schöne-Seifert, 1999, pp. 260-1). The first argument reflects the concept of higher-brain death, a controversial view on death as brainstem activity may persist despite loss of cortical functioning. This condition is nearly indistinguishable from other comatose and vegetative states. This may be resolved by advancing toward whole-brain death, afforded with the inclusion of lost neurological integration as a criterion for death. These arguments were opposed by some on grounds of moral doubt, but with the delineation of suggested criteria in the German report, brain death faced little opposition for many years.

This changed in 1992 when the German bioethics community was faced with the case of Marion Ploch, a young pregnant victim of a car accident who was diagnosed as brain-dead. Her physicians attempted yet failed to maintain the fetus in the woman's mechanically supported body. The difficult aspects of the case brought pro-life ethics against good-death ethics, where a brain-dead patient should be treated as a dead patient. The public became unsure about what should be considered death (Schöne-Seifert, 1999).

The German legislature responded in 1997 by passing whole-brain death legislation (the German Transplantation Act) against public opposition. The medical and political communities were forced to issue justification for the standpoint, but national organ donation rates plummeted in the light of controversies, from 90% in 1990 to 69% in 1994 (Schöne-Seifert, 1999, p. 264). The resulting bioethics debates echoes the opposition to brain death and defining death in America – issues with understanding the division of life and death, measuring consciousness, and determining what human qualities are appropriate in the debate. However, the medical and political communities

in Germany have forged ahead along the brain death definition according to pro-transplantation considerations, international consensus, and the application of modern medical technologies.

### *Japan*

Japan's struggle with brain death indicates a major difference in modes of thought between the Eastern and Western worlds. In Japan, the medical community is under constant scrutiny and criticism by the public and media, and cultural heritage plays a greater role in daily life than it does in the United States. These social factors have added to the Japanese resistance to accepting brain death as death.

In the wake of the world's first heart transplant in 1968, Japanese physicians eager to investigate this new science risked criminal charges. Numerous physicians have been accused of the murder of brain-dead donors and recipients by hospitals, special interest groups, and other physicians. The Patients' Rights Committee led a set of lawsuits which were left unresolved due to lack of public consensus. While the medical community was ready to view brain death as death, the public's uneasiness left resuscitation and transplant medicine in limbo (Lock, 1999, p. 242).

In Japanese culture, family and traditional values guide daily life. In cases of brain death, discomfort develops over manipulation of dead bodies, exploitation of patients, and the potential for mistakes. Many Japanese fear that respect for the dead, ill, and mentally ill would be put at risk by accepting neurological criteria for death. The impersonal nature of brain death, a particularly Western concept, might harm traditional Japanese society and the ancient systems in place (Lock, 1999, pp. 251-2). These sentiments permeate Japanese print as "brain death is reported to be too unnatural to be

equated with human death, for example, and the idea of ‘controlling’ death is described as ‘going against nature’” (p. 248).

The medical community attempted to accommodate the natural process of death with brain death by describing death as a process initiated by brain death. Like the initial Danish proposal, Japanese physicians would diagnose brain death and indicate this as the start of “an impending death” (Lock, 1999, p. 241). Family members of the patient could then prepare for the death and terminate care when ready. Death would be officially declared after cardiac arrest.

A 1992 report from the medical community equates brain death and death, but public resistance continued. This hesitancy continued even into 1997 when a detailed law supporting brain death was passed. The complicated law allows for brain death and organ retrieval under very specific circumstances, including prior consent and family agreement. Though it appears Japan has joined the rest of the developed world in accepting brain death, the diagnosis of brain death typically serves to warn relatives rather than to inform them to terminate support (Lock, 1999, p. 241).

The difficulties encountered in Japan shed light on how pluralism in the modern world may reshape bioethics discussions. Lock (1999) argues that the Eastern hesitancy on brain death should inform the Western world on the importance of public trust and fostering cultural attitudes on death (pp. 252-3). New ideas and perspectives on brain death may continue to form as cultures meet to discuss views on how to reconcile the debate on brain death.

### *Defining Death and the Challenge*

With a rich history spanning decades and nations, the task of defining death must also face justification for its investigation. Hypothetical scenarios in bioethics can create heated debates, but ultimately the worth of a discussion comes down to the results that may come from implementing new ideas. Examining death with neurological criteria as a central player paves the way for minimizing loss of resources, providing vital organs, preserving human dignity, and considering the values meaningful to man. The effort to define death reaches into the mysterious event that all people shall experience and has implications in understanding life.

Specifically in a clinical setting, defining death allows for health professionals to recognize when intervention and support are necessary and appropriate. For deeply comatose patients, neurological damage places patients near the fine line between and chance of recovery and inevitable demise. The degree of brain injury severity varies greatly among patients, between reversible and irreversible states of damage, and the President's Commission (1981) finds that "inexact medical and legal descriptions of these two categories of cases have led to a blurring of the important distinction between patients who are dead and those who are or may be dying." (p. 4).

Rodriguez-Arias et al. (2013) evaluate the understanding and attitudes of brain death in the medical community with an international survey. While health professionals tend to agree that neurological criteria are reliable for determining death in organ procurement cases, the survey report finds that "lack of clarity about the relationship between brain death (BD) and circulatory death may not only contribute to [health professionals'] discomfort in managing donors, but may also negatively influence their

ability and willingness to discuss the donation option with families” (p. 458). This recent study indicates a hesitancy in fully accepting neurological criteria when declaring death, a full forty-five years since the Harvard criteria and Declaration of Sydney proposed universal acceptance of these criteria.

A gap also exists between the views of the public and of health professionals on brain death according to bioethicists Siminoff and Bloch (1999). While only about five percent of health care providers agree that “a person is dead only when the heart stops,” upwards of twenty percent of the public agree with this statement in their survey (p. 186). Involving the public should be a priority of any bioethics discussion; the development of legislation in Denmark demonstrates how the public and policymakers can interact to shape a unified understanding (Rix, 1999). Siminoff and Bloch (1999) recognize that studying the public’s understanding of brain death “could assist in improving communication and creating more common ground for lay and health care professionals to understand the implications of the technological changes and developments in biomedicine which are affecting us all” (p. 191).

By informing the public and health professionals, valuable medical resources may be preserved when brain death is better regarded as death. Applbaum, Tilburt, Collins, and Wendler (2008) analyze a family’s request to maintain support on a brain-dead patient and reach one of many conclusions that “it is unreasonable to devote substantial public resources and professional energies to the care of a body that, on public and professional criteria, is dead” (p. 2192). Allowing a family to extend animation of a dead body has numerous immediate consequences; intensive care resources are directed away from living patients, survivors may become misled about the patient’s prognosis, viable

organs for potential donation are put at risk of warm ischemia, and the action implies that brain death may not be real death.

As an impetus for discussions of brain death, organ recovery has shown to be an important outcome from the implementation of neurological criteria in determining death. In an analysis on the supply of donor organs, Roberts (2010) warns that “the greater the elapsed time after circulatory cessation to ensure a permanent and defensible definition of death, the less viable the organ becomes” (p. 2644). Utilizing neurological criteria to pronounce brain death as death permits transplant teams to recover useful organs for other patients who may be dying. In fact, brain-dead patients may preserve vital organs if kept animated until the time of transplantation; donors dead by cardiopulmonary criteria do not offer this capability.

In 2011, the Organ Procurement and Transplantation Network’s *Annual Data Report* indicate that 9,023 eligible deaths occurred in American hospitals, where an eligible death is a consented patient under 70 who meets transplantation criteria after brain death. Of these deaths, 72.9% were converted to organ donors. While there still exists a severe shortage of organs in supply for waiting recipients, the organs recovered from brain-dead patients serve to provide a significant source of kidneys, livers, hearts, lungs, and pancreases. A utilitarian argument is not inappropriate when no known medical or resuscitative efforts could consider the patient to be living.

For survivors, a major tenet of bereavement is seeing the corpse and knowing that it is dead. Families of brain-dead patients still on a ventilator comment that the person feels warm, looks pink, and appears to be sleeping (Rosner, 1999, p. 218). This incongruity brings difficulty to hospital staff in convincing survivors, and perhaps



themselves, that the patient is dead. However, receiving a pronouncement of death leads the way for accepting that death has occurred and ritually removing the body from mechanical support. By disconnecting a dead body from medical equipment, the survivors respect both the deceased and the authority of the medical community.

The road to define death along neurological criteria has been shaped by numerous motives, legal debates, and public discussions. Grasping brain death as death can be difficult, but the next chapter reveals that death criteria in a clinical context are a social construct. Investigating how humans understand and interpret death benefits clinicians and the bereaved when handling the case of a brain-dead patient.

## CHAPTER TWO

### The Death Criterion as a Social Construct

*While on an international flight, a 36 year-old female collapsed after being seated for over seven hours. She suffered a pulmonary embolism derived from a deep vein thrombosis; the embolus led to cardiac arrest that was reversed by a physician onboard. The episode left the patient with severe brain anoxia and cerebral edema. Her continued response to painful stimuli ruled out a declaration of brain death. Though she was still clinically alive, the patient was deemed reproductively dead by her husband and family. The family requested to retrieve the patient's oocytes for posthumous conception, but the physicians denied the request due to the danger of the procedure and the associated ethics. The patient was then extubated and allowed to die (Greer, Styer, Toth, Kindregan, & Romero, 2010).*

An examination of the history of the brain death debate demonstrates that the human understanding of death varies greatly according to social perspectives. Simply by having a word for the phenomenon of death, humans have formed an idea and an attempted understanding of what death is. Social ideas develop by communication, so language manipulates, limits, and controls our understanding of death. Abstract concepts in society, such as trust or love, cannot be defined by rigid physical means, but people seem to collectively understand abstract meanings as self-evident. Other abstract concepts, such as disease or death, manifest themselves in concrete ways that are neither self-evident nor explicitly definable. Placing definitions on these concepts may serve a variety of purposes, but how to create these definitions differs greatly by context due to the abstract's extension into the physical.

Social constructionism describes the capability of choices made by people to develop into commonly accepted ideas in a society. Death is a universal phenomenon,

though the criteria that confirm death vary. Considering the death criterion as a social construct delivers the perspective that the meaningful values surrounding death are dependent upon human and social views rather than precise descriptions of death. The history of the brain death debate illuminates the importance people place on the interpretation of death over the event itself.

Pediatrician Norman Fost (1999) argues that creating standards for a definition of death is unnecessary and illogical because it fails to account for the context of each individual case. There are social goals that are dependent on a declaration of death, but these may be accomplished without a set definition of death. Fost correctly reasons that the widespread debates on understanding death since the late 1960's did not and could not spawn an epiphany on man's grasp of understanding death. However, his assertions that death cannot be described return to a philosophical argument that risks denying survivors or donor recipients the known benefits of having a declaration of death.

### *How to Define Death*

Consistent with current thanatological studies, bioethicist Baruch Brody (1999) adamantly considers death as a process rather than an event. While death and life may be separate identities, there exists an area in between where "fuzzy logic" reigns because "the world does not easily divide itself into sets and their compartments" (p. 72). Attempting to define death requires the development of criteria that describe how it occurs, but each potential criterion carries with it the weight of limited tests and a biased context from which a definition of death might be needed.

