

Life: Defining the Beginning by the End

Maureen L. Condic

What defines the beginning of human life? This question has been the topic of considerable legal and social debate over the years since the Supreme Court's *Roe v. Wade* decision—debate that has only been intensified by the recent controversies over human embryonic stem cells and human cloning. Answers to this question run the full gamut from those who argue that life begins at conception (the view of more than one major world religion) to those arguing that babies are not to be considered fully human until a month after birth (the position of Princeton Professor of Bioethics Peter Singer).

The range of dissent and disagreement on the question of when human life begins has led many to believe it cannot be reasonably resolved in a pluralistic society. Courts have ruled that the diversity of opinion on the topic precludes a judicial resolution, requiring instead that the matter be addressed in the political arena, where accommodation of divergent views can be wrought through debate and compromise. Many Americans appear equally unwilling to impose a single interpretation on society, preferring instead to allow decisions regarding the beginning of life to be largely a matter of personal choice.

While reluctance to impose a personal view on others is deeply ingrained in American society, one must question the legitimacy of such reluctance when the topic of our "imposition" is a matter (quite literally) of life and death. Few beyond the irrationally obdurate would maintain that human embryos are anything other than biologically *Homo sapiens* and alive, even at the earliest developmental stages. Equally few would contest the

fact that, at early stages of embryonic development, human embryos bear little resemblance to anything we easily identify as "human." For most people, reconciling these two facts involves the uncomfortably fuzzy process of drawing a line somewhere during the continuously changing process of human prenatal development and asserting: "There. That's when human life begins—at least for me." It is precisely the subjectivity and inaccuracy of this decision that fuels our discomfort at "imposing" it on others.

In contrast to the widespread disagreement over when human life begins, there is a broad social and legal consensus regarding when human life ends. Rarely has the point been made that the definition of human death can be applied to the question of when life commences with compelling symmetry. The definition of when life ends is both scientific and objective, and does not depend on personal belief or moral viewpoint. The current medical and legal understanding of death unambiguously defines both when human life ends and when it begins in a manner that is widely accepted and consistent with the legal and moral status of human beings at all stages of life.

Death is something most people readily recognize when they see it. People express very little confusion about the difference between a living person and a corpse. Surprisingly, however, the distinction is not as clear from a medical and scientific perspective. There is very little biologic difference between a living person in the instant before death and the body of that person an instant after death. Yet some property has clearly departed from the body in death, and that property is precisely the element that defines "human life." What, then, is the difference between live persons and dead ones? How is death defined medically and scientifically?

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The question of when and under precisely what conditions people are viewed as "dead" has itself been the subject of considerable debate. Traditionally, the medical profession considered a person dead when his heart stopped beating—a condition that rapidly results in the death of the cells of the body due to loss of blood flow. As the life-saving potential of organ transplants became increasingly apparent in the 1960s, the medical community undertook a reexamination of the medical standards for death. Waiting until the heart stops beating results in considerable damage to otherwise transplantable organs. After a long and contentious debate, a new standard of death was proposed in 1968 that defined "brain death" as the critical difference between living persons and corpses, a standard that is now widely (although not universally) accepted throughout the world.

Brain death occurs when there has been irreversible damage to the brain, resulting in a complete and permanent failure of brain function. Following the death of the brain, the person stops thinking, sensing, moving, breathing, or performing any other function, although many of the cells in the brain remain "alive" following loss of brain function. The heart can continue to beat spontaneously for some time following death of the brain (even hearts that have been entirely removed from the body will continue to beat for a surprisingly long period), but eventually the heart ceases to function due to loss of oxygen. The advantage of brain death as a legal and medical definition for the end of life is that the quality of organs for transplant can be maintained by maintaining artificial respiration. So long as oxygen is artificially supplied, the heart will continue to beat and the other organs of the body will be maintained in the same state they were prior to death of the brain.

