# "Brain Death" Lacks Medical, Moral, and Legal Foundations and is a Concealed Form of Euthanasia

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Abstract: The concept of brain death is a utilitarian construct that allows doctors to skirt the dead donor rule by declaring neurologically disabled people to be dead by fiat. It's been more than fifty years since the 1968 Harvard ad hoc Committee's landmark report, "A Definition of Irreversible Coma," and there remains no medical or moral evidence that these people are dead. Also, the newest American Academy of Neurology brain death guideline explicitly states that death may be declared in the presence of partial brain function, even though the Uniform Determination of Death Act demands the "irreversible cessation of all functions of the entire brain." Brain dead people are not medically, morally, or legally dead, and harvesting them for their organs is a concealed form of euthanasia.

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ONE EVENING DURING MY ANESTHESIOLOGY RESIDENCY TRAINING in the late 1980s, I came in for night call and was told to go up to the intensive care unit (ICU) and prepare a brain dead man for organ harvesting. This was something new for me; I vaguely remembered hearing a medical school lecture on brain death, but I hadn't really thought much about it. Not wanting to look stupid, I asked the staff anesthesiologist, "An organ harvest? Is there anything different about this I need to know?"

He snorted and rolled his eyes. "Just be sure someone has actually declared him brain dead. The transplant team can be a little eager."

Most people assume that diagnosing brain death involves a lot of high-tech equipment, but this is not the case. A brain death diagnosis is made at the bedside using simple tools like a flashlight, a cotton swab, a reflex hammer, and a syringe of cold water, followed by removing the person from their ventilator for up to 10 minutes to see if they can breathe on their own. And the latest American Academy of Neurology (AAN) brain death guideline1 states that "all ancillary tests have shortcomings…[and] none are 100% sensitive or specific" for diagnosing brain death. The guideline goes on to say that doctors should NOT use electroencephalogram (EEG), magnetic resonance imaging (MRI), computed tomography (CT) angiography, and auditory or somatosensory evoked potentials as ancillary tests for brain death. Four vessel catheter angiography or single-photon emission computed tomography (SPECT imaging) may be used, but these tests are thought of as being supplementary, and do not give definitive evidence of brain death.

In the ICU, my patient was waiting. He was a young man who had sustained a head injury during a motorcycle accident. And yes, the neurologist had declared him "brain dead." When I went to examine him, my first thought was how glad I was that his family was not in the room with him. Usually, anesthesiologists try to reassure patients and families that everything will be done to keep them safe and comfortable during surgery…but what do you say to a family whose loved one isn't coming back?

On examining him, I was surprised to find that this "dead" patient looked just like every other ICU patient I had cared for. In fact, he looked better than most! He was warm, his skin was supple, he had a normal heart rate and blood pressure, and his blood oxygen saturation was excellent.

I went back down to the operating rooms and found the attending anesthesiologist who would be supervising me. I reviewed the case with him, and he asked me to present my anesthetic plan of care. I told him that I

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[1] Greer DM et al., "Pediatric and Adult Brain Death/Death by Neurologic Criteria Consensus Guideline: Report of the AAN Guidelines Subcommittee, AAP, CNS, and SCCM," Neurology 2023;101:1–21, doi: 10.1212/WNL.0000000000207740.

planned to use a paralyzing agent to keep the man from moving during surgery, and that I would use a narcotic such as fentanyl to decrease any heart rate or blood pressure responses to pain that might adversely affect the organs. He then asked me if I was planning to give a drug to block consciousness. I was stunned. "Why would I do that?" I asked, "Isn't he dead?"

I'll never forget the long look he gave me over his surgical mask. "Why don't you give one…just in case," he said, and walked away. To my regret, despite my doubts I did as I was told. In the operating room, the young man responded to surgery just like anyone else, requiring the same types and amounts of anesthesia. Later, a pathologist friend told me that when she removes organs during an autopsy in the morgue, she doesn't have to use any of these drugs.

This experience made me wonder…when is someone dead? Often people will tell me about a relative who "died five times, but the doctors kept shocking him back to life." This type of thinking, though common, is incorrect, because no one can resuscitate a corpse. If you can be resuscitated, you were never dead. The only way anyone comes back from the dead is by resurrection, which requires Divine intervention.