Avoiding the controversy of placing a definition upon death, bioethicists approach describing death through the inductive logical progression that definitions consist of criteria which may be confirmed by tests. If a test fails to meet a criterion, then the case fails to meet the definition. This method of studying death allows for flexibility in its definition, and Brody (1999) expands on the bias inherent in the definition of death as the criteria that support it vary. The three main perspectives on physiological criteria for death are the whole-brain criterion, the higher-brain criterion, and the cardiopulmonary criterion.

Each criterion carries the weight of an assumption that argues its rationale (Brody, 1999). The whole-brain criterion assumes that “the organism is alive only when its functioning is integrated” (p. 72). Once integration is lost, spontaneous organic functioning will begin to fail, preventing the recovery of vital organs and certain death. The higher-brain criterion assumes that “life requires the functioning of a person” (p. 72). This criterion follows the assumption that life is dependent on personhood. However, loss of cortical functioning does not imply risk of losing vital organ functioning, as patients suffering from persistent vegetative states or mental illness might experience cortical dysfunction. The cardiopulmonary criterion assumes that “the organism is alive only when the vital ‘bodily fluids’ – air and blood – continue to flow through the organism” (p. 73). This traditional view on death was questioned as diagnostic tests and advanced procedures allowed for the resuscitation of patients from critical conditions.

Before modern medical intervention and diagnostic methods, these three criteria might have been met within a small window of each other, thereby unequivocally satisfying the criteria for death. Now, modern medicine pulls these criteria apart and

demands an investigation into which criterion is appropriate in certain situations. In his discussion on the bias inherent in the three criteria, Brody (1999) suggests that the issue “is best resolved by giving up on the search for a single criterion of death that answers all of the questions that a criterion of death is traditionally understood as answering” (p. 75). By allowing for multiple criteria, the definition of death gains some flexibility.

Machado et al. (2007) agree with this hierarchy of definition, criteria, and tests, adding that “to define death is mainly a philosophical task, while the criteria and tests are medical tasks” (p. 701). The Danish Council of Ethics attempted to view death criteria from a philosophical perspective, developing the death process model which failed to please the Danish parliament and public (Rix, 1999). The brain death criterion was not widely accepted until evaluated through a medical lens, allowing for a definitive declaration of death to be made based on diagnostic tests.

In order to work up from tests through criteria toward defining death, certain human physiology surrounding death must be understood. Advancements in medicine and physiology allow for the possibility of human organ transplantation, which has been identified as a major impetus for studying death.

### *Physiology Associated with Clinical Death and Transplantation*

#### *Ways to Die*

The death process takes place as the cessation of functioning moves down the hierarchy of biological organization, organism to organs to tissues to cells. Even in the clearest cases of an individual’s certain death, organs and tissues may continue to function for a time, and cells may remain animated for days to weeks later. This artifact

of a death process versus a death event allows for a gray area between certain life and certain death. However, the Declaration of Sydney asserts that “clinical interest lies not in the state of preservation of isolated cells but in the fate of a person” (as cited in Machado et al., 2007, p. 701). Instead of fostering concern over what residual functioning may be detected after the death process has started, clinicians need only consider the point at which the cessation of an organism’s functioning become irreversible beyond resuscitation. The irreversibility of a patient’s impending expiration must be viewed in the context of human physiology and how tissues function, integrate, and animate organisms.

Considering the complex physiology of the human body, significant problems arise when attempting to determine what parts must function for a person to be considered alive. Each organ and organ system plays an important role in the total functioning of the body, and diseases unique to one organ may have lasting consequences throughout the body. Heart attacks kill people, but so do blood poisoning, liver failure, and pneumonia. Disease processes reveal that the failure of one organ may be sufficient to set up others for failure. This actually serves the task of defining death in biological terms well by identifying causality and the expected domino effect of organ failure toward total organism death.

However, the body tends toward survival and a peculiar sense of resiliency against total organism death. Despite vast integrative functioning of the organism as a whole, each organ system retains some physiological independence to preserve function should another fail. Proper regulation of the organism is a matter of successful

integration, and death has been argued to occur when integration ceases. Controversy enters as medical technology can keep some organs animated though others lay dormant.

There are four main areas that enter the discussions of death. The cortex (higher brain) is a region of the brain associated with cognition, thought, and voluntary actions. The brainstem controls coordination, integration of motor and sensory nerves, and involuntary actions (including respiratory control). The lungs receive and expel air to facilitate oxygen-carbon dioxide exchange between the atmosphere and blood. The heart is a muscular organ which pumps blood throughout the body's vasculature.

These vital organs regulate one another and share a certain extent of mutual dependence. The 1981 President's Commission delineates this network by describing a domino effect where "destruction of the brain's respiratory center stops respiration, which in turn deprives the heart of needed oxygen, causing it too to cease functioning" (p. 15). On the other end, if the heart were to fail, all organs (including the brain) would lose perfusion and inevitably fail. Both cases result in the death of the person. Modeling the debate between cardiopulmonary and brain death criteria, the cardiopulmonary system and the brain differ as machinery may intervene to support or to take over for the heart and lungs during periods of non-functioning, such as surgery or loss of spontaneous action. The total brain cannot be replaced mechanically. The entrance of medical technology into the realm of vital organs brings in the question of how vital these vital organs are. Is a surgical patient dead while a heart-lung machine bypasses his non-beating heart and empty lungs?

The most striking physiological incongruity in the field of death is the heart's independence from the brain. The heart is regulated hormonally and neuronally, but the

right atrium contains islets of cells, called the sinoatrial node, that generate the pacemaker activity of heartbeat. The heart's main action is independent from the brain and in many cases the heart can auto-resuscitate to beat again after a period of asystole. This artifact of human physiology contributes to the rift between conforming to a single criterion for death. Dr. Mehmet Oz comments that "there's no question that the heart without a brain is of no value. But life and death is not a binary system. ... In between life and death is a state of near-death, or pseudo-life. And most people don't want what's in between" (Roach, 2003, p. 188-9). To accommodate a social goal, a line must be drawn in each case to determine whether an individual is dead. This line is the criterion, evaluated by tests, that confirms whether death has occurred.

According to the 1981 President's Commission, tests for death criteria must evaluate organic functioning rather than detect cellular activity. The report emphasizes that integrated and organized organ function precedes cellular activity in confirming residual life in an individual (p. 6).

### *Organ Transplantation*

The interval between the death of the individual and the death of cells provides a unique opportunity to the medical field. Deceased patients hold valuable and revivable organs and tissues, and patients dead by neurological criteria can maintain their own organs for extended periods of time. Patients on life support may become donors via the Pittsburgh protocol, a transplant medicine practice that allows physicians to withdraw life support from patients in a surgical setting among transplant teams prepared to recover the donor organs. This controversial protocol developed in 1993 as a work-around for the long-standing dead-donor rule. The dead-donor rule is a bioethical principle that



prevents physicians from retrieving vital organs from living patients, where such organ retrieval would guarantee the patient's death. In the Pittsburgh protocol, surgeons must wait for two minutes after cardiac arrest post-withdrawal of life support before initiating transplant procedures (Fost, 1999).

Maintaining a brain-dead patient for the purposes of transplantation introduces understandable cognitive dissonance for both survivors and hospital staff. Patients who have lost total brain function require certain interventions to maintain and animate the vital organs for potential donation. Clinicians administer blood pressure regulation medication, provide oxygen, and even perform cardiopulmonary resuscitation (CPR) to restart the heart when necessary. Roach (2003) describes the strange nature of this practice when following a woman, pseudonym H, who died according to neurological criteria and was awaiting the transplant team. The nursing staff was disturbed by the orders in place to serve this patient's body, which was dead by accepted medical standards. In order to recall the context of the case, she states, "H the person is certifiably dead. But H the organs and tissues is very much alive" (p. 168).

### *The Language That Controls Death*

#### *Abandoning Brain Death*

As the term *brain death* and its variations entered the common language, it became apparent that an unfortunate word choice may have led to a widespread misunderstanding of how and when death occurs. The public and healthcare professionals experience a gap in understanding how brain death relates to death of the

individual. A brain-dead individual does not look dead, and inconsistent medical terminology prevents a convincing argument that the patient himself is dead.

Bioethicists Laura Siminoff and Alexia Bloch (1999) evaluate the acceptance of brain death in the United States. In a 1996 transplantation study, 164 families of brain-dead patients were surveyed for their understanding of brain death. Though the physicians pronounced brain death in 95.7 percent of the cases, “forty-five percent equated brain death with coma, and 31.7 percent believed that a brain-dead individual could recover” (p. 186). The gap between public and health professional views is also evident in Siminoff and Bloch’s own studies on the “understanding and acceptance of the concept of brain death” (p. 186). Only about five percent of health care providers agree “that a person is dead only when the heart stops,” (p. 186) while upwards of twenty percent of the public agree with this statement. Medical technology has put into question all traditional knowledge about the division between life and death. Traditional views on death allow for a definitive separation between life and death, but life-sustaining measures create a bridge between these worlds and challenge emotional and logical perception on whether life remains.

In response to the gaps in understanding created by language, the President’s Council on Bioethics released a white paper in 2008 entitled *Controversies in the Determination of Death*. The report expands on the issues with the term *brain death* and proposes its replacement. The most troubling issue with the term, and likely what confuses survivors and clinicians alike, is that it “implies that there is more than one kind of death” (p. 18). Pronouncing brain death has the intention of communicating that the individual has died, though this precedes the cessation of all organic functioning. The

council sees a major incongruity in stating that a patient became brain-dead at one time and later died by cardiopulmonary criteria (due to withdrawal from support or spontaneous loss of functioning). An article by Taylor (1997) points out this issue when he claims that “a mechanically ventilated person who meets whole-brain criteria for death is not biologically dead” (p. 268). A patient cannot die twice; the unfortunate terminology forces survivors into a liminal space where they are unsure if their loved one is actually dead or not.

The second criticism for the term *brain death* is its inconsistency with similar language referring to other biological functions. Organic death refers to the irreversible failure in cellular and histological functioning of an organ, but brain death does not fit this anatomical description. Residual brain activity by neurohormone secretion may continue after a brain death determination. Brody (1999) discusses the inadequacy of tests for brain death determination as neurohormonal regulation may remain intact for up to 72 hours after so-called brain death. His examinations of residual brain activity find that the clinical tests used to determine brain death fail to confirm the “irreversible cessation of all functions of the entire brain” as described by the 1981 President’s Commission and the Uniform Determination of Death Act. Though this distinction may seem minute, it must be made known that the general term *brain death* is not in line with comparable ideas of organic death or failure, such as cellular death or kidney failure.

Finally, the report expresses concerns for the label of death as a diagnosis. A medical diagnosis refers to the uncovering of an underlying disease or disorder; death is neither a disease nor a disorder. Death itself is a complicated social, philosophical, and spiritual phenomenon and cannot be reduced to a clinical determination by a series of

medical tests, especially when the status of a patient's life is unclear by these very tests. The standards for what makes a person dead also vary among cultures and societies. In this light, diagnosing brain death in order to declare a patient dead as an individual becomes an insensitive determination and an inappropriate use of medical authority.

