EMBRYONIC STEM CELL RESEARCH: ONE SMALL STEP FOR SCIENCE OR ONE GIANT LEAP BACK FOR MANKIND?

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At the forefront of modern debate over the ethical use of biotechnology is embryonic stem cell research. In this poignant analysis of its legitimacy, the author examines the history of this research in light of the United States' policy favoring the protection of human beings over scientific progress. Stem cells, which can divide in culture to create specialized cells in the human body, possess significant potential for curing disease, particularly when taken from human embryos. However, as evidenced by the research atrocities committed under the Nazi regime, the benefits of human research do not come without a cost to humanity. Recognizing this, the later trial of these scientists produced the Nuremberg Code, a set of natural law principles guiding future research on humans that continues to influence health policy decisions. Drawing on this background, the author first considers the appropriate legal status for a human embryo. Biologically, the characteristics of a human embryo place it between human tissue and a constitutional person. Judicially, the answer is even less clear. The author analyzes case law in the context of abortion and in vitro fertilization, as well as classifications by the common law, state legislation, and the National Bioethics Advisory Commission, to conclude that a human embryo should be subject to the same legal and ethical restrictions as any other "human subject." Accordingly, the author argues that embryonic stem cell research violates the ethical standards and purpose of the Nuremberg Code and should be banned by federal legislation. Such a prohibition will fulfill the societal policy choice of protecting potential life and vulnerable human subjects.

I. INTRODUCTION

Science has been advancing at an astronomical pace, but can society keep up? This is the question at the front of the embryonic stem cell research debate. Humans can only dream of what science might provide us with in the future: new and improved power sources, agricultural techniques that will ensure food in all climates and regions, faster access to the Internet, and a cure for cancer. The problem that must be faced, though, is whether restrictions should be imposed on the way researchers go about obtaining these goals.

Stem cell research holds significant potential to advance the area of medicine.[1] For example, research conducted by the National Institutes of Health (NIH) has shown that the embryonic stem cells of mice could be used to cure Type I Diabetes by generating cells that could produce insulin and other pancreatic endocrine hormones in mice.[2] Stem cell research may also hold the potential to cure diseases like Parkinson's and Alzheimer's as well as spinal cord injuries.[3] Unfortunately, these advancements will not come without a cost.

This note demonstrates the need for legislation banning embryonic stem cell research. Part II explains the science behind stem cell research and examines the development of the United States' policy of placing the progress of science secondary to the protection of humanity. Part III determines that embryonic stem cell research violates the language and purpose of the Nuremberg Code and its policy choices embodied in subsequent federal legislation. The first section of Part III analyzes the human embryo's biological attributes, the case law surrounding the status of the human embryo in varying contexts, the National Bioethics Advisory Commission's report on stem cell research, and the analogous debate involving fetal tissue research. Based on this analysis, this section concludes that a human embryo involved in stem cell research should have the legal status of a human research subject and, therefore, embryonic stem cell research should be conducted under the limitations delineated in the Nuremberg Code. The second section of Part III decides that embryonic stem cell research violates the United States' policy that scientific progress is secondary to protection of the human subject. The section begins by applying the Nuremberg Code to determine whether embryonic stem cell research violates the language or purpose of the Code. Next, the section analyzes federal legislation and determines that the United States has made the policy choice to protect vulnerable subjects. Finally, this section resolves that to allow embryonic stem cell research, the United States would have to forego its policy decision to protect human subjects, especially those who are vulnerable, even when the protection is achieved at the expense of scientific advancement. Part IV concludes that the United States should continue its policy of placing the

1. Scientists hope that stem cell research can eventually lead to a cure for everything from Parkinson's disease to leukemia, from spinal cord injuries to transplant organ rejection, and from dental disease to diabetes. *See* Jason H. Casell, *Lengthening the Stem: Allowing Federally Funded Researchers to Derive Human Pluripotent Stem Cells from Embryos*, 34 U. MICH. J.L. REFORM 547, 552–53 (2001); Nat'l Legal Ctr. for the Medically Dependent & Disabled, Inc., *On Human Embryos and Medical Research: An Appeal for Ethically Responsible Science and Public Policy*, 16 ISSUES L. & MED. 261, 267 (2001) [hereinafter *On Human Embryos*]; Nelle S. Paegel, *Use of Stem Cells in Biotechnological Research*, 22 WHITTIER L. REV. 1183, 1191–92 (2001). Stem cell research could also provide scientists with a more detailed understanding of human development. In addition, it may furnish a safe way to test new drugs for beneficial and detrimental effects on human cells. Nat'l Insts. of Health, *Stem Cells: A Primer*, *at* http://www.nih.gov/news/stemcell/primer.htm (May 2000) [hereinafter *Stem Cells*]. Currently, the potential of stem cell research is limitless.

2. Casell, *supra* note 1, at 551–52 n.28.

3. *See id*. at 551–53.

progress of science secondary to the protection of human subjects and recommends that legislation prohibiting embryonic stem cell research be promulgated to further this policy.

II. BACKGROUND

A. The Science Behind Stem Cell Research

Before scientists can conduct stem cell research, they must find some source for the stem cells themselves. Currently, there are two sources: human embryos and developed human tissue.[4] Research on stem cells derived from embryos is termed embryonic stem cell research[5] while research using stem cells derived from human tissue is usually referred to as adult stem cell research.[6] The controversy surrounding stem cell research is not concerned with the research itself, but with the sources of these stem cells and the legal, ethical, and medical ramifications of using them.[7] First, this section explains exactly what stem cells are and why they are thought to be of such importance in the medical field. Second, it examines the two sources by describing how scientists obtain stem cells from each source and the consequences of each procedure. Finally, this section concludes by outlining the issue presented by these two sources.