Defining death as the irreversible loss of brain function remains for some a controversial decision. The fact that the cells and organs of the body can be maintained after the death of the individual is a disturbing concept. The feeling that corpses are being kept artificially "alive" as medical zombies for the convenient culture of transplantable organs can be quite disconcerting, especially when the body in question is that of a loved one. Nonetheless, it is important to realize that this state of affairs is essentially no different from what occurs naturally following death by any means. On a cellular and molecular level, nothing changes in the instant of death. Immediately following death, most of the cells in the body are still alive, and for a time at least, they continue to function normally. Maintaining heartbeat and artificial respiration simply extends this period of time. Once the "plug is pulled," and the corpse is left to its own devices, the cells and organs of the body undergo the same slow death by oxygen deprivation they would have experienced had medical science not intervened.

What has been lost at death is not merely the activity of the brain or the heart, but more importantly the ability of the body's parts (organs and cells) to function together as an integrated whole. Failure of a critical organ results in the breakdown of the body's overall coordinated activity, despite the continued normal function (or "life") of other organs. Although cells of the brain are still alive following brain death, they cease to work together in a coordinated manner to function as a brain should. Because the brain is not directing the lungs to contract, the heart is deprived of oxygen and stops beating. Subsequently, all of the organs that are dependent on the heart for blood flow cease to function as well. The order of events can vary considerably (the heart can cease to function, resulting in death of the brain, for example), but the net effect is the same. Death occurs when the body ceases to act in a coordinated manner to support the continued healthy function of all bodily organs. Cellular life may continue for some time following the loss of integrated bodily function, but once the ability to act in a coordinated manner has been lost, "life" cannot be restored to a corpse—no matter how "alive" the cells composing the body may yet be.

It is often asserted that the relevant feature of brain death is not the loss of integrated bodily function, but rather the loss of higher-order brain activities, including consciousness. However, this view does not reflect the current legal understanding of death. The inadequacy of equating death with the loss of cognitive function can be seen by considering the difference between brain death and "persistent vegetative state" or irreversible coma. Individuals who have entered a persistent vegetative state due to injury or disease have lost all higher brain functions and are incapable of consciousness. Nonetheless, integrated bodily function is maintained in these patients due to the continued activity of lower-order brain centers. Although such patients are clearly in a lamentable medical state, they are also clearly alive; converting such patients into corpses requires some form of euthanasia.

Despite considerable pressure from the medical community to define persistent vegetative state as a type of brain death (a definition that would both expand the pool of organ donors and eliminate the high medical costs associated with maintaining people in this condition), the courts have repeatedly refused to support persistent vegetative state as a legal definition of death. People whose bodies continue to function in an integrated manner are legally and medically alive, despite their limited (or absent) mental function. Regardless of how one may view the desirability of maintaining patients in a persistent vegetative state (this being an entirely distinct moral and legal question), there is

unanimous agreement that such patients are not yet corpses. Even those who advocate the withdrawal of food and water from patients in persistent vegetative state couch their position in terms of the “right to die,” fully acknowledging that such patients are indeed “alive.” While the issues surrounding persistent vegetative state are both myriad and complex, the import of this condition for understanding the relationship between mental function and death is clear: the loss of integrated bodily function, *not* the loss of higher mental ability, is the defining legal characteristic of death.

What does the nature of death tell us about the nature of human life? The medical and legal definition of death draws a clear distinction between living cells and living organisms. Organisms are living beings composed of parts that have separate but mutually dependent functions. While organisms are made of living cells, living cells themselves do not necessarily constitute an organism. The critical difference between a collection of cells and a living organism is the ability of an organism to act in a coordinated manner for the continued health and maintenance of the body as a whole. It is precisely this ability that breaks down at the moment of death, however death might occur. Dead bodies may have plenty of live cells, but their cells no longer function together in a coordinated manner. We can take living organs and cells from dead people for transplant to patients without a breach of ethics precisely because corpses are no longer living human beings. Human life is defined by the ability to function as an integrated whole—not by the mere presence of living human cells.