The 2008 council supplements their criticisms of the term *brain death* with the replacement term *total brain failure* (p. 19). Total brain failure in a patient may fulfill a criterion for the determination of death, but it does not inherently state that the patient is dead, thus preventing a gap between two types of death in a single individual. This proposed term also stays in line with anatomical language of organic functioning. By removing the word *death* entirely, the council is able to avoid the philosophical issue with death as a diagnosis. Critical of attempts to assign medical claims to death, Norman Foster (1999) states that by abandoning brain death statutes, "we would no longer have to ask next of kin to use or accept a word – *death* – in situations where it makes little intuitive sense" (p. 175). A clinician may diagnose total brain failure and make the concluding determination of a patient's death, but pronouncing brain death emphasizes the point that death itself has occurred. Despite the semantic issues surrounding it, the term *brain death* should not be abandoned due to this key emphasis.

### *The Other Types of Death*

Language is a factor that manipulates the social goal of death. This became evident as bioethicists turned to view death as a process with stages rather than a single event. Throughout processional death, different functions, both physical and abstract, are

irreversibly lost; the loss of certain functions changes the status of the individual until he is certifiably dead.

Fost (1999) notes some points in the death process, including traditional death, brain death, personal death, biological death, and legal death. By considering a single individual to fulfill multiple roles in society, this description surprisingly implies that a person may die multiple deaths before final expiration. This strange idea is an unfortunate byproduct of language that applies *death* to *irreversible loss of function*. An example of this is found in the current edition of *Black's Law Dictionary* (2009), with multiple entries under the *death* heading. A *civil death* or a *legal death* is “the loss of rights – such as the rights to vote and hold public office – by a person serving a life sentence.” Though this individual is not dead by biological means, he is essentially considered dead in society.

Society must be careful with how the word *death* enters commonplace language when pertaining to people and human life. Having multiple deaths during the death process confuses the matter for survivors and clinicians who depend on social understandings of death to make important decisions. The President's Commission (1981) finds the examination of defining death important beyond the implications in organ transplantation and hospital resources. “Criminal prosecution, inheritance, taxation, treatment of the cadaver, and mourning are all affected by the way society draws the dividing line between life and death” (p. 45). In this way, the commission acknowledges that the determination of where this line might be is the responsibility of society.

## *Social Constructionism and Death*

### *Berger and Luckmann*

Social constructionism is a theory first developed by Peter L. Berger and Thomas Luckmann in 1966 to describe how societies attempt to understand knowledge and maintain these conclusions through human interactions. According to social models, people form ideas through observation and determine values inherent in social encounters. These ideas develop and spread, primarily by language, as a reality made up of social cues.

Social constructs enter objective reality through a process of human interaction and social agreement on spoken or unspoken terms. As people interact, certain ideas form that lead to general concepts. As these concepts mature, groups begin to define roles to satisfy and accommodate the new ideas. Social roles are short-lived unless institutionalized into society and passed on to future generations. Through this process of creation to institutionalization, concepts inspired by human interaction enter objective reality and become accepted as self-evident. Many of the customs and values societies hold today are founded on interactions in the past and require no logical validation for their acceptance. In fact, Berger and Luckmann (1966) affirm that “social order is a human product, or, more precisely, an ongoing human production” (p. 69).

According to their work, social constructs are made and maintained by human choices; society is dependent on human interaction, and the continuation of independent choices along a way of thinking defines what a society views as acceptable and right. In this way, an understanding of death in societies formed over countless human interactions with that inevitable and universal experience of the cessation of life. In commenting on

the symbolic universe of the individual, Berger and Luckmann (1966) state that the experience of death and its threat to the individual affect “the taken-for-granted realities of everyday life. The integration of death within the paramount reality of social existence is, therefore, of the greatest importance for any institutional order” (p. 119).

Brabant (2011) uses the Berger and Luckmann thesis on social constructionism to study the relationship between experience with death and student drawings on the topic. She finds a social construct related to bereavement, as students who have experienced grief due to a death tend to create drawings related to bereavement. Those who have experience with death channel their artistic energies toward expressing bereavement, rather than abstract ideas about the afterlife or fear of death. This study demonstrates that human interactions with death affect one’s social understanding of death.

#### *A Thin Line and City Limits*

Bishop (2011) remarks that complications arise when determining the validity of defining death because policymakers traditionally “are seeking a thin line in time and in space between the processes of life and the processes of decay” (p. 188). The certain indications of death, putrefaction and decay, set in some time after death actually occurs. In clinical settings, waiting for these indications are inappropriate and unnecessary. Instead, clinicians turn to observing signs of life and determining their absence. The logical assumption in place is that the absence of measurable signs of life confirms that the patient is dead. In fact, this method of determining death is one familiar in society and culture and has evolved as medical technology has developed. While this method of confirming death may be logically valid and accepted by society, it is dependent on the ability to detect signs of life.

Drivers are familiar with signs that inform them of entering a city's limits, though the surrounding area itself does not convince the driver that he has entered the city.

Without the sign indicating a city limit, the driver would not know that he had entered the city's incorporated area. This begs the question, is the city defined by its buildings and infrastructure or by the cartographical limits determined by geographical agreements?

Someone standing by that sign would hardly believe that stepping from one side of the post to the other changes his status from being in town to being out of town. However, the convenience dictated by defining divisions with specific lines allows for the appropriate partition of services, management, and authority. A line is required for these purposes, but people recognize place by the familiar hallmarks of a municipality – buildings, bridges, lights. Travelers will know when they are in the city, and oftentimes the sign will claim they have entered a place when they have yet to recognize it by traditional measures. However, city officials govern and maintain areas that extend beyond the physical boundary of buildings. In this way, a city limit is a social construct as a society collectively determines what may be considered as a part of a city and as separate from a city according to purpose.

Defining death by criteria follows the same artifact of social construction that creates the understanding of city limits. Both city limits and death criteria are determined by seemingly arbitrary distinctions for the benefit of a greater utility. Unlike a city though, clinicians cannot directly observe when a patient passes from life to imminent death. The buildings and infrastructure of death vary for each case, so death criteria must be used to know when death has assumed jurisdiction. The appropriate criterion to



confirm death may differ in each case, and the clinician has the discretion to apply the relevant method of declaration.

This flexibility in declaring death, permitted by social constructs, human physiology, and the loose wording of the Uniform Determination of Death Act, has allowed physicians to delay a pronouncement of death for the benefit of survivors. Applbaum et al. (2008) examine criticisms of a family's request to keep a patient on support after neurological criteria for death was met. Refusing to accept death on these criteria by delaying withdrawal of support or attempting additional interventions "undermines medical professionalism and the supportable claims to expert authority of medical science" (p. 2189). Some states, such as New York and New Jersey, allow for exceptions to medical standards in determining death in cases where religion or reason may outweigh the accepted practice. Veatch (1999) recounts the New York case of a man whose pronouncement of death was delayed by physicians to accommodate the patient's Jewish belief system. The brain death criterion was not accepted by the patient's rabbis, and he was kept on a ventilator despite total brain failure (p. 138).

Linda Emanuel (1995) permits this approach to a flexible determination of death in her bounded zones model of dying. Rather than a single state, life and dying are a continuum with loss of functioning at one end and cardiopulmonary failure at the other end. Between these ends are bounded zones, and communities may choose which boundary is sufficient to determine death and when to withdraw support. The subjective nature of declaring death confirms that death criteria are a social construct, while death itself is a real experience. However, death's elusive nature requires a reliance on death criteria to make decisions about the end of life.

### *Social Implications of Declaring Death*

Despite his criticism of attempting to define death, Fost (1999) acknowledges that “it is helpful and desirable to select a point in time where it is appropriate to say, ‘He is dead,’ not because it is true, or because we are experts on such questions, or because it facilitates organ retrieval, but because it is helpful” (p. 175). A formal declaration of death has implications in bereavement, organ transplantation, judicial proceedings, and settling estates.

Bereavement specialists agree that a major tenet of healthy grief is a stated or visual confirmation that the death has occurred. This key moment grounds the survivor and allows for the initiation of ritual actions that accompany grief. Models developed by Kübler-Ross (1969), Worden (2009), Stroebe and Schut (2010), and Hoy (2013) emphasize the recognition of finality as a main pillar in bereavement. Kübler-Ross’ stages of grief describe in part the movement from denial to other emotions that recognize a change has occurred. Overcoming denial establishes the death in the survivor’s new reality. Worden’s Four Tasks of Mourning start with accepting the reality of the death. Grief may be unhealthily prolonged without acknowledging the finality of the death. Stroebe and Schut describe the balance between loss-oriented and restoration-oriented grief in their Dual Process model. Knowing about a death permits and validates a bereavement experience characterized by mourning and taking action. Finally, Hoy’s Compass Model of Bereavement includes the tenet ‘Realize’ like the other models, and he extends this to support viewing physical remains and learning how to talk about the death. In each model, healthy bereavement begins with an honest declaration of death.

Preventing or prolonging this realization puts the survivors at risk of developing complicated grief.

The importance of a declaration of death in organ transplantation is discussed in Chapter One, as policy makers find preventing physician homicide cases an impetus for developing brain death legislature. Though the risk of lawsuit or criminal proceedings against a transplant team may be unfounded, modern healthcare policy stresses an importance on the dead donor rule to protect the rights of both the patient and the physician. Other court cases and estate settlements may require a formal declaration of death in order to confirm criminal and civil action related to a person's death.

In the United States, much diversity in thought derives from spiritual and religious beliefs. Religions expand on principles of life and offer guidance to man about how to understand death. Examining religious views on death is an appropriate next step for clinicians interested in developing a more complete understanding of death. This practice may provide a key reference if a patient comes from a different cultural background, but more importantly it allows one to appreciate the diverse thought and the various lenses that have come to shape man's view of death. The content of Chapter Three is devoted to examining the views of death in the Abrahamic faiths.

In some cases, the determined moment of death may be flexible, but it is not arbitrary. People hold emotional claim to the ways they view life, and by extension the ways they view death.

## CHAPTER THREE

### Religious Contributions to Death Criteria

*On November 4, 2008, Motl Brody was declared brain-dead by his physicians at a Washington, DC, hospital. Suffering from a brain tumor, the twelve year-old Hasidic Jew met the medically accepted neurological criteria for death, and the hospital informed the family that mechanical support would be withdrawn from his body. Brody's parents objected to the hospital's decision, citing their Orthodox Jewish views after a rabbinical consult. Their rabbi asserted that the proper declaration of death in Jewish law occurred when both respiration and cardiac activity stopped. The hospital and the family met in court to decide who would prevail in the struggle to determine Brody's life status. However, the young boy's remaining organic functioning ceased on November 16, before a court or other joint decisions could be made – leaving the issue of Brody's life status during those twelve days unresolved (Hall, 2010).*

In a spiritual context, socially constructed death criteria take on a new form guided by tradition, community, experience, and faith. Religion may play an important role in the clinical decision making of the physician, the patient, and the patient's family. In cases of determining clinical death criteria, a clinician may better communicate a patient's irreversible condition by considering the unique religious views of the family. One does not need to share a belief system with his patient to respectfully incorporate social and cultural matters into the patient's medical care. By acknowledging religion as a modifying factor to the patient's care, the clinician will make the experience of the disease more meaningful. "A minimum level of cultural awareness is a necessary prerequisite for the delivery of care that is culturally sensitive. Appreciation of the beliefs, perspectives, and conceptual framework used by people are essential parameters when discussing medical ethics concerns" (Akrami, Osati, Zahedi, & Razza, 2004, p. 2886).