Stem cells play a vital role in human development. Stem cells are cells that "have the ability to divide for indefinite periods in culture and to give rise to specialized cells."[8] There are three types of stem cells. The first type is totipotent cells, which have the ability to form all of the tissue needed to form a human being.[9] A fertilized egg is totipotent because it has the ability to "specialize into extraembryonic membranes and tissues, the embryo, and all postembryonic tissues and organs."[10] The second type of stem cell is termed pluripotent cells.[11] These differ from totipotent cells in that they are more specialized; while pluripotent cells have the capacity to form most human tissue, they do not have the capacity to form an entire human being like totipotent cells.[12] Multipotent cells are the third type of stem cell.[13] Multipotent cells differ from the previous two types because they develop into specialized tissue that

4. *See Stem Cells*, *supra* note 1.
5. *See* Paegel, *supra* note 1, at 1183.
6. *See On Human Embryos*, *supra* note 1, at 267–68.
7. *See generally id.* (clarifying that conducting stem cell research to achieve medical breakthroughs is a laudable goal, but the destruction of a human embryo to obtain stem cells is not legally, ethically, or scientifically justifiable).
8. *Stem Cells*, *supra* note 1.
9. *See id.*
10. *Id.*
11. *Id.*
12. *Id.*
13. *Id.*

performs a specific function.[14] An example of a multipotent cell is the blood stem cell,[15] which forms white blood cells, red blood cells, and platelets.[16] In sum, the natural development of a human being begins with a totipotent cell that gives rise to pluripotent cells that in turn generate multipotent cells, which finally develop into all of the different types of tissue in a human being.[17] By recognizing that stem cells produce all of the tissue found in the human body, one can begin to understand the huge potential that stem cells have for the advancement of medicine.

As previously noted, scientists can obtain stem cells from two main sources. The first source is the human embryo. Embryonic stem cell research uses pluripotent cells, which can develop into most human tissue.[18] A short explanation of embryonic development should help in understanding the procedure of obtaining these pluripotent cells.

During natural human embryo development, a sperm fertilizes an egg to become a single cell.[19] Approximately four days after fertilization, this totipotent cell begins to form a hollow sphere of cells called a blastocyst, which contains an inner cell mass.[20] This inner cell mass is comprised of the pluripotent cells that eventually form the even more specialized multipotent cells. [21] To obtain stem cells ready for research, the pluripotent cells must be harvested and then developed into a cell line.[22] The harvest of pluripotent cells is done by extracting these inner cells—pluripotent cells—from the fluid within the blastocyst,[23] thereby terminating the life functions of the embryo.[24]

The second source of stem cells is developed human tissue; stem cells derived from these other sources are termed adult stem cells.[25] For example, stem cells can be extracted from adult neural cells, bone marrow, live-birth umbilical cords, and placental blood.[26] However, unlike stem cells derived from an embryo, adult stem cells are multipotent, or,

14. *Id.*
15. *Id.*
16. *Id.*
17. *Id.*
18. *See supra* notes 11–12 and accompanying text.
19. *Stem Cells*, *supra* note 1.
20. *Id.*
21. *See id.*
22. Office of the Press Secretary, *Fact Sheet: Embryonic Stem Cell Research*, *at* http://www.whitehouse.gov/news/releases/2001/08/20010809-1.html (Aug. 9, 2001) ("To create embryonic stem cells for research, a 'stem cell line' must be created from the inner cell mass of a week-old embryo. If they are cultured properly, embryonic stem cells can grow and divide indefinitely. A stem cell line is a mass of cells descended from the original, sharing its genetic characteristics. Batches of cells can then be separated from the cell line and distributed to researchers.").
23. Paegel, *supra* note 1, at 1188.
24. *Id.* at 1186.
25. *See Stem Cells*, *supra* note 1.
26. David P. Gushee, *The Biotech Revolution: A Matter of Life and Death*, CHRISTIANITY TODAY, Oct. 1, 2001, at 34.

specialized.[27] Thus, while extraction of these stem cells from developed tissue does not have detrimental effects on the human or tissue from which it is derived,[28] the stem cells that can be obtained are limited to the multipotent type. Because extraction from the two sources results in different effects on the human donor and produces different types of stem cells, the question of which source to employ arises.

Thus, the United States faces a dilemma. On one hand, adult stem cell research does not involve the destruction of an embryo and, consequently, has not produced a heated political and moral debate like that surrounding embryonic stem cell research.[29] On the other hand, embryonic stem cell proponents believe that the research that can be carried out on adult stem cells is limited.[30] To rebut this argument, opponents point to significant advancements achieved using adult stem cells to conclude that this belief is premature.[31] In either case, the costs and benefits are speculative and not easily quantifiable.

B. The United States' Policy of Placing Medical Progress Secondary to the Protection of Humanity

At the end of World War II, the world faced the revealed tragedies of the Nazi regime. One of these many tragedies was the fact that Nazi doctors forced human subjects to participate in their unnecessary and very painful experiments.[32] This led the United States to recognize the need for restrictions on human experimentation. This section examines

27. *Stem Cells*, *supra* note 1.

28. Gushee, *supra* note 26, at 38.

29. *Id.* ("[T]here is no reason to limit research as long as the source of such cells is morally licit.").