Most faith traditions define death as the separation of the spirit (or soul) from the physical body. In the year 1312, the Council of Vienne defined the soul as the form—that is, the immediate principle of life and being—of the human body. Most faith traditions, including Christianity, Judaism, and Islam, define death as the separation of the God-given spirit (or soul) from the body. A respect for the sanctity of human life demands that we be absolutely sure that the spirit has departed before pronouncing a person dead. But because the soul is immaterial, we do not have any device to determine the exact moment of death when the soul departs. Therefore, as a safeguard against declaring death prematurely, the loss of heartbeat, breathing, and the passage of time have been used for millennia to be sure that the spirit has departed.

Historically, people have been concerned that death not be diagnosed prematurely. Such was the fear of premature burial that savvy entrepreneurs invented "safety coffins" equipped with bell ropes for the "deceased" to pull in case they weren't dead yet. But now, our thinking has changed toward

making a declaration of death as early as possible—all for the sake of maintaining organ viability for transplantation.

Shortly after Dr. Christiaan Barnard performed his second heart transplant in South Africa, thirteen men changed the traditional definition of death. In August 1968, the Harvard ad hoc Committee published their recommendations in a landmark article called "A Definition of Irreversible Coma."[2]

There were no new tests, studies, or evidence that people in a coma, who had previously always been considered to be alive, were now somehow dead. The only rationale given by the Committee for why the irreversible cessation of all brain functions should be equated with death was utility: it would free up beds in intensive care units and facilitate organ transplantation.[3]

And the new definition certainly was of great utility, as it allowed doctors to skirt the dead donor rule. The dead donor rule is a worldwide ethical maxim that states people must neither be alive when organs are removed nor killed by the processes of organ removal. By simply defining people with a severe brain injury to be dead already, the letter of the dead donor rule is met by sleight of hand. But does changing a definition change the reality?

It wasn't until 1972 that the first (and only) multicenter, prospective study of the neuropathology of brain death was published. The National Institute of Neurologic Diseases and Stroke Collaborative Study[4] enrolled

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[2] A Definition of Irreversible Coma: Report of the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death. JAMA 1968;205(6):337–340. doi:10.1001/jama.1968.03140320031009.

[3] Nair-Collins M. Expanding the Social Status of 'Corpse' to the Severely Comatose: Henry Beecher and the Harvard Brain Death Committee. Perspectives in Biology and Medicine 2022;65(1):41-58.

[4] The National Institute of Neurologic Diseases and Stroke Collaborative Study of Brain Death. NINCDS Monograph No. 24. US Dept. of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Neurological and Communicative Disorders and Stroke. Bethesda, Maryland 20205. Available on Google Books: https://books.google.com/books/about/The_NINCDS_Collaborative_Study_of_Brain.html?id=uMEj1V-EOJ8C

503 patients from eight clinical centers across the United States to find out whether people declared to be brain dead actually had total brain destruction. Their results? Of 226 brains autopsied after a diagnosis of brain death, ten were grossly normal and only 40% showed diffuse tissue destruction. It was "not possible to verify that a diagnosis made before cardiac arrest by any set or subset of criteria would invariably correlate with a diffusely destroyed brain." (Cardiac arrest, of course, is the traditional means of determining death.)

Dr. Gaetano Molinari, one of the principal investigators, wrote:

> While the prognosis for recovery of function is nil and the probability of death within days to weeks is extremely high, one major question remains and perhaps has been brought into focus by the NINCDS Collaborative Study. That question is: does a fatal prognosis permit the physician to pronounce death? It is highly doubtful whether such glib euphemisms as "he's practically dead," … "he can't survive," … "he has no chance of recovery anyway," will ever be acceptable legally or morally as a pronouncement that death has occurred…This is more than a mere semantic distinction. A physician must pronounce that death has occurred before he can either perform an autopsy or remove the 'cadaver' organs for transplantation into another human being.

But despite Dr. Molinari's doubts about the legal and moral legitimacy of turning a prognosis of death into a statement of death as fact, history shows that this is exactly what occurred. In 1981, the President's Commission for the Study of Ethical Problems in Medicine & Biomedical & Behavioral Research published Defining Death, which formed the foundation for brain death laws in the US.[5]

The 1981 President's Commission decided that brain death and traditional circulatory death were two sides of the same coin, both representing biological death in different ways. Based on the science of the time, the President's Commission believed that the brain was the "master integrator" of the body, and that following the cessation of brain activity, death would very quickly occur. (This of course reflects a *prognosis* of death,

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[5] *Defining Death*: A Report on the Medical, Legal and Ethical Issues in the Determination of Death. President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research, 1981. https://archive.org/details/definingdeathrep0000unit.

not death as fact.) They also asserted that technologies such as ventilators "masked" that death had already occurred. The findings of the President's Commission were then written into a model law by the Uniform Law Commission (a group of lawyers who write model legislation to help make US law uniform across all states) as the Uniform Determination of Death Act (UDDA). Subsequently, every state has adopted the UDDA in some form, and it remains the legal definition of death in the United States.