In the United States and most of the Western tradition, the Abrahamic religions dominate the spiritual landscape. Judaism, Christianity, and Islam instruct their followers according to key theological, metaphysical, and moral views. Issues concerning life and death are particularly important due to the sanctity of life common among these belief systems. Within each religion, there exist various views on how to determine if death has occurred in a person. Holy scripture and commentaries reveal how each religion views what is the appropriate death criterion to confirm that death has occurred. Judaism, Christianity, and Islam contribute to the Western tradition's construction of death criteria by recognizing the separation of cardiopulmonary death and brain death brought by advancing medical technology. However, the newer neurological criterion has met both acceptance and resistance on religious grounds.

### *Judaism*

Judaism contributes much to discussions on the intersection of spirituality and bioethics due to its theological emphasis on the sanctity of life and the breadth of established Jewish law and commentary. Rosner (1999) states that the basic tenets of humanity in Judaism rest on “the concept of the supreme sanctity of human life and of the dignity of man created in the image of God” (p. 211). Deriving spiritual guidance from a variety of written sources, Judaism places a heavy emphasis on the creation and preservation of human life. The cessation of life in Jewish tradition is based on assessments of when life begins, how life is maintained, and the way one may die.

### *Holy Scripture*

Jewish theology is organized according to written law in the Torah, the oral law and traditions recorded in the Talmud, and various responsa (teshuvot) addressing specific cases and interpretations. The Torah consists of the first five books of the Hebrew Bible, respected in the Christian tradition as the Old Testament. The book of Genesis contains the story of man's creation, which sheds important light on how life and death function in relation to the body.

Understanding how life animates a physical body leads one toward recognizing when such a body may be declared dead. Early in the Torah, the creation of man is described by the verse: "Then HaShem G-d formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul" (Genesis 2:7, Jewish Publication Society). This early description of life forms the basis of the Abrahamic understanding that a person consists of a physical and a spiritual component, and life is dependent on the coexistence of the two. Man's physical form takes root in materials of the earth and cannot take the shape of life without God's powerful input. Life begins when the spirit enters the physical being and animates man. The literal description in Genesis identifies the entrance of life with the initiation of respiration.

The association of breath and life is visited again in Genesis during the narrative of Noah and the Great Flood. The destruction of all unsecured terrestrial life is recounted in the verse: "all in whose nostrils was the breath of the spirit of life, whatsoever was in the dry land, died" (Genesis 7:22, Jewish Publication Society). In this verse, the author emphasizes that breath indicates the presence of life by equating the loss of respiration to the loss of life. The wording implies that living creatures contain spirit through the

nostrils, and death (the absence of life) may be known in these creatures. As long ago as the eleventh century, Rabbi Shlomo ben Yitzchak, also known as Rashi, recognizes these passages in his commentary of Jewish texts as critical in determining death. With agreement in later commentary by Moses Maimonides and Joseph Karo, Rashi concludes from scripture that “if no air emanates from his nostrils, he is certainly dead” (Rosner, 1999, p. 216).

### *Declaring Death*

Judaism describes death according to death criteria by examining cases in the oral tradition and responsa by Jewish scholars. Rav Moshe Feinstein, a prominent Orthodox Jewish scholar, delineates much about what death is and how it occurs in his responsa collected in *Care of the Critically Ill* (1996). His responsa address death according to the Talmud and the Torah in light of medical advancements and conversations he has had with medical authorities. Feinstein publishes his 1984 responsum “Definition of short-term prolongation of life” in *Iggeros Moshe*, Chosshen Mishpat II:75. The work addresses three Talmudic sources that confer understanding on the signs of death (Feinstein, 1996).

The Talmud directly addresses death by stating in Mishnah (Ohalos 1:7) that “a man is not considered dead until his *nefesh* [life force] leaves him” (Feinstein, 1996, p. 69). The tractate further explains that should a living person or animal be decapitated, he or it becomes certainly dead under Jewish law. Any residual movement by the creature after decapitation does not indicate remaining life. Commentary by the prominent, medieval Jewish scholar Moses Maimonides expounds that such residual movement is not life because the source of the action is no longer integrated or centralized.

Maimonides' discussion of physiology is remarkably forward-thinking by differentiating the death of the organism from the death of separate tissues and cells.

The issue of death criteria is visited again in the Talmud (Chulin 21a) by equating a broken neck to decapitation. A dead person who suffers a broken neck defiles a shelter as soon as the neck breaks in the same manner a dead body might. In Jewish law, commentary on the broken neck criterion describes it as physiological decapitation, where internal separation of the head from the body is sufficient to cause death. While traumatic separation of head from body is a clear indicator of death, the Talmud specifically describes that "it is not the anatomical decapitation or the visible wound that is the criterion for declaring the patient dead, but the internal injury" (Feinstein, 1996, p. 70). If clinical evidence is present to indicate a permanent separation of the brain from the body, then the patient may be declared dead according to Jewish law. Decapitation need not be physical but practical. This argument has been a leading argument for the neurological criterion of death in Jewish law.

Confirmation that death has occurred is evaluated in Mishnah (Yoma 83a) with an anecdote about a man trapped beneath falling debris on the Sabbath. Jewish law requires man to reach the victim despite the Sabbath laws against labor, but the rescuer may not interact with a dead body on the Sabbath. In order to determine if the victim is dead or not, the rescuer turns to Genesis 7:22 and detects life by identifying any breath from the nostrils. The Talmud concludes that a test for respiration at the nostrils is sufficient should the person appear dead and motionless (Feinstein, 1996). Clear exceptions to this criterion of death should be apparent to adherents of Jewish law and clinicians. The laws that equate loss of independent respiration with death should be applied in the modern



understanding of independent respiration deriving from brainstem activity. Choking people and those paralyzed do not suffer from a loss of brain function, though the nostril-breath test might diagnose them dead. Jewish law makes the distinction that a dead person will exhibit no coordinated movement and no response to stimuli.

In 1976, Feinstein published a responsum in *Iggeros Moshe*, Yoreh De'ah III:132, on the establishment of a time of death. He cites the determination of death of the Sabbath victim among debris and goes further to acknowledge the problem posed by mechanical ventilation. Feinstein concludes that “breathing by means of a machine does not satisfy the halachic definition of respiration” (Feinstein, 1996, p. 33) and therefore patients who can no longer spontaneously breathe are considered dead. The responsum then goes on to describe what would today be considered an apnea test. Feinstein fears that removing a ventilator after declaration of death by neurological criteria could kill the patient if some spontaneous – but hidden – respiration remains to indicate life. The responsum states that if the ventilator requires servicing, then the patient may be monitored for fifteen minutes off the ventilator to detect any independent respiration. If no breathing returns without support, then the ventilator need not be reinserted as death is certain (Feinstein, 1996). The modern apnea test in potentially brain-dead patients works in the same manner, with protocol variations by state and nation.

### *Jewish Criticism of Brain Death*

While much of the Jewish community considers death by neurological criteria to be equivalent to death itself, other groups of thinkers also cite Jewish law to refute the neurological criterion in favor of the traditional cardiopulmonary criterion. These Conservative and Orthodox Jewish scholars deny that death may be separated into

criteria. Three accounts of Jewish commentary impose stricter views on when death occurs than the neurological criteria generally accepted.

Rashi understands the Talmudic passage on determining death in Mishnah (Yoma 83a) to mean that the victim must not only be without breath but also appear dead. The lack of respiration confirms death if the person lays motionless, implying no residual muscular action or heartbeat. Rabbi Moses Sofer confirms this interpretation by commenting that such a patient is dead if still and in asystole. Brain-dead patients in intensive care units do not have the death-like countenance of patients dead by the traditional cardiopulmonary criterion. The requirement to appear dead to be dead is understandable for commentators writing before medical technology could maintain a dead person's organs and tissues. In fact, commentary by Rabbi Tzvi Ashkanazi argues for a cardiac-based death criterion according to inaccurate medieval anatomy. His late seventeenth century responsum states that respiration coincides with cardiac activity because breath derives from and benefits the heart (Rosner, 1999). These three sources describe death accurately in the context in which they were written, but new ideas and medical procedures have undermined the criticisms deriving from such commentary.

Medieval medicine has a limited understanding of cardiopulmonary anatomy and places a higher reliance on integrative functioning between the heart and lungs than is known to be true today. In those times, the air from the nose cooled the heart (Rosner, 1999). Today it is known that the heart beats according to spontaneous auto-stimulation while the lungs function according to brainstem activity. In the context of Judaism, the emphasis of respiration on the maintenance of life leads to focus on cessation of breathing as a sufficient signal of death. If breathing is controlled by the brainstem, then

the neurological criterion for death does not require cessation of cardiac functioning to declare death by Jewish law. Continuing cardiac functioning after brain death echoes the residual cellular activity Maimonides describes.

### *Clinical Considerations of Jewish Death Criteria*

Judaism distinguishes between the body and soul and believes these entities separate at death. Physiological indications of an intact body and soul cannot be conclusively determined, due to many factors within the medical, philosophical, and religious communities. The physical signs of death have been described in many different settings, and prominent Orthodox Jewish bioethicist J. David Bleich (1973) believes that medicine has inappropriately stepped in to dominate the debate of defining death. While the topic of death is central to clinical science, it cannot be approached in a medical context alone. Bleich argues that while physicians may best examine the condition of a patient, “whether the human organism in that physiological state is to be treated as a living person or as a corpse, is an ethical and legal question” (p. 93).

The role of the physician in the sanctity of life stands out in Jewish law and society. The physician must actively interact with others to provide effective services. Calling on training and knowledge, physicians under Jewish law must “do everything in their power to prolong life, but [Jewish law] prohibits the use of measures that prolong the act of dying” (Rosner, 1999, p. 211). The physician has the responsibility to work for the life of the patient, but the patient does not necessarily have the right to exhaustive efforts to maintain life in vain. Medical training allows clinicians to interface between life’s potential end and the forces that hasten it. This position is crucial in Jewish society, as a man must seek out measures that preserve the lives of himself and his family. The

communal responsibility to honor life thrives when physicians are obligated to treat and patients are obligated to be treated. This precious physician-patient relationship leads to treatment based on trust and spiritual confidence in healing by human measures.

Rosner's (1999) investigations into the Jewish definition of death find "considerable evidence in classic Jewish sources indicating that irreversible lack of respiration and death are synonymous" (p. 219). Death by the traditional cardiopulmonary criterion also stands, indicating that Judaism permits the construction of various criteria to determine that death has occurred. Judaism has contributed important insight to how people understand and recognize death in the advent of new medical technology and knowledge. Death itself may be elusive but it can be known by constructed criteria.

### *Christianity*

Christianity traces its origins and tenets to the teachings of Jesus in the first century. Jesus is believed to be the Messiah that the Israelites anticipated, and the first Christian groups branched from the Jewish tradition. Today, Christianity is the largest religion in both the world and the United States. This belief system has a rich history of conflict and resolution among various sects of Christians. Namely, the religion consists of Catholicism, Protestantism, and Eastern Orthodoxy; these divisions are characterized by differences in theology, scriptural interpretation, and clerical organization. Overall, the Christian denominations share a moral code of conduct, a belief in human salvation, and the study of both the New and the Old Testaments.