30. *Stem Cells*, *supra* note 1 (reporting that adult stem cell research may be limited because adult stem cells have not been located for every tissue in the body and because the needed quantity of adult stem cells is difficult to obtain).

31. Studies have shown that some of the earlier presumptions concerning adult stem cell research were premature. For example:

> One of the most exciting new advances in stem cell research is the January 1999 announcement that Canadian and Italian researchers succeeded in producing new blood cells from neural stem cells taken from an adult mouse. Until recently, it was believed that adult stem cells were capable of producing only a particular type of cell: for example, a neural stem cell could develop only into cells belonging to the nervous system. Researchers believed that only embryonic stem cells retained the capacity to form all kinds of tissue in the human body.

On Human Embryos, *supra* note 1, at 267.

32. One of the most infamous Nazi experiments involved research to determine the duration of a pilot's life if he was shot down over the English Channel. Thomas John Babbo, *Begging the Question: Fetal Tissue Research, the Protection of Human Subjects, and the Banality of Human Life*, 3 DEPAUL J. HEALTH CARE L. 383, 387 (2000). The result was a run of "freezing experiments, many fatal, [and] even more brutal, if that is possible. The subjects were immersed in ice water for hours on end. They pleaded to be shot to escape their unbearable agony." Jay Katz, *Human Sacrifice and Human Experimentation: Reflections at Nuremberg*, 22 YALE J. INT'L L. 401, 406–07 (1997). Other experiments were done; for example, human subjects were exposed to biowarfare agents, placed in vacuum chambers, and castrated and sterilized. Babbo, *supra*, at 387. These experiments, although providing accurate data on the way human beings responded to these conditions, were unnecessary because the end result of death was already known and researchers could have determined dose levels using other methods.

the establishment of the Nuremberg Code and its effect on subsequent federal legislation limiting the use of human subjects.

1. The Establishment of the Nuremberg Code

The Nuremberg Code, with its underlying goal of preventing the unethical and unnecessary use of human subjects in experimentation, was established after the fall of the Nazi regime.[33] Although the principles in the Nuremberg Code were developed from universal and perpetual concepts of ethics,[34] the Code was the first document to explicitly state that American jurisprudence recognized that the advancement of medicine was secondary to the protection and respect of human subjects.[35]

The world was shocked when all of the evils that occurred in the Nazi concentration camps were revealed. One of the many horrid atrocities that was discovered was the human experimentation performed on Jews, Gypsies, homosexuals, the mentally retarded, political prisoners, and prisoners of war.[36] Claiming that monkeys would not suffice as experimental subjects because their results may differ from the results on human beings, the Nazi scientists requested that prisoners be sent to them as a supply of human subjects.[37] As an additional reason for their request, they claimed that no one volunteered for these experiments because they were very dangerous and death was likely to occur.[38] As a result, prisoners were handed over as experimental subjects.[39]

In the 1947 case of *United States v. Brandt*, the Nazi scientists and bureaucrats who conducted these experiments faced a panel of three American judges.[40] In what came to be known as the Doctors' Trial,[41] the prosecutor argued:

> These defendants are, for the most part, on trial for the crime of murder . . . . It is only the fact that these crimes were committed in part as a result of medical experiments on human beings that makes this case somewhat unique. And while considerable evidence of a technical nature has been submitted, one should not lose sight of the true simplicity of this case.[42]

The Nazis used for their defense all types of rationalizations: the experiments were conducted at a time of war, the human subject's fate

33. Babbo, *supra* note 32, at 387.
34. *See infra* note 46 and accompanying text.
35. *See* Katz, *supra* note 32, at 414 (asserting that respect for the person supersedes progress in medical science).
36. Babbo, *supra* note 32, at 387; Katz, *supra* note 32, at 404.
37. Katz, *supra* note 32, at 406.
38. *Id*.
39. *Id*.
40. Babbo, *supra* note 32, at 387.
41. Katz, *supra* note 32, at 406.
42. *Id*. at 412 (quoting Michael A. Grodin, *Historical Origins of the Nuremberg Code*, *in* THE NAZI DOCTORS AND THE NUREMBERG CODE: HUMAN RIGHTS IN HUMAN EXPERIMENTATION 121, 127 (George J. Annas & Michael A. Grodin eds., 1992) [hereinafter THE NAZI DOCTORS].

was execution, and the experiments were done only to carry out orders.[43] However, these arguments left the tribunal with the impression that, according to the defendants, the advancement of science and medicine was superior to the human dignity possessed by their human subjects.[44] At the trial's conclusion, the American panel's ruling not only convicted the defendants of murder, but it also laid out a set of principles later called the Nuremberg Code to guide the use of human beings as subjects for scientific experimentation in the future in order "to prevent the reemergence of the kind of scientific environment under which Nazi research thrived."[45]

The Nuremberg Code was not developed from existing codes of medical ethics or from previous case law, but was based on the natural law theory—a concept of universal moral, ethical, and legal principles.[46] The first principle, which set the stage for subsequent American and international legislation, stated that "[t]he voluntary consent of the human subject is absolutely essential" for human testing.[47] In addition, an experiment using a human subject should only be conducted if other methods of study are unavailable, no experiment should be conducted if death or injury is likely to occur unless the researcher is also a subject, and the degree of risk carried by the experiment should never be greater than the problem to be resolved.[48]

2. The Nuremberg Code's Impact on Subsequent Federal Legislation

In the narrowest view, the Nuremberg Code is simply a set of ethical principles handed down by an American tribunal formed to determine the fate of Nazi scientists.[49] Because the Code was created by a war tribunal, the Nuremberg Code has little value as binding precedent in the American legal system. However, because the guidelines were considered to have universal application,[50] the Code served as the basis for subsequent legislation regulating human experimentation.[51] Later, the medical community tried to relax the Code to allow for more progress in

43. Babbo, *supra* note 32, at 401–02.

44. *See id*. at 402.