Under the UDDA, death is defined to occur in one of two ways. 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. Doctors were delegated the responsibility of determining when these legal criteria were met by developing accepted medical standards for diagnosing that death had occurred.

But was the President's Commission correct in its underlying assumptions about brain death? Absolutely not. In fact, Harvard professor of philosophy Daniel Wikler (who wrote *Defining Death's* third chapter, "Understanding the Meaning of Death," admitted later that he had misled the Committee:

> I was put in a tight spot, and I fudged. I knew that there was an air of bad faith about it. I made it seem like there are a lot of profound unknowns and went in a direction of fuzziness, so that no one could say, 'Hey, your philosopher says this is nonsense.' That's what I thought, but you'd never know it from what I wrote.[6]

Further research definitively proved that the brain is not the master integrator of the body. In 1998, Dr. D. Alan Shewmon documented[7] 175 cases of "brain dead" people who continued living after their declarations of death under the UDDA. In fact, one of these people ultimately lived for more

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[6] Rachel Aviv, "What Does It Mean to Die?" *The New Yorker* (January 29, 2018), www.newyorker.com/magazine/2018/02/05/what-does-it-mean-to-die. [Hereafter, Aviv, What Does It Mean?]

[7] Shewmon DA. Chronic "brain death": Meta-analysis and conceptual consequences. Neurology 1998;51:1538-1545.

than twenty years after his brain death diagnosis. All of these people were considered brain dead enough to have been considered for organ harvesting, but for various reasons were kept alive. Dr. Shewmon pointed out that there could have been more people like this, except for the fact that brain death is a self-fulfilling prophecy: most people diagnosed as "brain dead" very quickly either become organ donors or have their support withdrawn.

And does the ventilator mask that death has already occurred? No. As Dr. Doyen Nguyen points out, life and death are mutually exclusive: machinery can only sustain life, not produce it.[8] When I speak to doctors and medical students, I ask them whether hooking up their gross anatomy cadaver to a ventilator would make it look alive? The question always generates laughter, as the idea is ridiculous.

Because of these facts, another presidential council was convened. In 2008, members of the President's Council on Bioethics: Controversies in the Determination of Death[9] agreed that since integrated bodily functioning continues after an accurate diagnosis of brain death, a re-examination of the neurologic criteria for death was needed. They noted that Dr. Shewmon's work left two options: (1) abandon neurological criteria for determining death, or (2) develop a new rationale for explaining why the neurological criteria should equal death.

Of course, the Council developed a new rationale for why brain death should equal death. Since these people were obviously still biologically alive (with beating hearts, cellular respiration, digestion, waste elimination, wound healing, and the ability to deliver healthy babies), the Council developed a new rationale based on a questionable philosophy rather than biology, basing death on what we *do* rather than what we *are*. The Council came up with a new term, "Total Brain Failure," and said that an organism is no longer alive when it ceases to perform the "fundamental vital work of a living organism—

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[8] Nguyen D. Pope John Paul II and the neurological standard for the determination of death: A critical analysis of his address to the Transplantation Society. *The Linacre Quarterly* 2017;84(2): 155-186.

[9] Controversies in the Determination of Death: A White Paper by the President's Council on Bioethics. The President's Council on Bioethics, Washington, D.C., December 2008.

the work of self-preservation, achieved through the organism's need-driven commerce with the surrounding world." Without any reason being given, the Council singled out two forms of such commerce as being significant: breathing and consciousness.

The Chairman of the 2008 President's Council, Edmund D. Pellegrino MD, disagreed, and wrote in his minority dissent:

> The only indisputable signs of death are those we have known since antiquity, i.e., loss of sentience, heartbeat, and breathing; mottling and coldness of skin; muscular rigidity; and eventual putrefaction as the result of generalized autolysis of body cells.