### *Holy Scripture*

The Christian scriptures are generally divided into the Old and the New Testaments. The Old Testament, also called the Hebrew Bible, was composed before the ministry of Jesus and is the same text (known as the Tanakh) shared by Judaism. Therefore, Christianity shares with Judaism the verses in Genesis that describe God granting the breath of life to man (2:7, 7:22). With a less authoritative tone outside of the Torah, the Book of Psalms records hymns that praise and make sense of God. Psalm 104:29 recalls Genesis 7:22: “When you take away their breath, they die and return to the dust” (New International Version). The language in the Hebrew Bible develops the belief that God animates the flesh with sacred life and that death occurs when the soul has left the body.

The New Testament records the life and ministry of Jesus as well as early responses to Him as Messiah. Much of the New Testament contains moral instructions and revisions to the covenant God made with the Israelites. However, spiritual understanding of human death echoes from the Old Testament into the Christian canon. The Epistle of James, addressed to all Christians, inserts a spiritual description of human death when emphasizing the necessity of a particular Christian behavior in chapter 2: “As the body without the spirit is dead, so faith without deeds is dead” (James 2:26, New International Version). The early Christian church had close ties with the Jewish faith and retained many theological ideas of life and spirit from this tradition. While various interpretations surround the nature of the human spirit, the Abrahamic religions share the view that human life consists of a soul within a body and human death occurs when the soul departs from the body.

## *Declaring Death*

Guided by authoritative texts and addresses, the Catholic Church provides much discussion on death and dying in Christianity. Over the last several decades, Catholic leaders and scholars have provided important examinations of understanding death as defined via death criteria. Namely, the Catholic Church is guided in these matters by an address of Pope Pius XII, an address of Pope John Paul II, and other commentaries by Catholic bioethicists.

In his 1957 “Address to an International Congress of Anesthesiologists,” Pope Pius XII responds to questions on the morals of resuscitation and death posed by a chief anesthesiologist. The piece addresses the bioethics of action and inaction when cases appear hopeless, as well as an examination of physical death. Pius XII recalls that various traumas and procedures, “when modern anesthetizing equipment was not yet available, would stop the heartbeat and bring death in a few minutes” (Problems of Anesthesiology section). Pius XII implies that cessation of the heart alone is not enough to confirm death, assuming that subsequent resuscitative efforts could restart the heart and restore recognizable life. His address specifies that certain death occurs some time after the heartbeat stops; thus he acknowledges that advancing medical technology has brought a new understanding of what death is.

One issue unique to Catholics is the administration of the Sacrament of Anointing of the Sick to a person of grave illness. Pius XII (1957) introduces the caveat in brain-dead patients because “he who is not a man, who is not yet a man, or is no longer a man, cannot receive the sacraments” (Administration of the Sacraments section). If the patient is dead by neurological criteria, can he receive the sacraments or has the soul long

departed? Pius XII responds by deferring to medical authority to determine if death has occurred and the soul has departed. The certainty or doubt of the physician on the patient's life status respectfully confers certainty or doubt on the validity of the sacraments. In fact, Pius XII forfeits jurisdiction of judging criteria for confirming that death has occurred; he states that "the answer cannot be deduced from any religious and moral principle and, under this aspect, does not fall within the competence of the Church" (When Is One "Dead" section). It would not be appropriate to attempt resuscitation or administer the Anointing of the Sick once the soul has departed, but the Catholic Church cannot provide details that confirm if this departure has occurred.

Pope John Paul II draws on the 1957 address in his own 2000 "Address to the 18<sup>th</sup> International Congress of the Transplantation Society" on life, gifts, human dignity, and death. John Paul II states that, spiritually, death is an event whereupon the soul and body end their unity, yet this separation cannot be observed directly by science. However, he acknowledges that medicine can measure the signs that follow death to determine if death has occurred. Death criteria do not determine the time of death but instead are "a scientifically secure means of identifying *the biological signs that a person has indeed died*" (section 4). The Catholic Church thereby acknowledges that death may be described physiologically for practical ends in a clinical context.

John Paul II echoes Pius XII's resistance to placing the responsibility of determining death criteria on the Catholic Church. He reserves the role of the Church to protecting human dignity when medicine interfaces with Christianity. The concept of brain death was in its infancy during the time of Pius XII's address. Facing the neurological criterion head on, John Paul II met with numerous advisors in both Christian

and medical circles over several years prior to his 2000 statement. He concludes that “the *complete and irreversible* cessation of all brain activity, if rigorously applied, does not seem to conflict with the essential elements of a sound anthropology” (section 5). Based on these criteria, a clinician acts morally to suspend mechanical support of a brain-dead patient or pursue organ transplantation options. The certainty afforded by the medical community must support the actions of the clinician, and acceptance of medical criteria for death does not contradict the instructions of the Catholic Church.

Catholic bioethicist Edward J. Furton (2002) examines both papal addresses and pulls from other Catholic sources to support the use of the neurological criterion in declaring death. The difficulty with studying medical death criteria through a Christian lens rests in the discrepancy that “the fact of death is known by the physician through certain external signs, but it is the interior event of the separation of the soul from the body that is of interest to the Church.... That interior experience is in principle unobservable” (p. 464). Furton describes the human spirit as one that distinguishes human life from the life of all other creatures, and the intellectual nature of the soul leads him to find it residing in the brain. This determination by deduction derives from the understanding that the soul cannot be divided, though living organs may be separated from the body without destroying the donor’s soul. Placing the soul elsewhere, such as the lungs or heart, “contradicts both scientific fact and Catholic teaching” (p. 470), as the union of integrated intellect and the body is understood to occur in the brain. By this position, the Catholic Church can view death through criteria and declare a person dead neurologically though a heartbeat and mechanical respiration might remain.



The Protestant denominations tackle bioethics in various venues without the central stage afforded to the Catholic Church, though much of Christian thought is shared across denominational lines. Baptist theologian Gregg Allison (2009) investigates human embodiment according to biblical and theological lenses. He confirms the Christian belief that death is inevitable and a universal experience, noting that physical death only indicates the end of one's life on earth. Physical death in his biblical discussions equates to "the cessation of the functioning of the material aspect of human nature. The body ceases its physiological activity, and the life principle that energized the body is withdrawn from it" (p. 12). The cessation of physiological activity is a quite broad statement when considering the difference between organismic functioning and the activity of tissues and organs. The spiritual indication here is that the body loses animation upon the departure of the soul. In his descriptions of physical death, Allison inserts an endnote that he intentionally omits discussions of the various death criteria and encourages the reader to investigate sources such as the 1981 President's Commission report and a piece by Vautier (1996). This diversion suggests that death criteria are up to individual interpretation and stand separately from biblical discussions of death.

Presbyterian minister B. Holly Vautier (1996) separates the philosophical definition of death from the medical criteria for death. She concerns much of her analysis on the interconnectedness of defining death and the qualification of personhood in a human. Discovering personhood should be a philosophical and spiritual concern, which protects humans from being denied the rights of humanity. Defining death may be an exercise based on these philosophical discussions, and the criteria for death should remain with the medical community to decide what physiological signs confirm that

death has occurred. Vautier emphasizes that individual circumstances must be considered, and that “criteria for death should be based on the state of the patient and not on the need for transplantable organs or the cost of continued therapy” (p. 101). The focus must remain on the patient’s condition according to medical criteria. Her analysis features less emphasis on Christian authority in favor of a deep concern for human nature and personhood. These ideas are rooted in her Christian faith, indicating that the Christian way of life informs the Protestant understanding of death and death criteria rather than the organized doctrine provided in the Catholic Church.

### *Christian Criticism of Brain Death*

Along the same basic Christian beliefs that lead many to accept brain death as a valid criterion of true death, some Christian thinkers resist the acceptance of a neurological criterion over the traditional cardiopulmonary criterion. Much of this resistance derives from fear of hastening or causing death in a living patient. These concerns cross denominational boundaries and may be the personal opinions of groups or individual Christians.

Religious concern about death criteria did not arise immediately after the 1968 publication of the Harvard criteria. Bioethicist Courtney Campbell (1999) notes that Christian opposition arose a few years later once the concerns of abortion and euthanasia developed in the 1970s. Christian responses to defining death required a stage on which to have theological discussions. Some initial concerns were brought up by fundamental Christians, who note that “the whole-brain definition seems to win by default rather than to be theoretically justified by carefully developed explorations” (p. 199). Fundamental and conservative evangelical Christians make up a broad community of Protestants. The

term *fundamentalist* in this case does not refer to the pejorative term for a person of strict and critical beliefs.

Campbell (1999) discusses three fears the Christian community has over the endeavor to define death. In clinical settings, renewing death criteria implies that some patients who would not be traditionally considered dead might become considered dead. Without certainty that the soul has left the body, physicians could hasten death or even cause it by withdrawing support. This point leads into the second fear of playing God. The bioethical act of playing God places concern on human encroachment into the jurisdiction of the divine (or nature) and on what this might say about human arrogance. Christians believe that God created life, so humans cannot decide what it is or how it ends, although society may determine what criteria signify when death has occurred. Campbell describes a third fear that “redefining death may be the wedge to qualitative assessments of human life and value, rather than an affirmation of a sanctity-of-life assessment under the dominion of God” (p. 204). Stuck between opposing euthanasia and supporting organ transplantation, many Christians warily approach defining death due to the moral implications and potential abuses of siding with a particular physiological definition. If death may be defined along neurological criteria, would Christians risk neglecting comatose or mentally ill patients? These valid fears by Christians to define death do not prevent acceptance of an understanding of death as defined by criteria.

Some Protestants also echo the Jewish respiratory criterion by citing various Old Testament (Genesis 2:7, 7:22, Psalm 104:29) and New Testament verses. The Gospels offer support for the respiratory criterion when describing the moment of Jesus’ death as

marked by an exclamation and a final breath (Matthew 27:50, Mark 15:37, Luke 23:46, John 19:30). Reverend Robert Fleischmann of the conservative Lutheran group Christian Life Resources asserts that respiration and oxygen are the important indicators of remaining life, even if provided mechanically. While he bases this belief on scriptural evidence, Fleischmann attempts to justify the respiratory criterion with a faulty understanding of human anatomy, where he denies the importance of the brain if blood can circulate after it fails (Wisconsin Evangelical Lutheran Synod, 2014).

The Catholic Church also acknowledges concerns with the development of death criteria. In section 15 of his encyclical *Evangelium Vitae*, John Paul II admits a fear of clinicians abusing death criteria to advance organ transplantation programs or to encourage euthanasia. These fears do not change the Catholic Church's stance on accepting death criteria as a valid medical measure of when death occurs. However, the associated concerns merit warning society to utilize the powerful tools it develops with caution.

### *Clinical Considerations of the Christian Death Criteria*

Pope John Paul II warns in his 1999 encyclical *Evangelium Vitae* that “man is not the master of life, nor is he the master of death” (section 46). Even in the face of inevitable death, Christians believe that trust must be placed in God to have complete sovereignty over life and the living. However, this warning also implies that man cannot have dominion over death and should be careful when assuming knowledge about this powerful entity.