45. *Id*. at 387.

46. George J. Annas, *The Changing Landscape of Human Experimentation: Nuremberg, Helsinki, and Beyond*, 2 HEALTH MATRIX 119, 121 (1992); *see also* George J. Annas & Michael A. Grodin, *Introduction*, *in* THE NAZI DOCTORS, *supra* note 42, at 3, 3.

47. Babbo, *supra* note 32, at 385 n.8.

48. *Id*.

49. Most in the medical profession "focus[] on the barbarism of the Nazi doctors' conduct and conclude[] that the code was relevant only to Nazi practices but not to research in a civilized world." Katz, *supra* note 32, at 412.

50. *See supra* note 46 and accompanying text.

51. *See* Sharon Perley et al., *The Nuremberg Code: An International Overview*, *in* THE NAZI DOCTORS, *supra* note 42, at 149, 152–55.

medicine.[52] As legislation developed, the Nuremberg principles continued to impact public policy decisions.[53] Additionally, legislation recognized the need to protect certain vulnerable populations who were at particular risk of being exploited for the advancement of medicine.[54]

In 1953, the NIH used the Nuremberg Code to develop a federal policy concerning human experimentation.[55] In 1954, the World Medical Association relaxed the conditions set by the Nuremburg Code to allow, as a replacement for the actual consent of the subject, consent by a close relative or legal representative.[56] Later, in 1964, the Association again expanded the Code to make it more flexible.[57] This resulted in the Declaration of Helsinki, which fulfilled the goal of replacing the human rights-centered and legalistic Code with a set of more lenient ethical guidelines.[58] The Declaration of Helsinki's largest deviation from the Code was the enactment of different guidelines based on the type of research being conducted.[59] For example, in the 1975 version, a physician needed not obtain the informed consent of his patient before therapeutic research—research that is combined with medical care—if the physician submitted his or her reasons to a peer advisory panel before experimentation.[60] The Declaration of Helsinki was met with enthusiastic approval by the medical community because it gave freedom from a doctrine that was developed in response to war crimes.[61] This marked the beginning of the medical community's influence over policy judgments concerning human experimentation and demonstrated the medical community's view that scientific advancement would be hindered if the Nuremberg guidelines were not relaxed.

At the same time that the Declaration of Helsinki was being developed, the Food and Drug Administration and the NIH established regulations defining the rights of human subjects.[62] These regulations also required the consent of the informed human subject but were based on the same beliefs held by the medical community.[63]

In 1981, the Department of Health and Human Services reformulated human research regulations again.[64] These new regulations, currently codified at 45 C.F.R. § 46, applied only to research conducted by the NIH until 1991 and now govern research that is federally funded but

52. *See* Leonard H. Glantz, *The Influence of the Nuremberg Code on U.S. Statutes and Regulations*, *in* THE NAZI DOCTORS, *supra* note 42, at 183, 186.
53. *See id.* at 185–90.
54. *See* Babbo, *supra* note 32, at 397–99.
55. *Id.* at 388.
56. *Id*. at 388–89.
57. *Id*. at 389.
58. Annas, *supra* note 46, at 122.
59. *Id*. at 123.
60. *Id*.
61. *Id*.
62. Babbo, *supra* note 32, at 392.
63. *Id*. at 391–92.
64. *Id*. at 395.

conducted by pharmaceutical companies and medical equipment manufacturers.[65] The regulations protect human subjects by providing administrative oversight, requiring preapproval of studies by an internal, federally trained review board and, of course, requiring informed consent.[66] They also recognize the issues surrounding certain "vulnerable populations," such as women, children, and prisoners, and require heightened consent standards for these human subjects.[67] In addition, the regulations protect unborn children by restricting the experiments that can be done on pregnant women to those that only possess minor risk.[68]

Some commentators advocate that a new group of "vulnerable subjects"—the terminally ill—be specifically protected within this regulatory scheme.[69] There are many factors that make terminally ill patients particularly vulnerable to being coerced into human experimentation.[70] First, the psychological effect of being diagnosed with a terminal illness involves overwhelming feelings of anxiety, depression, and anger.[71] Second, physiological effects, whether caused by high doses of medication, fatigue from treatment, or the disease itself, may also limit a person's mental processes.[72] Terminally ill patients are usually confined to a hospital—an environment analogous to a prison where an individual is completely dependent on others.[73] Third, terminally ill patients are not in a position to effectively assess the risks associated with experimentation because they are faced with almost certain death.[74] Lastly, most terminally ill patients who choose to participate in experiments suffer from a condition called "therapeutic misconception."[75] Human subjects with this condition are not fully aware that the experiment is not being done for their benefit and are instead participating mainly for the possibility that it may cure their disease.[76]

In addition to these internal conditions, external factors also make the terminally ill vulnerable. The biomedical field is a very large industry with a billion-dollar market; it would be foolish not to recognize the conflict of interests between scientific businesses and terminally ill patients.[77]