And in fact, the report of the President's Council (like the 1981 President's Commission before it) failed to accurately reflect the science. "Total Brain Failure" is inaccurate, as people with a clinical diagnosis of brain death still have certain brain functions: 20% (of those tested) have EEG activity[10] , and 50-84% still have a functioning hypothalamus.[11] Also, the well-known abilities of "brain dead" people, such as wound healing, fighting off infections, and the stress response to the incision to remove organs, are all the work of self-preservation.[12]

Five years after the 2008 President's Council, brain death made national news with the case of Jahi McMath. In 2013, Jahi was a quiet, cautious teenager with sleep apnea who underwent a tonsillectomy and palate reconstruction to improve her airflow while sleeping. An hour after the surgery, she started spitting up blood. Her parents requested repeatedly to see a doctor without success. Her mother, Nailah Winkfield, said, "No one was listening to us, and I can't prove it, but I really feel in my heart: if Jahi was a

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[10] Grigg MM, et al. Electroencephalographic Activity After Brain Death. Arch Neurol. 1987;44(9):948–954. doi:10.1001/archneur.1987.00520210048018.

[11] Nair-Collins M, Joffe AR. Frequent Preservation of Neurologic Function in Brain Death and Brainstem Death Entails False-Positive Misdiagnosis and Cerebral Perfusion. AJOB Neuroscience, 2021;14(3), 255–268. https://doi.org/10.1080/21507740.2021.1973148. [Hereafter, Nair-Collins, Frequent Preservation.]

[12] Shewmon DA. Brain Death: Can It Be Resuscitated? Hastings Center Report, 2009;39(2):18-24.

little white girl, I feel we would have gotten a little more help and attention."[13]

Jahi continued to bleed until she had a cardiac arrest just after midnight. She was pulseless for ten minutes during her "code blue" resuscitation. Two days later, her electroencephalogram (EEG) was flatline and it was clear that Jahi had suffered a severe brain injury which was worsening. But rather than treating these findings aggressively, her doctors proceeded toward a diagnosis of brain death. Three days after her surgery, her parents were informed that their daughter was "dead" and that Jahi could now become an organ donor. The family was stunned. How could Jahi be dead? She was warm, she was moving occasionally, and her heart was still beating. As a Christian, Nailah believed her daughter's spirit remained in her body as long as her heart continued to beat. While the family sought medical and legal assistance, Children's Hospital Oakland doubled down, refusing to feed Jahi for three weeks. The hospital finally agreed to release Jahi to the county coroner for a death certificate, following which her family would be responsible for her.

On January 3, 2014, Jahi received a death certificate from California, listing her cause of death as "Pending Investigation." Why was the hospital so adamant about insisting Jahi was dead, even to the point of issuing a death certificate? Possibly, because California's Medical Injury Compensation Reform Act limits noneconomic damages to $250,000. If Jahi was "dead," the hospital and its malpractice insurer would only be liable for $250,000. But if Jahi was alive, there would be no limit to the amount her family could claim for her ongoing care.[14]

Thankfully, Jahi's family received help from Dr. Paul Byrne, a long-time advocate of people victimized by a brain death diagnosis. With his assistance, Jahi was air-lifted to New Jersey, the only US state with a religious exemption to a diagnosis of brain death. In New Jersey, Jahi received a tracheostomy and a feeding tube and began to improve. After noticing that Jahi's heart rate would decrease at the sound of her mother's

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[13] Aviv, What Does It Mean?

[14] Singer, Peter. The challenge of brain death for the sanctity of life ethic. Ethics & Bioethics, 2018;8(3-4):153-165. https://doi.org/10.2478/ebce-2018-0012.

voice, the family began asking her to respond to commands, and videoed her correct responses. Jahi went through puberty and began to menstruate—something not seen in corpses! By August 2014 she was stable enough to move into her mother's apartment for continuing care. Subsequently, Jahi was examined by two neurologists (Dr. Calixto Machado and Dr. D. Alan Shewmon) who found that she had definitely improved: she no longer met the criteria for brain death and was in a minimally conscious state. Jahi continued responding to her family in a meaningful way until her death in June 2018 from complications of liver failure.