Popes Pius XII and John Paul II relinquish the Catholic Church from evaluating the medical nature of death criteria. The Christian description of death exclusively deals

with the nature of life and the separation of the soul from the body. Physicians cannot directly measure the presence of the soul and must convey to Christian patients how death criteria allow one to recognize when death has occurred. These criteria may be shaped by society, but Christianity still informs the perspectives a physician, patient, and family have about the criteria.

### *Islam*

As the third major Abrahamic religion, Islam claims over 1.6 billion followers worldwide and an estimated 2.6 million followers in the United States, according to statistics provided by the Pew Research Center (2011). Many basic religious ideas are shared between Islam and the other Abrahamic religions. Informed by the Quran, Muslims order themselves under an organized legal system that stresses the sanctity of life, altruism, and numerous other customs. The theology of Islam has led important discussions on death criteria that direct how Muslim nations and Muslims around the world may view a very modern problem with an old faith.

### *Holy Scripture*

The Quran addresses death in numerous places and instructs the Islamic community on mortal matters that cannot be directly observed. Death's universality and inevitability is conveyed by the verse: "Every soul will taste death. Then to Us will you be returned" (Quran 29:57, Sahih International). While the verse is straightforward in nature, two key features imply greater metaphysical consequences. The first statement indicates that the soul will be what experiences death. This perspective supports the idea in religious thought that the individual is a soul with a body rather than a body with a

soul. No soul can escape death. The second statement suggests a chronology where death occurs and some action follows, with that action being a return to the divine. Such a chronology indicates that there must be a point where one has died, and one cannot perpetually be in a state of dying.

While one's eventual death is known, what death is and how it occurs on a spiritual level remains somewhat elusive. The Quran describes death as an actively spiritual event, as "Allah takes the souls at the time of their death, and those that do not die [He takes] during their sleep." (Quran 39:42, Sahih International). This verse provides the best Islamic definition of death, which states that death is the separation of the soul from the body. In fact, the Arabic word for death *al-mawt* (and *al-mawât*) "etymologically means separation of the soul from the body, and cessation of the signs of life" (Bedir & Aksoy, 2011, p. 290). In both scripture and language, death is intrinsically tied to the absence of the soul. The verse describes further that the departure of the soul is directed by Allah. This does not imply a divine action to cause death but rather indicates the divine interaction with the soul that accompanies the human experience known as death.

Additional commentary is found in the Hadith literature, which serves to supplement the Quran. This collection of Islamic texts is not addressed here because it is beyond the theological scope of examining the religious influences on death criteria. However, the Hadith might prove resourceful to Muslim patients or those interested in studying views of death in Islam further.

### *Declaring Death*

Declaring death carries an importance in the Islamic tradition that demands timely action after death has been confirmed. Funerary rites must typically occur within twenty-four hours after the death. These rites include washing and preparing the body for burial, mourning, prayer, and interment. Declaring a death also initiates the process of passing on inheritance and appropriating rights to the widow (Padela, Arozullah, & Moosa, 2013). Just as in other cultures and traditions, cases in the past determined by the traditional cardiopulmonary criterion provided declarations of death without a question of its validity.

Typical post-modern thinking in the bioethics sphere interprets death as a process rather than an event, encompassing all the changes the body and spirit go through once passage from this life becomes inevitable. This interpretation implies that there exist recognizable intermediate stages in between certain life and certain death, with the issue of certainty centering the discussion. Qazi, Ewell, Munawar, Asrar, and Khan (2013) examine brain death in the context of the Islamic principle of certainty and the incongruity between death's certainty and man's uncertainty in confirming its occurrence. Legal in nature, Islam requires knowledge that a person is deceased before the social and religious actions may take place. However, "the exact timing and nature of death is considered metaphysical and one that lacks certainty (*yaqin*)" (p. 124).

The development of medical technology and the advancement of organ transplantation have brought discussion of brain death into the Islamic community. Scholars in medical ethics hope "to seek a compromise between Islamic custom and the achievement of modern medicine, as long as basic Islamic doctrine is not dishonored"

(Akrami et al., 2004, p. 2886). The first conclusions regarding organ transplantation were founded in the Islamic principles of sacred life and the saving of lives. Meetings of medical scholars and jurists took place in the 1980's to determine how brain death might be approached in Muslim nations.

Islamic jurists discover meaning from religious sources and determine opinions on matters that may not have been previously explored. A legal opinion (*fatwa*) derives from direct instruction in written sources and any necessary rational approximations. In 1986, the Third International Conference of Islamic Jurists produced a *fatwa* describing the criteria that determines when a person may be considered dead. The language of Fatwa Number V reads similarly to the 1981 American Uniform Determination of Death Act:

A person (is) considered legally dead and all the shariah's principles (Islamic Law) can be applied when one of the following signs is established: (i) Complete stoppage of the heart and breathing which are decided to be irreversible by doctors. (ii) Complete stoppage of all vital functions of the brain which are decided to be irreversible by doctors and the brain has started to degenerate. Under these circumstances it is justified to disconnect life supporting systems even though some organs continue to function automatically (e.g. the heart) under the effect of the supporting devices (Hassaballah, 1996, p. 965).

Both the Fatwa and the UDDA make clear that a person who meets one of these criteria is dead in the eyes of the law. While the UDDA stops after describing death, the Fatwa further states that licit actions may be taken to remove brain-dead patients from support. The jurists recognize that other organs may continue to function on their own with mechanical assistance, and this mechanical support may be legally removed. Highlighting this distinction of retained organ function in death, the jurists seem to acknowledge the modern understanding of physiology. The Fourth International



Conference of Islamic Jurists in 1988 expands the previous decisions to support altruistic organ donation while denouncing illicit organ trading (Albar, 2012).

Regional councils around the world have arrived at different conclusions regarding the issue of considering brain death as legal death. Most scholars and jurists support the equation of the two and permit brain death, while some contend that brain-dead patients are living (Padela et al., 2013). As legal opinions, the *fatawa* are prepared to be directly incorporated into the laws of the Muslim nations. Iran (Akrami et al., 2004) and Saudi Arabia (El-Shahat, 1999) have developed organ transplantation programs supported by brain death laws. The Islamic laws may be applied in Pakistan, as a Muslim state, but confusion surrounding brain death and a lack of resources for a sound organ transplantation program have prevented legal acceptance of the brain death criterion (Rizvi & Naqui, 2001). Resistance was also met in Egypt, as regional culture clashes led to “unease about curtailing one patient’s life in order to extend another’s” (Hamdy, 2013, p. 149). While Islamic law was supported on the religious end, a group of doctors in Egypt resisted the acceptance of brain death and published materials denouncing the origins and use of the brain death criterion. Egypt ceased its program until 2010 without accepting brain death (Hamdy, 2013).

The Egyptian Grand Mufti Sheikh Muhammad Tantawi permits cadaveric organ donation in his 1988 *fatwa*. A patient may donate vital organs provided that the patient is determined dead. In questions about how to define death, he asserts that “the Islamic view of death is the departure of the soul from the body. However, it is the medical professionals who define death medically and clinically. The Muslim Muftis are not involved in this and will not become involved” (El-Shahat, 1999, p. 3271).

### *Islamic Criticism of Brain Death*

Though Islamic judicial decisions have reached some practical conclusions about death, organ transplantation, and brain death, recent criticisms have called into question the theological underpinnings and consequences of permitting brain death as death. Returning to the theological notion that death occurs when the soul separates from the body, critics of brain death argue that respiration – even if mechanically supplied – is a sufficient indicator that the soul remains. Bedir and Aksoy (2011) argue against the acceptance of brain death as complete death and emphasize that the moment of death is a marked and certain one. They point out that respiration is a key factor in confirming life because “just as the aliment of the body is water, so the nourishment of the soul is air” (p. 291). Whether the patient breathes on his own or not, the passage of air into the body maintains the soul.

This argument against brain death attempts to argue theology over physiology, but most Islamic scholars contend that brain death is an acceptable criterion of death. Attempts to prolong life are not inappropriate but Allah will ultimately determine when death occurs, regardless of what present aliment nourishes the soul. Islamic communities contend that Allah dictates jurisdiction over the soul; the earth does not.

Critics of brain death as a sufficient criterion for organ transplantation also plead on the stance that, if the soul remains, these patients should not be tormented through donation simply because medicine cannot recover their health. Rady and Verheijde (2013) suggest revisions to the Islamic laws so that brain-dead patients may be considered “dying from a catastrophic irreversible injury to the brain and should not be treated as cadavers” (p. 39). If these patients retain sensory capabilities, there is a

legitimate fear that the patient suffers through any organ transplantation or procedure that could ultimately kill the patient. While organ transplantation satisfies the Islamic tenets of sacred life and altruism, critics of brain death warn that, “although necessity allows prohibited matters, the prevention of evil has priority over obtaining benefit” (Rady & Verheijde, 2013, p. 36). They do not wish to stain benevolence with the living blood of a helpless patient.

Holy scripture has not proven to be a definitive tool to settle the debate. The Quran has been used both to support and to argue against the brain death criterion in organ transplantation. Verse 5:32 reads: “if anyone killed a person not in retaliation of murder, or (and) to spread mischief in the land – it would be as if he killed all mankind, and if anyone saved a life, it would be as if he saved the life of all mankind” (Mohsin Khan translation). Proponents argue that the good provided by the donation to prolong a life in the balance outweighs the transgression of manipulating a dead body. Critics use the same words to argue that the harm done to the brain-dead patient creates a danger to the whole community and donation from this patient is inappropriate. Two opposing views derive from the same Islamic principle. Religions are complemented by the thoughts and views of their societies, and reconciling any resultant differences may never happen.

Muslim critics of brain death make a legitimate argument in the semantics of the term *brain death*. The specific language of *brain death* can fall short in equating brain death with *complete death*, which occurs when the soul leaves the body (Bedir & Aksoy, 2011). Compartmentalizing death implies uncertainty or ignorance of the presence of the soul in a patient. Though brain death is a social construct, the term adopted into common

language admittedly confuses the end which it attempts to describe. Without education on the equivalence of brain death and death, the distinction between the term *brain death* and simply *death* may leave physicians, survivors, and the public unsure about the state that a patient truly is in.

### *Clinical Considerations of Islamic Death Criteria*

Deference to medical authority bears a greater responsibility than the medical determination of life alone. This granted permission by theologians implies that physicians must be trusted to examine an additional, yet elusive, vital sign – the presence of the soul. The intrinsic relationship between life and the soul in Muslim culture would require physicians who pronounce death to consider details that are considered important by the survivors. Padela et al. (2013) discuss this intersection of theology and medicine and assert that “metaphysical questions about the status of the soul are critically important, even if the metaphysics is by its nature speculative” (p. 137). A physician should be prepared or should be willing to consult a spirituality counsel if he is to take on the responsibility of determining death for a Muslim (or religious) patient.