65. *Id*. at 396.
66. *Id*.
67. *Id*. at 397 ("[C]urrent federal regulations impose more stringent informed consent standards upon the enrollment of other 'vulnerable populations,' such as women, children, and prisoners.").
68. 45 C.F.R. §§ 46.207, 46.208 (2001).
69. *See generally* D. Christian Addicott, *Regulating Research on the Terminally Ill: A Proposal for Heightened Safeguards*, 15 J. CONTEMP. HEALTH L. & POL'Y 479, 492 (1999) ("Commentators have long recognized that the terminally ill share some of the characteristics of 'vulnerable' populations such as children and prisoners. . . . Yet current federal regulations provide no explicit protections for the terminally ill beyond those required whenever a human subject is employed in an experiment.").
70. *Id*. at 496.
71. *Id*. at 496–98.
72. *Id*. at 500–01.
73. *Id*. at 501–02.
74. *Id.* at 503.
75. *Id*. at 503–04.
76. *Id*.
77. *Id*. at 505.

Another potential conflict between the interests of the physician and the patient also exists.[78] While physicians should act in their patient's best interests, it is all too common for physicians to withhold vital information.[79] This may be due to the difficulty of facing a terminally ill person, but it could also stem from the medical community's belief that medical advancement for all mankind should take precedence over a single human's rights.[80]

Once the factors that make the terminally ill vulnerable to coercion have been fully measured, commentators believe the next step should be to adopt statutory safeguards.[81] For example, heightened consent standards may be necessary in this context because psychological and physiological effects of a fatal disease can cause concerns over whether consent can be truly informed and voluntary.[82] Additionally, the types of research done on the terminally ill can be restricted.[83] It is important to note that, according to the Nuremberg Code, it is unreasonable to suggest that terminally ill patients do not have the right to be protected from human experimentation "because they are going to die anyway."[84]

III. ANALYSIS

As previously stated, although a majority of the medical community would prefer to unleash more potential for the advancement of medicine, American jurisprudence adheres to the principles of the Nuremberg Code. The American public has a long history of concern for the protection of humanity. For the American society to allow embryonic stem cell research to continue, it must be willing to forego the policy decisions embodied in the Nuremburg Code and federal limitations on human experimentation to obtain the potential advancements in medicine.

Part A of this section analyzes the status of the human embryo and concludes that the embryo, in the context of medical research, should have the status of a human subject and, thus, be subject to the regulations pertaining to experimentation on human subjects. Part B examines embryonic stem cell research against the backdrop of the Nuremberg Code and concludes that embryonic stem cell research violates specific provisions of the Code and, more importantly, its underlying purpose. In addition, Part B concludes that embryonic stem cell research violates the

78. *Id*. at 507.
79. *Id*.
80. *See id.* at 508.
81. *Id*. at 509.
82. *Id*. at 518.
83. *Id*. at 514–16.
84. The defense of using the terminally ill as human subjects for risky experiments because "they are going to die anyway" is similar to the Nazi doctors' defense that the prisoners at the concentrations camps had the fate of execution, and so their deaths were valuable for providing medical data. *See* Babbo, *supra* note 32, at 401–03. However, the American tribunal rejected this defense. *See supra* note 43 and accompanying text.

policy decisions embodied in federal legislation concerning human experimentation.

A. Classification of the Human Embryo as a "Human Subject"

The debate over embryonic stem cell research is rooted in the question of when human life begins. While it may seem that this issue only emerged because of recent technological improvements, the question has perplexed scientists, philosophers, society, and the legal system for years.[85] The answers to this question have been many—from as early as conception to as late as self-realization sometime during infancy[86]—but there has never been a consensus.[87] At the very least, society recognizes that embryos are unique and should have a legal status that treats them with serious respect.[88]

Before determining what restrictions, if any, should be placed on embryonic stem cell research, the legal status of the human embryo in the context of medical research must be fully defined. Regulation of embryonic stem cell research will reflect society's view and the interest of the embryo, and must attempt to balance these interests against the interests of medical advancement and of those suffering from diseases that may be cured by medical advancements brought about by stem cell research. The embryo's status is usually labeled in one of three ways. First, the embryo could be considered a "person" with all of the rights of personhood attributed to it.[89] Second, the embryo could be classified as human tissue[90] with its legal status being some type of property interest.[91] Third, the embryo can fall somewhere in the middle of these two categories and be deemed human tissue with the potential for human life.[92]

This section begins by examining the attributes of the human embryo that make it different from other human tissue because of its potential for human life. Next, it analyzes case law in several contexts where courts struggle to define the status of potential life. Third, this section considers the National Bioethics Advisory Commission finding that the human embryo deserves "profound respect." This section also addresses the impact of fetal tissue transplantation research on the status of the embryo in the context of scientific research. Finally, this section con-

85. *See* Roe v. Wade, 410 U.S. 113, 130–47 (1973).

86. BARRY R. FURROW ET AL., HEALTH LAW: CASES, MATERIALS, AND PROBLEMS 1117 (4th ed. 2001).

87. *Id*. at 1116.

88. *See* Patricia A. Martin & Martin L. Lagod, *The Human Pre-Embryo, the Progenitors, and the State: Toward a Dynamic Theory of Status, Rights, and Research Policy*, 5 HIGH TECH. L.J. 257, 276 (1990); Natalie K. Young, *Frozen Embryos: New Technology Meets Family Law*, 21 GOLDEN GATE U. L. REV. 559, 568 (1991).