What does the nature of death tell us about the *beginning* of human life? From the earliest stages of development, human embryos clearly function as organisms. Embryos are not merely collections of human cells, but living creatures with all the properties that define any organism as distinct from a group of cells; embryos are capable of growing, maturing, maintaining a physiologic balance between various organ systems, adapting to changing circumstances, and repairing injury. Mere groups of human cells do nothing like this under any circumstances. The embryo generates and organizes distinct tissues that function in a coordinated manner to maintain the continued growth and health of the developing body. Even within the fertilized egg itself there are distinct “parts” that must work together—specialized regions of cytoplasm that will give rise to unique derivatives once the fertilized egg divides into separate cells. Embryos are in full possession of the very characteristic that distinguishes a living human being from a dead one: the ability of all cells in the body to function together as an organism, with all parts acting in an integrated manner for the continued life and health of the body as a whole.

Linking human status to the nature of developing embryos is neither subjective nor open to personal opinion. Human embryos are living human beings precisely because they possess the single defining feature of human life that is lost in the moment of death—the ability to function as a coordinated organism rather than merely as a group of living human cells.

What are the advantages of defining the beginning of human life in the same manner that we define its end, based on the integrated organismal function of human beings? To address this question, the alternative arguments regarding when life begins must be briefly considered. While at first inspection, there appear to be many divergent opinions regarding when human life commences, the common arguments are only of three general types: arguments from form, arguments from ability, and arguments from preference. The subjective and arbitrary nature of these arguments stands in stark contrast to the objective and unambiguous definition that organismal function provides for both the beginning and end of human life.

Of all the arguments regarding when human life begins, the most basic, and perhaps most intuitive, is that to be human, one must *look* human. Early human embryos are often described as “merely a ball of cells,” and for many, it is difficult to imagine that something that looks more like a bag of marbles than a baby could possibly be a human being. Fundamentally, this argument asserts that human life is worthy of respect depending on appearance. When plainly stated, this conclusion is quite disturbing and also quite problematic. What level of malformation are we willing to accept before we revoke the right to continued existence? How are we to view children whose mature form will not be completely manifest until puberty? Form alone is a profoundly trivial and capricious basis for assigning human worth, and one that cannot be applied without considerable and obvious injustice.

The superficiality of equating worth with form is sufficient for most to reject this argument and retreat to a functional definition: form *per se* is not the issue; rather, it is the ability to function as a human being that defines the beginning of human life. Human beings are capable of a number of distinctive functions (self-awareness, reason, language, and so forth) that are acquired gradually over prenatal life as development proceeds. Therefore, the argument goes, human worth is also gradually acquired, with early embryos being less human than more developed fetuses.

A number of seemingly independent arguments regarding when life begins are in fact variations on this argument from ability. Thus, the proposal that human life begins when the fetus becomes “viable,” or capable of surviving outside of the womb, is a subset of the abili-

ty argument that gives conclusive weight to the suite of abilities required for survival independent of the mother. Similarly, the common argument that embryos are human when they are in the womb of the mother (where they can develop into babies), while embryos generated in the laboratory are not, is also a variation on the ability argument that equates developmental ability with human life and worth.

While the argument from ability is less superficial than the argument from form alone, it is no less problematic. As noted above, functional definitions have been repeatedly rejected as a legal basis for the definition of death, in part due to their arbitrary nature. One can certainly identify any number of elderly and disabled people who are less functionally adept than newborn infants—and perhaps even late-term fetuses. While Western culture has a strong tradition of meritocracy, providing greater economic and social rewards to those who demonstrate greater achievement, basic human rights are not meted out according to performance. Unless we are willing to assign “personhood” proportionate to ability (young children, for example, might be only 20 percent human, while people with myopia 95 percent), the limited abilities of prenatal humans are irrelevant to their status as human beings.

The final and perhaps the most emotionally compelling argument for assigning human status to a developing embryo is the extent to which parents desire a child. Yet the argument from being wanted, which equates status as a human being with the desire of a second party who has the power to confer or deny that status, essentially reduces the definition of a human being to a matter of preference. You are human because I choose to view you that way. The fact that human status can be positively conferred for “wanted” embryos as well as denied for the “unwanted” illustrates the fundamental arbitrariness of this argument. The preferences of individuals who possess the power to impose them on others are hardly a compelling basis for legislation on human life.