When physiology cannot observe or describe the presence of the soul, the field must turn to what is understood or believed about the soul to confirm its reality. Namely, the soul that is tied to a body will induce measurable effects in the body, such as consciousness and respiration. By further extension, the permanent loss of these effects in the body could indicate the departure of the soul. Bedir and Aksoy (2011) express concerns that confining the reality of the soul to just its effects on the body removes the metaphysical nature of the soul from discussion. The soul cannot be reduced in importance simply due to one’s limits to understanding it. They warn those who analyze

death that “the soul that makes life possible for human beings is not an entity based on experimental observations or empirical experiences” (p. 292). The idea of the soul is one rooted in religious beliefs and not just another chapter in a medical textbook.

### *Why Spirituality Matters*

Pediatrician Margaret E. Mohrmann (1995) reminds clinicians in her book *Medicine as Ministry* that “patients are people who have names and faces; they have unique lives and unique deaths” (p. 5). There exists an entire story intertwined with the experiences of each patient, and the medical community should not reduce a patient’s identity simply to that of his disease. A major aspect of the patient story is one’s history of spirituality and practice of religion. Especially in times near death, patients may call upon religious guidance to determine or at least make sense of their medical predicaments. When developing a holistic approach to patient care, spirituality and religion cannot be overlooked. The role of the clinician does not have to be restricted to medicine; direct communication or the assistance of a chaplain will provide a new avenue for bettering quality of care.

Discussing clinical death in the context of spirituality can be difficult for both the physician and the survivors. Mohrmann (1995) believes that “the privilege of accompanying [her] patients through the risky journeys of illness includes the obligation to walk with them on the grim paths of pain” (pp. 113-4). Simply by being transparent and genuine, the physician administers the ministry of presence – a practice that conveys solidarity and attention to the family’s struggle. The physician that declares death for a religious patient should keep in mind that religion informs one’s views on death criteria,

and such a clinical determination attempts to describe a nonclinical occurrence – the separation of the soul from the body.

## CHAPTER FOUR

### Clinical Considerations of Death Criteria

*Late on August 13, 2013, young college student Graham Edward Dyer was involved in a drug-induced incident that led to severe trauma to his head. Sent to Dallas' Baylor University Medical Center, Dyer's condition deteriorated quickly until he was pronounced brain-dead the following morning. As a young adult, his organs were in a viable condition to be transplanted to other patients in need of healthy organs. Dyer was kept on mechanical support for two days until organ recovery could occur. The funeral took place a few days after. According to his obituary, Dyer passed away on August 14, 2013 – the date that brain death was declared and two days before artificial support was withdrawn (Goldstein, 2013; Starrett Funeral Home, 2013).*

Applying the history of defining death, the social construction of death criteria, and the spiritual contribution to understanding death, clinicians must make sense of numerous factors when considering the death of a patient. Pronouncing a person dead demands a level of certainty that is not afforded in every case. Controversies in physiology, opinion, and ability to detect life surround the level of certainty a physician and the patient's family may have about a determination of death. The inductive nature of the definition of death divided into criteria requires standardized tests for the verification that a patient is dead.

After an examination of death criteria as a social construct, a description (rather than a definition) of clinical death may be formulated. Death is the irreversible loss of complete brain functioning where such a body without mechanical support or manipulation would begin the decomposition process naturally. This description excludes living patients who have experienced extensive cortical damage (higher brain death) or brainstem death. Such a description avoids explicitly defining death due to the

potential for extenuating circumstances in every case. Proponents of the cardiopulmonary criterion for death cannot reasonably conclude that a surgical patient on heart-lung bypass is dead during those four hours of surgery, though with a stopped heart one might consider him dead. The factors important to physiological life are continued perfusion of tissues and spontaneous neurological integration of the processes to maintain this perfusion.

The clinical considerations of death criteria consist of the tests in place to judge death criteria, properly handling the case of a dying or brain-dead patient, the ethics of maintaining a dead body on mechanical support, and education on clinical death. The practice of measuring and pronouncing death by neurological criteria has progressed much in the past several decades, but there continues to be room for progress in describing death and communicating its finality. This fact is demonstrated in two recent cases where the neurological criterion for death was the center stage for questioning what it looks like to die and what it takes to die.

### *Death in a Clinical Setting*

#### *Tests for the Neurological Criterion of Death*

Descriptions of death by neurological criteria have been explored thoroughly since the publication of *A Definition of Irreversible Coma* (Beecher, 1968) proposed irreversible coma as an indicator of death. Magnus, Wilfond, and Caplan (2014) provide a thorough overview of the current tests that are standard when evaluating the neurological condition of a critical patient. The tests have been so thoroughly examined that there exist documented standards and laws surrounding the issue, while, “ironically,



the other standard for defining death, irreversible cessation of circulation, lacks consensus about diagnosis” (p. 893). Testing a patient to determine if he meets a criterion for death cannot be taken lightly due to the consequences at stake for the patient, family, and physician. One should approach the thoroughness of testing as if making a diagnosis, where “the clinician’s aim is to prove the diagnosis and not simply pronounce it” (Qazi et al., 2013, p. 123). The tests Beecher describes in 1968 are remarkably similar to those accepted by the American Academy of Neurology (AAN) today.

Beecher (1968) lists three clinical signs that are critical in determining the irreversibility of the patient’s coma. The patient must be unreceptive and unresponsive; these signs may be tested via external stimuli where “even the most intensely painful stimuli evoke no vocal or other response, not even a groan, withdrawal of a limb, or quickening of respiration” (p. 337). Next the patient must demonstrate no movement over the period of an hour and no spontaneous efforts at respiration. Beecher includes a brief procedure for an apnea test in which the ventilator is turned off for three minutes to detect any efforts to breathe as blood levels of carbon dioxide rise. Lack of reflexes is the third clinical sign that a patient in an irreversible coma must demonstrate. Posture, ocular muscles, the pupils, and the throat are key measures of neurological integration. Beecher concludes that a flat electroencephalogram (EEG) offers important confirmation of the other clinical signs, but it is neither necessary nor infallible. These tests are conducted assuming that the condition is not due to reversible causes such as drugs or hypothermia.

The American Academy of Neurology (AAN) establishes the neurological standards for what tests are appropriate and required when determining death by neurological criteria. After excluding hypotension, hypothermia, and drugs, the patient

may be clinically evaluated for reflexes and responses to applied stimuli. The apnea test provides the main test for confirming irreversible loss of brain functioning. A formal apnea test requires a baseline condition of preoxygenation, near-normal core body temperature, normalized blood pressure and pH, and a measure of carbon dioxide blood levels. The ventilator is turned off and the patient is monitored for efforts to respire. The test is positive should carbon dioxide levels rise by 20 mmHg and above 60 mmHg without an effort by the patient to breathe. Any sign of effort during the test suspends testing and the ventilator must be reengaged immediately. The apnea test is critical; a functioning brainstem would be stimulated by such a drastic rise in carbon dioxide levels and respond by signaling the lungs to inspire. A nonfunctioning brainstem could not formulate such an interaction. The AAN includes the EEG and a radionuclide cerebral blood flow test as ancillary tests (Qazi et al., 2013; Magnus, Wilfond, & Caplan, 2014).

Clinical signs are important indicators of neurological integration and life, but care must be taken to properly interpret these signs. Former transplant surgeon Bill Neilson recalls the case of a patient on a ventilator being monitored overnight. The patient's heart stopped and he died during his sleep, but his pacemaker and ventilator kept running. According to the vital sign monitors, the patient had both a regular heartbeat and normal respiration; the only aspect missing was a clinician's contact and experienced observation of the patient. The body was ventilated for hours before no pulse was manually detected and the mechanical support turned off. Attentive and observant clinicians are the most important factors when protecting the dignity of the human body in a clinical setting. Knowledge of vital signs and applied physiology must

be utilized in patient care to respect modern medicine, human health, and the body (personal communication, February, 28, 2014).

### *The Patient-Physician Relationship*

Neilson indicates that the most important factor in handling the case of a dying or brain-dead patient is having a developed patient-physician relationship. This may be substituted for a healthy relationship between the physician and the patient's family. Maintaining honest communication with the patient and family prevents confusion when new developments arise and conveys that the physician has a genuine value for the patient as a human. Educating the family on the dying process allows them to actively recognize the signs of an imminent death. Welcoming the family to participate in the patient's final journey assists in their acceptance of the death as well as easing the decision to withdraw mechanical support. When speaking to relatives about mechanical support, Neilson asks family members if they believe that the patient is in a process of living or a process of dying. Maintaining life support on a dying or brain-dead patient interrupts the dying process and prevents nature's course. With honesty, knowledge, and a good relationship with the physician, the family is less likely to resist a declaration of death by neurological criteria; this resistance is met less often than it may appear in the media (personal communication, February 28, 2014).

Bioethicist Rabbi David Teutsch (2013) confirms that these practices of an open dialogue between patient and physician are important according to key principles in Jewish ethics. Truth, compassion, and healing are accommodated when the patient, family, and clinicians work together to express desires and convey information transparently. The family's relationship with the physician carries much weight, but it

cannot be a one-way transaction. Bettering quality of care and “creating a dialogue among patient, physicians, and other healthcare workers is a mutual responsibility” (p. 22). Both sides benefit from a healthy relationship and ultimately deliver proper treatment of the patient.

### *Supporting a Dead Body*

As a ventilator replaces the respiratory center in a brain-dead patient to maintain breathing, the physical body of a brain-dead patient may be kept functioning for a period of time after death has been declared. The hospital or family may choose to keep the person on support for a variety of reasons, such as to facilitate organ recovery or to assist in early bereavement. The extent to which a family may request delaying withdrawal of support has reasonable limitations, however. Clinicians, ethics committees, and even the legal system are involved in assessing the requests of family members to maintain the body of their loved one.

Applbaum et al. (2008) discuss the case of Ms. R, who was declared brain-dead and kept on a ventilator to allow her parents from abroad to see her one last time. Upon arrival, the parents requested that the physicians administer a Chinese herb as a last resort treatment to save their daughter. The authors criticize both the practice of maintaining a dead body on support and the granting of the request. While awaiting the arrival of family members to wish the loved one farewell might be a kind gesture, the practice essentially deceives the survivors into believing that death has yet to occur. In this scenario, a mechanically ventilated body serves to symbolically demonstrate the complete termination of one’s physical life. Postponing the withdrawal of support has farther reaching consequences; the authors warn that “a material delay is a mistaken

waste of the public's resources, and it has the general effect of perpetuating the view that brain death is not real death" (pp. 2192-3). Withdrawing support and observing the cessation of organic functioning appears to signify death, but the clinically determined death occurs earlier and equates to when recognizable life has irreversibly ceased.

The administration of futile treatment places the physician in a difficult position. Treating a body dead by accepted medical standards is an inappropriate use of hospital resources, but making a final effort in the patient's case may provide psychological benefits to the survivors. While Applbaum et al. (2008) argue that "the physician is not an all-purpose technical extension of the patient's will and interests" (p. 2189), they concede that "physicians may attend to human suffering in somewhat unconventional ways. The parents are not patients in the care of this physician, so there are limits to what can be reasonably expected in this regard" (p. 2191). Certain actions that do not drain hospital resources may be acceptable so that the survivors can better accept the finality of the death. The family's second requests for an extension on support and another attempt at the herbal treatment were denied.