89. Dónal P. O'Mathúna, *Personhood: Stem Cell Research and the Moral Status of Human Embryos*, *at* http://www.all.org/abac/dpo001.htm (1999).

90. *Id*.

91. *See* Martin & Lagod, *supra* note 88, at 268.

92. *See* O'Mathúna, *supra* note 89.

cludes that, based on the above accounts, the American legal system and society should give the human embryo used in embryonic stem cell research the status of a human subject.

1. The Biological Attributes of the Human Embryo

Embryonic stem cell research would not pose the same ethical dilemma if society believed that an embryo was merely a cluster of cells. While it is true that an embryo is composed of cells, it does not necessarily follow that the total concept of a human embryo is limited to just a group of cells. A constitutionally recognized person[93] has a larger amount of cells and more mature and developed cells, but it is still a group of cells. Nevertheless, most people agree that there is something more to the constitutional person than just cells.[94] Clifford Grobstein, an embryologist, argues that the human embryo deserves a "special" status, different from a newborn.[95] He supports this conclusion with a list of biological facts about an embryo:

> [T]he preembryo is human in terms of its biological nature and has a unique genetic makeup, the preembryo is alive (measured by scientific criteria such as cell division, the exchange of respiratory gases, and the metabolism of chemicals), and the preembryo has the potential to develop into an infant and adult . . . . [A] preembryo is entitled to "special concern" if it has a chance to realize its highest potential as a full person.

Further, even if that potential does not exist, Grobstein maintains that "the value of the preembryo as a member of the human community should still be recognized and conserved."[96]

In addition, the embryo can be distinguished from other human tissue used in research. First, the embryo is an entire organism.[97] Living human tissue, like organs or blood, is only part of a whole organism and thus needs the organism to sustain the tissue's life:

> [These] early human embryonic stages . . . are all really developing stages of a whole human being, not just a part of a human being . . . . Scientifically, the embryonic organism and the mature organism are one and the same organism. The embryonic organism is just younger and at a less developed stage of growth.[98]

Thus, if allowed to continue living and growing, the human embryo will become (and can only become) a constitutional person. Although it is true that not all embryos become constitutional persons, "[s]cienti-

93. Roe v. Wade, 410 U.S. 113, 158 (1973) ("[T]he word 'person,' as used in the Fourteenth Amendment, does not include the unborn.").

94. *See* Dianne N. Irving, *Human Embryonic Stem Cell Research: Are Official Positions Based on Scientific Fraud?*, *at* http://www.all.org/abac/dni006.htm (1999).

95. Martin & Lagod, *supra* note 88, at 277.

96. *Id.*

97. Irving, *supra* note 94.

98. *Id.*

fically we know that every human being begins his or her physical existence at fertilization (or cloning)."[99] Other human tissue does not have this potential to become a life. This potential to become a constitutionally recognized person is a biological stage of development that uniquely unites all of humanity.

Second, other human tissues used in research that do encompass a whole organism, like cadavers or fetal tissue, differ from the embryo in that they are not living. Because the embryo is a whole, living organism, it cannot be placed in the same category as mere human tissue used for research. Consequently, the human embryo should be given a legal status closer to a Constitutional person than mere human tissue to reflect these important biological differences.

2. Case Law Concerning the Classification of the Human Embryo

The legal status of an embryo is unclear. The Supreme Court's most conclusive guidance is that "the word 'person,' as used in the Fourteenth Amendment, does not include the unborn."[100] Some commentators have struggled to decide whether the embryo is more analogous to property or human life.[101] The answer to this question will shape the applicable legal principles when facing issues involving the embryo, such as embryonic stem cell research.[102] This section examines the legal status of the embryo and fetus, which change depending on the context. First, this section views the embryo in the context of abortion. Second, it examines the embryo's legal status in the context of in vitro fertilization. Third, the section reviews the common law's approach to the embryo. Finally, it describes the legal status given to the human embryo by some state legislation.

a. In the Abortion Context

In *Roe v. Wade*, the plaintiff Jane Roe, a single, pregnant woman, claimed that her state's statutes criminalizing the abortion procedure violated her constitutional right to decide whether she would bear a child.[103] The state government argued that the State had a compelling interest in, and possibly a duty of, protecting prenatal life, and had chosen to further

99. *Id.*

100. Roe v. Wade, 410 U.S. 113, 158 (1973).

101. Young, *supra* note 88, at 562.

102. Martin & Lagod, *supra* note 88, at 267. By determining whether an embryo's legal status is more like that of property or a constitutional person, a sort of ethical value is placed on the human embryo. As a result, this will give insight into the ethical and moral ramifications inherent in sacrificing the embryo's life for potential medical breakthroughs. "[I]t's often hard to distinguish a harmful effect from a beneficial one without an ethically . . . informed measure of value." ERIC T. FREYFOGLE, BOUNDLESS PEOPLE, BOUNDLESS LANDS: ENVISIONING A NEW LAND ETHIC 33 (1998).