How could Jahi McMath, who was declared brain dead by three doctors, who failed three apnea tests, and who had four flatline EEGs and a radioisotope scan showing no intracranial blood flow, go on to recover neurologic function? Very likely, due to a condition called Global Ischemic Penumbra, or GIP. Like every other organ, the brain shuts down its function when its blood flow is reduced in order to conserve energy. At 70 percent of normal blood flow, the brain's neurological functioning is reduced, and at a 50 percent reduction the EEG becomes flatline. But tissue damage doesn't begin until blood flow to the brain drops below 20 percent of normal for several hours. GIP is a term doctors use to refer to that interval when the brain's blood flow is between 20 and 50 percent of normal. During GIP the brain will not respond to neurological testing and has no electrical activity on EEG, but still has enough blood flow to maintain tissue viability—meaning that recovery is still possible. During GIP, a person will appear "brain dead" using the current medical guidelines and testing, but with continuing care could potentially improve.

Dr. D. Alan Shewmon, one of the world's leading authorities on brain death, describes GIP this way:

> This [GIP] is not a hypothesis but a mathematical necessity. The clinically relevant question is therefore not whether GIP occurs but how long it might last. If, in some patients, it could last more than a few hours, then it would be a supreme mimicker

of brain death by bedside clinical examination, yet the non-function (or at least some of it) would be in principle reversible.[15]

Dr. Cicero Coimbra first described GIP in 1999, but in the never-ending quest for transplantable organs, his work has been largely ignored.[16]

Another landmark brain death court case occurred in 2015, when University of Nevada-Reno student Aden Hailu suffered an unexpected brain injury during exploratory surgery for abdominal pain. Her father was told that what happened to her was a medical mystery. He advocated strongly for the hospital to care for his daughter, but the hospital said that she fulfilled the requirements of the American Academy of Neurology (AAN) brain death guideline, and was dead. Ultimately, the case was tried by the Nevada Supreme Court, who ruled unanimously that the AAN brain death guideline did not meet the legal definition of brain death under the UDDA, because the guideline does not test all functions of the entire brain. Thaddeus Pope JD, an expert on end-of-life issues, said that the Aden Hailu case could now be referenced in other lawsuits nationwide because the Nevada Supreme Court questioned whether the AAN standards meet the UDDA standard of irreversible cessation of all functions of the entire brain:

"What we have done in the past is given the medical profession judgement on these calls, but maybe we have deviated too far, or what we thought was too far…What makes this interesting is that the Nevada Supreme Court was not off on some Cloud Nine. There is something to this…It suggests that there may be more to figure out how brain death is determined.[17]

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[15] Shewmon DA. Statement in Support of Revising the Uniform Determination of Death Act and in Opposition to a Proposed Revision. J Med Philos. 2021 May 14:jhab014. doi: 10.1093/jmp/jhab014. Epub ahead of print. PMID: 33987668.

[16] Coimbra CG. Implications of Ischemic Penumbra for the Diagnosis of Brain Death. Braz J Med Biol Res.1999;32(12):1479-1487. Hereafter, Coimbra, Implications.

[17] Siobhan McAndrew, "The Contested Death of Aden Hailu." Reno Gazette Journal (March 25, 2016), www.rgj.com/story/news/2016/03/25/contested-death-aden-hailu/82269006.)

Unfortunately, Aden Hailu died in early 2016 of cardiopulmonary arrest. The following year, in a surprising turn of events, the Nevada legislature responded to her case by changing state law so that now for Nevada citizens, brain death must be diagnosed according to the AAN guidelines, including any revised guidelines put forth by the AAN's successor organizations in perpetuity. A 2017 news article reveals that representatives of organ donation networks were advising legislators as they drafted this new law. Nevada Revised Statute 451.007 now says that families may be responsible for all costs of life-sustaining treatment after a diagnosis of brain death unless the person becomes an organ donor. Jason Guinasso, a Reno lawyer with Donor Network West, said, "Our families need to understand that once they decide to give the gift of life, they are not going to be responsible for these charges."[18]

After the Nevada Supreme Court's unanimous ruling revealed that the way doctors diagnose brain death does not conform to the law under the UDDA, an interdisciplinary group describing themselves as "brain death stakeholders" petitioned the Uniform Law Commission (ULC) to revise the UDDA.19 But following several years of study and debate, the ULC was unable to achieve consensus, and tabled its work in September of 2023.

Undeterred, three weeks later the American Academy of Neurology (along with the American Academy of Pediatrics, Child Neurology Society, and Society of Critical Care Medicine) released a new brain death guideline essentially recapitulating the proposals *refused* by the Uniform Law

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[18] Sandra Cherub, "Nevada adopts national brain death guidelines under bill," Las Vegas Review-Journal (May 8, 2017), www.reviewjournal.com/news/2017-legislature/nevada-adopts-national-brain-death-guidelines-under-bill.