In Texas, the Advance Directives Act §166.046 (Procedure if not Effectuating a Directive or Treatment Decision) describes the procedures that a health care facility may take should a physician deem further treatment of a patient to be futile. The statute covers both mechanically supported patients in a terminal condition and mechanically supported brain-dead patients. Should the attending physician decide that further treatment is futile or inappropriate, an ethics committee convenes to discuss the case's future. A report is formed and presented to the family of the patient. If the committee agrees that further treatment is an inappropriate use of resources and harmful to the

patient's dignity, the hospital provides options for the family to transfer the patient to a facility that might accept and treat the patient. The facility must support the patient for ten days to accommodate a potential transfer; otherwise, treatment is no longer obligated and support may be withdrawn after the tenth day (§166.046, subsection (e)). The Texas Advance Directives Act protects health care resources, patient dignity, and survivor resources, as well as affording the medical community authority in recognizing when life has ended and acting on this determination.

### *Education on Death Criteria*

Education on death criteria must be available and reliable for both the public and clinicians to better understand how death may be recognized. Material should be produced by authorities acting within their expertise, such as medical views and spiritual analyses. Becoming educating on death criteria, specifically death by neurological criteria, might reduce misunderstanding or resistance to accepting a pronouncement of brain death. If learning about death criteria cannot come before the experience of a relative or friend dying in such a way, open and honest communication with the physician throughout the process should be a helpful way to understand how and why death is taking place. This also requires the physician to be knowledgeable, approachable, and engaging in talking about death. These are important topics to study, even though the experience of brain death may not affect everyone in society.

An updated pamphlet released in *The Journal for the American Medical Association* aims to educate patients and their families on brain death. The publication (Torpy, 2009) accompanies an article in the same issue that revisits the distinctions between coma and brain death (Rosenberg, 2009). Educational materials on brain death

provided by a medical authority aim to provide explanation about diagnosis and prognosis of a patient who meets neurological criteria for death. However, the 2009 pamphlet opens with an ambiguous definition of death – “when brain function ceases, the heart stops beating, and breathing and blood circulation cease”(p. 1192) – which it immediately qualifies with a description of brain death. Torpy explicitly informs patients that “in the face of fatal injury or unrecoverable illness, the heart can be kept beating with medication” (p. 1192), despite her initial mention of cardiac arrest within her definition of death. As educational material printed in an authoritative medical source, the pamphlet leads readers away from accepting death criteria as social constructs which equate to death itself. The medical community must be brought to a common language when discussing sensitive topics such as death.

### *Recent Controversial Cases*

Recent cases demonstrate the evolving necessity for a better understanding of death and greater trust in accepted declarations of death. A declaration of death is intended to set in motion the social transition of believing a person to be living to knowing that person is not living. Legal, social, and clinical considerations of a patient change when the patient is dead. The events surrounding the cases of Marlise Muñoz and Jahi McMath reveal difficulties and motives in accepting and rejecting a declaration of death.

#### *Marlise Muñoz*

On November, 26, 2013, Marlise Muñoz suffered a pulmonary embolism that prevented blood-flow to her brain for an unknown period of time. She was treated

without success at John Peter Smith Hospital in Fort Worth; Muñoz was declared brain-dead while on a ventilator. As an EMT, Muñoz had insisted that she did not desire to be kept on artificial support indefinitely, so her husband requested the withdrawal of support. The hospital refused to withdraw support because the patient was in her fourteenth week of pregnancy. The facility cited the Texas Advance Directives Act to defend their pro-life position (Ecker, 2014).

The act requires physicians and first responders to initiate and continue life sustaining measures on pregnant patients so that the pregnancy is not prematurely terminated. The Texas Health and Safety Code §166.049 (Pregnant Patients) reads: “A person may not withdraw or withhold life-sustaining treatment under this subchapter from a pregnant patient.” The hospital’s legal counsel found this section of the act to require continued artificial support on the mother in order to sustain the pregnancy, though the father and family were ready and willing to discontinue support to the mother according to her wishes. After a legal debate lasting three weeks, Mr. Muñoz filed a lawsuit against the hospital to have his wife taken off the ventilator.

The Advance Directives Act begins with a section enumerating definitions of technical words and phrases used throughout the statute. The Texas Health and Safety Code §166.002 (Definitions) defines the life-sustaining treatment which §166.049 (Pregnant Patients) states cannot be withdrawn or withheld from pregnant patients.

“Life-sustaining treatment” means treatment that, based on reasonable medical judgment, sustains the life of a patient and without which the patient will die. The term includes both life-sustaining medications and artificial life support, such as mechanical breathing machines, kidney dialysis treatment, and artificial nutrition and hydration. (Texas Health and Safety Code §166.002 (10)).



The very first statement of this definition implies that the patient is living and in a position to become dead if not for the intervention of life-sustaining treatments. A ventilator on a brain-dead patient does not prevent the clinical death of the patient; therefore a ventilator in this case is no longer a life-sustaining treatment. The brain-dead patient, pregnant or not, can be removed from a ventilator without violating §166.049. After two months, the Texas court system reached the same conclusion, "...finding that the law was not meant to apply to anyone who had been declared dead" (Ecker, 2014, p. 890). The hospital withdrew support on January 26, 2014.

The Muñoz case demonstrates that understanding death goes beyond finding an agreeable criterion with which death may be declared. The declaration of death must be understood as recognizing that death has occurred and permitting the initiation of any funerary rituals. The medical community cannot stand by a clinically accepted description of death by enforcing laws intended to govern living patients. In order to provide cohesive and consistent authority on declaring death, clinicians must acknowledge and respect the social, legal, and spiritual changes that occur as soon as they declare a patient's death.

### *Jahi McMath*

At about the same time on the other side of the country, a young Jahi McMath underwent a complicated surgery at Children's Hospital and Research Center in Oakland, California. During post-operation recovery, Jahi suffered severe bleeding and cardiac arrest that left her in critical condition on mechanical support; on December 12, 2013, she was declared brain-dead. The Alameda County court system became involved and required the hospital to maintain support until an independent physician could examine

Jahi; neurologist Paul Fisher confirmed the brain death determination on December 24. The hospital then refused to prepare the body for transfer to another facility, citing the inappropriateness of administering medical treatment to a dead body (Alund, 2014). The county Superior Court judge extended the deadline of withdrawing support to accommodate the family's plan to transfer Jahi as-is to New York. In accordance with California disposition laws, Jahi was sent to the county coroner who released the ventilated body to the parents (DeBolt, Bender, & Hurd, 2014).

Jahi's mother and family have chosen to reject the social construct of death criteria in favor of the strict view that the heart must irreversibly stop beating in order for death to occur. This decision has numerous consequences. Retaining medical resources, space, and personnel on the case of a dead patient redirects critical care from living patients to an unrecoverable body. The hospital must make an ethical decision on the distribution of limited resources in serving the community. The family also incurs costs when demanding care beyond what the medical community considers to be standard of care. Each day in the intensive care unit costs thousands of dollars, and the average daily cost of mechanical ventilation in America is \$1,522 (Dasta, McLaughlin, Mody, & Piech, 2005). These costs are justified to keep a patient alive but are irresponsible once the patient is dead. Over three months after Jahi's pronouncement of death, her body continues to be ventilated and fed via a percutaneous endoscopic gastronomy (PEG) tube. By denying that she is dead, Jahi's mother and family cannot begin the important bereavement processes that take place after a person dies; namely, they do not accept or realize the reality of the death. The family incurs emotional sacrifice by delaying bereavement. Lastly, the Jahi McMath case undermines both the standards of death

criteria accepted in the medical community and the credibility of the numerous neurologists who confirm brain death in Jahi.

The Jahi McMath case demonstrates that errors in the understanding of coma, brain death, and death still exist in the public arena. These errors may have been perpetuated by a mishandling of the case due to an unhealthy relationship between the physician and the family, a misunderstanding of the finality of the pronouncement of brain death, and a misconception of the ability of modern medicine to overcome death in critical conditions. Brain death is a complicated and difficult tragedy, but the limitations of modern medicine to afford recovery from traumatic brain injury and loss of complete brain functioning require the social acceptance that death by neurological criteria is death itself.

### *Implications of Death by Death Criteria*

Beecher and the Harvard committee may not have known the extent of the stir they would create when pushing irreversible coma as a death criterion, but discussions on death as determined by death criteria have permeated across nations, cultures, and religions. The idea of death criteria is no longer a foreign or new one, though it is not universally accepted. In the United States, death criteria are accepted as medical standards and solidified in law. Both the traditional cardiopulmonary criterion and the neurological criterion are justifiable indicators that confirm death has occurred in an individual. Specific circumstances in each case should be considered so that the proper method of determining death is made.

Death criteria are best understood as social constructs created by behaviors and language in society. Perpetuating ideas within a group of people confers wider

recognition of a commonly held belief. As a social construct, a death criterion functionally represents the universal experience of death. The criterion is a measurable and understandable feature in contrast to the elusive nature of death; attempts to make death a bit more tangible allow for a better understanding of what the absence of life looks like. Important social changes occur with death, such as funerary rites and inheritance, so it is important for societies to recognize when death has occurred – especially when medical technology blurs the line between certain death and what would have been certain death.

Spirituality contributes to one's understanding of death and what a death criterion might symbolize. The Abrahamic religions of Judaism, Christianity, and Islam share the belief that death occurs when the life principle or soul separates from the body. At this point, all that remains is an empty, physical body that cannot recall its soul into it. If death criteria are to be indicators of death, each criterion must satisfy the belief that the soul has departed. Respiration is a central player in spiritual discussions of death criteria, as vitality is granted to man via the "breath of life" (Genesis 2:7, 7:22, New International version). Proponents of neurological criteria for death distinguish between spontaneous respiration directed by a functioning brainstem and mechanical ventilation to a lifeless body. Opponents of neurological criteria assert that respiration by any means preserves the soul in the body. A clinician's knowledge of spiritual considerations to dying or brain-dead patients is important to provide meaningful care to the patient and his family. Such a dialogue also contributes to the patient-physician relationship.

The clinical tests and ethics associated with death criteria form the basis of a practical method of describing death. The standard tests in place today may face changes

in the future but when positive provide strong physiological evidence that death has irreversibly set in. Medical technology can ventilate a dead body, preserving its sleep-like state so that the family may gather to offer a final farewell. Turning off the ventilator initiates important bereavement rituals and limits the use of valuable hospital resources. The cases of Marlise Muñoz and Jahi McMath indicate that society, the legal system, and personal beliefs interpret death criteria as flexible measures of death, while the inductive nature of a definition, its criteria, and associated tests should affirm that death criteria are not pliable. Death criteria provide the measure with which humans can recognize death.

Viewing death according to death criteria affects patient care, organ transplantation, bereavement rituals, funerary rites, and hospital resources. These important ideas and customs cannot be set aside by a restricting view that death is too elusive to be known. Experience, medical and physiological knowledge, and spiritual beliefs confirm that death can be described in various ways, leading to a human recognition of death by means of a collection of associated signs. Naming these signs as a death criterion sets in place a practical means for a clinician to pronounce death. The role of the clinician extends beyond supporting, maintaining, and bettering human life – today’s clinicians must now also provide a setting in which a death can be meaningful and assured in its determination. The death criterion benefits clinicians, patient dignity, the family, and numerous others in society. Understanding what it takes to die puts human mortality into perspective and shines a new light on what it means to live.

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