103. *Roe*, 410 U.S. at 120.

this policy by enacting a criminal statute.[104] While the Supreme Court was hesitant to recognize this interest because it proposed that life began at conception, the Court accepted that "as long as at least *potential* life is involved, the State may assert interests beyond the protection of the pregnant woman alone."[105] The Court held that a woman's privacy interest in determining whether to terminate her pregnancy outweighs the governmental interest of protecting the potential for human life during the first two trimesters of pregnancy; thus, the Court declared the statute criminalizing any abortion that was not done to save the mother's life unconstitutional.[106]

However, the Court recognized that, after the second trimester, the State's interest in protecting potential life becomes more compelling than the woman's privacy interests because the fetus is then viable, or, in other words, it could presumably survive outside the mother's womb.[107] The Court continued by reassuring that this legitimate interest can be furthered by enacting statutes that limit or even prohibit abortion during the third trimester.[108] This decision led many to believe that, at least in the abortion context, there is little interest in protecting the human embryo because this stage occurs during the first trimester.[109]

Later, in *Webster v. Reproductive Health Services*, the Supreme Court expanded the boundaries of a state's interest by suggesting "that a state was free to favor childbirth over abortion and that a state's interest in the protection of potential human life could come well before the point of fetal viability, if not conception."[110] In the 1992 case of *Planned Parenthood of Southeastern Pennsylvania v. Casey*, the Court faced the issue of abortion again.[111] This time, the plaintiff challenged the constitutionality of several Pennsylvania statutes specifying procedures women had to pass before they could obtain an abortion.[112] The Court reaffirmed its underlying holding in *Roe v. Wade*, which was:

> a recognition of the right of the woman to choose to have an abortion before viability and to obtain it without undue interference from the State[,] . . . a confirmation of the State's power to restrict abortions after fetal viability[,] . . . [a]nd third[,] the principle that the State has legitimate interests from the *outset* of the pregnancy in

104. *See id.* at 149–51.
105. *Id*. at 150.
106. *Id*. at 163.
107. *Id*.
108. *See id.* at 163–64.
109. FURROW ET AL., *supra* note 86, at 1123.
110. Stanford P. Berenbaum, Davis v. Davis*: Frozen Embryos and the Thawing of Procreative Liberties*, 36 WAYNE L. REV. 1337, 1351 (1990) (referring to Webster v. Reprod. Health Servs., 492 U.S. 490 (1989)).
111. 505 U.S. 833 (1992).
112. *Id.* at 844–45.

> protecting the health of the woman and *the life of the fetus* that may become a child.[113]

However, the Court rejected the trimester framework delineated in *Roe v. Wade* because it belittled the State's interest in protecting potential life by prohibiting the State from enacting legislation aimed at promoting this goal any time before viability.[114]

Much guidance about the legal status of the human embryo can be inferred from this line of abortion case law. First, these cases demonstrate that the embryo has a legally recognizable interest because of its potential for human life. In these cases, the states passed legislation restricting abortions reasoning that such legislation was proper because it protected not only the woman but also the unborn entity.[115] Generally, a state is allowed to develop laws that protect the health, morals, and welfare of its citizens, but always within constitutional limits.[116] Implicit in the abortion cases was the recognition that the states intended to protect the health, morals, and welfare of the unborn entity; the Supreme Court recognized this as a legitimate interest.[117] Thus, the state laws did not fail because they did not protect a legitimate interest of the state but rather failed because they violated a woman's constitutional right to privacy and bodily integrity. In addition, the Court noted that this state interest in the protection of life could begin at the outset of pregnancy, which is the embryonic stage.[118] Consequently, the human embryo is a legally recognizable interest but, when weighed against a constitutional person's right to privacy and bodily integrity, the interest is not compelling.

Second, these cases demonstrate that legislation fulfilling the interest in protecting the human embryo could be given substantial weight in legal analysis. In the abortion cases, the Court balanced the State's interest in protecting potential life against the privacy interest of the pregnant woman. In *Roe v. Wade*, the Court held that once the unborn entity reaches viability, a state's interest in protecting the potential life becomes so compelling that it can outweigh the constitutional right of abortion, except when a woman's life is threatened.[119] Implicit in this holding was that the Court was willing to give substantial weight to the interest of potential life because the decision left open the possibility that the interest in the preservation of potential life could outweigh, under some circumstances, the rights of a constitutional person. The Court determined that viability is the point where the potential life interest begins to outweigh a woman's constitutional right to privacy, but suggested that in other situations the same balancing must be done and that some earlier point may

113. *Id*. at 846 (emphasis added).
114. *Id*. at 871–73 (opinion of Justices O'Connor, Kennedy, and Souter).
115. *See supra* notes 103–14 and accompanying text.
116. *See* Ginsberg v. New York, 390 U.S. 629, 636 (1968).
117. *See id.*
118. *See supra* note 113 and accompanying text.
119. *See supra* note 107 and accompanying text.

be required if other rights that are not as fundamental as the right to privacy are involved.[120]

Lastly, the abortion cases demonstrate that the embryo has no legal interest of its own but legislation protecting the embryo is required before the potential for human life is legally recognizable.[121] Because these cases held that an unborn entity is not a person within the meaning of the Constitution, the Constitution cannot be used to give the embryo any amount of minimal rights. Therefore, the embryo obtains rights only through federal or state legislation.

While much about the status of the human embryo can be inferred from the abortion cases, there is an important difference between an embryo in the research context and an embryo in the abortion context—the embryo involved in embryonic stem cell research is outside the womb. This distinction is significant for two reasons. First, some argue that the embryo outside the womb cannot be considered potential life until it is implanted in the womb.[122] While some people believe that a woman is not pregnant until the embryo implants in the womb,[123] implantation does not have any bearing on whether the embryo is potential life. The human embryo, whether inside or outside a woman's body, still has potential life; the only remaining question is whether the embryo will be allowed to mature any further.[124] The second reason is that, because the embryo involved in research is outside the womb, the interest in the potential life of the embryo does not directly compete with a fundamental right of a constitutional person.[125] Although this difference does exist, abortion case law does show that the protection of the potential life of an

120. Roe v. Wade, 410 U.S. 113, 155 (1973) ("Where certain 'fundamental rights' are involved, the Court has held that regulation limiting these rights may be justified only by a 'compelling state interest . . . .'").