[19] Lewis A, et al. An Interdisciplinary Response to Contemporary Concerns About Brain Death Determination. Neurology. 2018;90(9):423-426. Also, Lewis A, Bonnie RJ, Pope T. It's Time to Revise the Uniform Determination of Death Act. Ann Intern Med. 2020;172(2):143-144.

Commission.[20] "Because of a lack of high-quality evidence on the subject,"[21] the new AAN guideline was determined by three rounds of anonymous voting. Given that we've been declaring people "brain dead" for nearly sixty years, wouldn't you think that there would be some high-quality evidence for it by now?

The previous guidelines have always stated by inference that a diagnosis of brain death could be made in the presence of a functioning hypothalamus, a part of the brain that provides neuroendocrine function. But the new guideline makes this explicit. "Clinicians may initiate a BD/DNC [brain death/death by neurologic criteria] evaluation and determine a patient BD/DNC [brain dead/dead by neurologic criteria] despite evidence of neuroendocrine function (Level B)."[22] Thus, the new guideline explicitly allows people with partial brain function to be declared dead. Obviously, this does not comply with the law under the UDDA which demands the "irreversible cessation of all functions of the entire brain, including the brain stem."

In recognition of this disconnect between the law and the AAN guideline, the National Catholic Bioethics Center (NCBC), formerly a staunch advocate of brain death, issued a landmark position statement in April 2024:[23]

> Events in the last several months have revealed a decisive breakdown in a shared understanding of brain death (death by neurological criteria) which has been critical in shaping

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[20] Greer DM et al., "Pediatric and Adult Brain Death/Death by Neurologic Criteria Consensus Guideline: Report of the AAN Guidelines Subcommittee, AAP, CNS, and SCCM," Neurology.2023;101:1–21, doi: 10.1212/WNL.0000000000207740

[21] ibid

[22] ibid

[23] "Integrity in the Determination of Brain Death: Recent Challenges and Next Steps." The National Catholic Bioethics Center, April 11, 2024. https://www.ncbcenter.org/resources-and-statements-cms/braindeath.

> the ethical practice of organ transplantation. At stake now is whether clinicians, potential organ donors, and society can agree on what it means to be dead before vital organs are procured.

The NCBC's statement cites the fact that between 50-84% of patients declared brain dead still have a functioning hypothalamus.[24] What is the hypothalamus? The NCBC statement describes it this way:

> The hypothalamus can be understood as a kind of "smart" coordinating center in the brain which is involved in regulating temperature, salt-water balance, sex drive, and sleep. Recent studies show that it may play a role in phenomenal awareness and pain detection. Hypothalamic functioning shows that not all functions of the entire brain have ceased, as stipulated by the UDDA. Consequently, patients with confirmed hypothalamic function should not be diagnosed as brain dead, nor treated as dead, for the purpose of organ procurement.

In closing their statement, the NCBC committed to evaluating the philosophical foundations of brain death, strengthening the ethical standards and protocols for the determination of death, and educating organ donors, families, clergy, and the public about the authentic ethical principles that should govern organ transplantation.

While acknowledging the studies showing that 50-84% of people being declared brain dead still have partial brain function, some doctors and philosophers are proposing a quick fix. If we simply add tests for hypothalamic function to the current AAN brain death guideline, they say, organ harvesting from brain dead people could continue.

> What we are arguing is that, at a certain point of dependence on artificial means of treatment, the organism becomes a non-organismal, medically supported, biological entity and can be determined to be dead.[25]

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[24] Nair-Collins, Frequent Preservation.

[25] Sulmasy DP, et al. A Biophilosophical Approach to the Determination of Brain Death. *Chest*. 2024;165(4):959-966. doi: 10.1016/j.chest.2023.12.011. PMID: 38599752. Hereafter, Sulmasy, Biophilosophical.

The word "dependence" in this statement reveals that this is a definition of death based upon disability. Our humanness is not based upon our abilities or functions (including the function or nonfunction of the hypothalamus), but rather upon what we are. No one thinks that the hypothalamus is the seat of the soul. Every human person is a body-soul unity made in the image of God.