Despite the apparent diversity of views regarding when human life begins, the common arguments thus reduce to three general classes (form, ability, and preference), all of which are highly subjective and impossible to reconcile with our current legal and moral view of postnatal human worth. It is, in fact, the subjectivity and inconsistency of these views, rather than their diversity, that makes them so unsatisfying as a basis for legislation on human life.

Unlike other definitions, understanding human life to be an intrinsic property of human organisms does not require subjective judgments regarding “quality of life” or relative worth. A definition based on the organ-

ismal nature of human beings acknowledges that individuals with differing appearance, ability, and “desirability” are, nonetheless, equally human. It is precisely the objective nature of such a definition (compared to vague “quality of life” assessments) that has made organismal function so compelling a basis for the legal definition of death.

Once the nature of human beings as organisms has been abandoned as the basis for assigning legal personhood, it is difficult to propose an alternative definition that could not be used to deny humanity to virtually anyone. Arguments that deny human status to embryos based on form, ability, or choice can be readily turned against adult humans who have imperfect form, limited ability, or who simply constitute an inconvenience to more powerful individuals or groups. Indeed, such arguments can be quite protean in their ability to deny rights to anyone not meeting an arbitrary criterion for humanity. Abraham Lincoln made this very point regarding arguments based on form, ability, and choice that were put forth in his day to justify the institution of slavery:

It is *color*, then; the lighter having the right to enslave the darker? Take care. By this rule, you are to be slave to the first man you meet with a fairer skin than your own.

You do not mean *color* exactly? You mean the whites are *intellectually* the superiors of the blacks, and, therefore, have the right to enslave them? Take care again. By this rule, you are to be slave to the first man you meet with an intellect superior to your own.

But, say you, it is a question of *interest*; and, if you can make it your *interest*, you have the right to enslave another. Very well. And if he can make it his interest, he has the right to enslave you.

Postnatal humans run very little risk that embryos will someday organize politically to impose restrictions on the rights of “the born.” However, once society has accepted a particular justification for denying rights to one class of individuals, the same justification can readily be applied to other classes by appealing to the simple argument: “Society has *already determined* that form, ability, or preference defines human life and thereby restricts human rights. Why should the same standard not be applied in this case?” In American society and jurisprudence, arguments from accepted precedent carry great emotional and legal force. Society must determine whether it is willing to accept the current subjective and arbitrary basis for determining the status of prenatal human beings as a legitimate precedent for future legislation on human rights.

Embryos are genetically unique human organisms, fully possessing the integrated biologic function that defines human life at all stages of development, continuing throughout adulthood until death. The ability to act as an integrated whole is the *only* function that departs from our bodies in the moment of death, and is therefore the defining characteristic of “human life.” This definition does not depend on religious belief or subjective judgment. From the landmark case of Karen Ann Quinlan (1976) on, the courts have consistently upheld organismal function as the legal definition of human life. Failure to apply the same standard that so clearly defines the end of human life to its beginning is both inconsistent and unwarranted.

The conclusion that human life is defined by integrated (organismal) function has wide-reaching impli-

cations, both political and moral. While the public domain has limited authority to promote morality, it does have both the power and the responsibility to prevent harm to individuals. A consistent definition of what constitutes human life, both at its beginning and at its end, requires that current legislation dealing with prenatal human life be considered in light of both biological fact and accepted legal precedent regarding the definition of human life. If current legislation enables and supports the killing of human beings based on a scientifically flawed understanding of human life, laws can and should be revised. Clearly, such a revision would not be without political cost. Yet allowing life-or-death decisions to be based on arbitrary or capricious definitions is also a course of action that is not without considerable social and moral cost. FT

My Brother's Photos Before Okinawa

The giggling boy in the picture is me,
riding my brother's shoulders
like a stallion with massive flanks,
unable to fall. My pudgy fists turned him,
cupping his ears like reins. Head ducked,

he looks up at the camera, lips whinnying,
as if saying whenever I held the photo,
Wasn't this fun?—taped in a scrapbook
by this pose of him in the paper
after boot camp in World War Two,

my hero, local marine overseas.
More shots of him with buddies before battles,
rifle slung over his shoulder in one,
muscles where I used to ride, his prance
and big-brother whinny just for me.

Walt McDonald