Brain death advocates assert that when people become unconscious and completely dependent upon medical care, they are no longer persons and can be designated as dead. This is assigning life or death on the basis of disability. Moreover, doctors cannot know that these people are not inwardly aware. Awareness is a private, first-person experience, not accessible to an external observer. We have no tests for awareness, and can only test the patient's level of arousal and ability to respond. Also, a condition known as cognitive-motor dissociation has been described in patients with brain injury, in which commands are understood, but the person is unable to respond.[26] And just because brain-injured people are ventilator-dependent, that does not mean that they are no longer persons, any more than people dependent on cardiac pacemakers are less than human. Dependency and disability do not make people "as good as dead."

Moreover, if the brain is in a state of GIP (as described above) the hypothalamus may fail tests of function, but hypothalamic tissue may still be viable. Tests of brain function, even hypothalamic function, cannot exclude the possibility of the brain being in a state of GIP. Global ischemic penumbra means that a loss of brain function can *never* preclude the possibility of recovery.

What is driving this desire to preserve the brain death concept at all costs? According to Eelco F. Wijdicks, MD, PhD, a neurocritical care specialist at Mayo Clinic and an author of both the 2010 and 2023 brain death guidelines, the diagnosis of brain death is driven by the desire for transplantable organs:

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[26] Bodien YG, et al. Cognitive Motor Dissociation in Disorders of Consciousness. N Engl J Med. 2024;391(7):598-608. doi: 10.1056/NEJMoa2400645. PMID: 39141852.

> …the diagnosis of brain death is driven by whether there is a transplantation programme (sic) or whether there are transplantation surgeons. I do not think brain death examination now, in practice, would have much if any meaning if it were not for the sake of transplantation.[27]

Advances in medical science have made the idea of brain death obsolete. Recognition of GIP has the potential to save people once written off as brain dead.[28] The use of functional MRI has allowed early detection of covert consciousness in patients with acute severe traumatic brain injury.[29] And according to Dr. Sam Parnia, a resuscitation specialist, hypothermia (a technique commonly used in resuscitation) can delay the return of brain function after rewarming by as long as seven days. How many "brain dead" patients would have recovered if only their doctors had waited a little longer?[30]

Imagine all the new treatments for neurological conditions we are missing because we have been writing off people with severe brain injuries as "dead," and turning them over for organ harvesting. What if we had treated cancer this way, labelling cancer as "irreversible" or "untreatable" fifty years ago?

"Brain dead" patients are certainly very ill and disabled, but disability does not make people into "biological entities"[31] that are no longer human.

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[27] PONTIFICIA ACADEMIA SCIENTIARUM Scripta Varia 110: The Signs of Death. VATICAN CITY 2007 OP NOTIFICIA ACADEMIA SCIENTIARUM. The Proceedings of the Working Group 11-12 September 2006, https://www.pas.va/content/dam/casinapioiv/pas/pdf-volumi/scripta-varia/sv110pas.pdf page 50.

[28] Coimbra, Implications.

[29] Edlow BL, et al. Early detection of consciousness in patients with acute severe traumatic brain injury. Brain. 2017;140(9):2399-2414.

[30] Parnia, Sam. "Erasing Death: The Science that is Erasing the Boundaries Between Life and Death." HarperCollins, 2013, New York, NY, p. 272.

[31] Sulmasy, Biophilosophical.

Dr. Molinari's comments from the 1972 NINCDS study of brain death still require an answer:

> [D]oes a fatal prognosis permit the physician to pronounce death? It is highly doubtful whether such glib euphemisms as "he's practically dead," … "he can't survive," … "he has no chance of recovery anyway," will ever be acceptable legally or morally as a pronouncement that death has occurred…This is more than a mere semantic distinction. A physician must pronounce that death has occurred before he can either perform an autopsy or remove the "cadaver"s organs for transplantation into another human being.

Harvesting organs from brain-injured people labelled as "dead" is in fact a concealed form of euthanasia.[32] There is absolutely no medical, moral, or legal certainty in a brain death diagnosis, and people need to be made aware of this. Brain dead people are very ill, and their prognosis may be death, but it is wrong to treat them as dead and plunder them for their organs while they are still sick and helpless. A humane society shows compassion to its most vulnerable members.

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[32] Verheidje JL, Rady M, McGregor JL. Brain death, states of impaired consciousness, and physician-assisted death for end-of life organ donation and transplantation. Med Health Care Philos. 2009 Nov;12(4):409-21.