121. This is also suggested by the one rare case involving embryonic stem cell research. In *Doe v. Shalala*, the plaintiffs were suing the Department of Health and Human Services, the National Institutes of Health, and the NIH Human Embryo Research Panel to enjoin the defendants from issuing a report recommending the use of federal funds for embryonic research. 862 F. Supp. 1421, 1423 (D. Md. 1994). One of the plaintiffs in the case was "Mary Doe," an unspecified embryo which the complaint described as "'a pre-born child in being as a human embryo.'" *Id.* The court dismissed the action as to "Mary Doe" because embryos are not persons with legal rights in which a guardian ad litem could be provided and, in fact, it would be impossible to appoint a guardian ad litem for "Mary Doe" as well as the other roughly 20,000 embryos that she represented. *Id.* at 1423–24, 1426.

122. Dianne M. Irving, *When Do Human Beings Begin? 'Scientific' Myths and Scientific Facts*, *at* http://www.all.org/abac/dni003.htm (1999).

123. "This definition of 'pregnancy' was initiated to accommodate the introduction of the process of in vitro fertilization . . . . Obviously, if the embryo is not within the woman's body, she is not 'pregnant' in the literal, traditional sense of the term." *Id*.

124. Some commentators

> claim[] that these early totipotent and pluripotent "cells"' will not become a "mature human organism" "unless and until it is implanted." This too is scientifically false and misleading. Scientifically, the single-cell embryonic human zygote and all of its early developmental stages is already a human being (which is a human organism), regardless of whether or not it is implanted . . . . Implantation, or lack thereof, simply refers to whether or not an already existing whole human being will continue to live or not.

Irving, *supra* note 94.

125. *See supra* notes 107, 119–20 and accompanying text.

embryo is a legally recognizable interest, that this interest can be given substantial weight, and that the embryo's rights and interests must be created by legislative choice.

b. The In Vitro Fertilization Context

The issue of how to define the legal status of an embryo also arises in the context of in vitro fertilization. Technology now allows for the combination of a human egg and sperm outside of a woman's body and, once fertilization takes place, the embryo can be frozen and stored, with its life potential, indefinitely.[126] Society quickly recognized that it was unprepared to answer the ethical and legal questions surrounding embryo preservation.[127] Thus, the courts were forced to grapple with the legal status of the human embryo in the context of in vitro fertilization. In one notorious case, a court found that the legal status of the embryo is somewhere between a constitutional person and tangible property.[128]

In *Davis v. Davis*, the Tennessee Supreme Court faced a custody battle over preembryos.[129] While the parties were married, they had decided to try in vitro fertilization.[130] Some of the embryos were implanted and some were frozen for later use if the implantation failed.[131] Later, the couple divorced and disagreed over the custody of the frozen embryos.[132] The husband did not want the embryos implanted while the wife wanted to allow them to be adopted by an infertile couple.[133] At the beginning of its opinion, the court distinguished a "preembryo" from an "embryo," with the preembryo being the earlier stage when human development is at the four to eight-cell stage.[134] However, the court concluded that this distinction was not dispositive because the question presented in the case was whether the legal status of an embryo, or preembryo, was that of a "person" or "property."[135]

To resolve this issue, the court first looked to the Tennessee statutes and concluded that the embryo could not be a "person" because, according to the statutes, even a fetus was not considered a person unless it was first born alive.[136] Determining whether the embryos were property proved more difficult for the court. When presented with this issue, the lower court relied on the theory that the embryo was property, although

126. Casell, *supra* note 1, at 556.
127. *Id*. at 558.
128. *See infra* notes 129–43 and accompanying text.
129. 842 S.W.2d 588, 589 (Tenn. 1992).
130. *Id*.
131. Casell, *supra* note 1, at 558–59.
132. *Davis*, 842 S.W.2d at 589.
133. *Id*. at 590.
134. *Id*. at 597.
135. *Id*. at 594.
136. *Id*. at 594–95.

it did not clearly hold as such.[137] The lower court interpreted the Uniform Anatomical Gift Act—the legislation that determines which persons have control over the disposition of human organs and tissue—to mean that both parties in the case should have a joint interest in the embryos.[138] However, the Supreme Court of Tennessee rejected this argument because the embryo, while not a "person," is not just human tissue; it has the potential for human life.[139] The court concluded "that preembryos are not, strictly speaking, either 'persons' or 'property,' but occupy an interim category that entitles them to special respect because of their potential for human life."[140] However, the court did recognize that each party had an ownership interest in the embryos.[141] Applying a balancing test, the court held that the wife's interest in allowing the embryos to be donated for adoption did not outweigh the husband's interest in avoiding parenthood.[142] This holding gave the fertility clinic that stored the embryos the authority to discard them in any way not inconsistent with the court's ruling.[143]

Again, some conclusions about the legal status of the embryo can be drawn from this case. First, it recognized that the human embryo falls in an interim category somewhere between the status of a person and the status of human tissue due to the embryo's potential for life. The court also suggested that, as stated previously, the embryo does not have an interest of its own because only the interests of mother and father are asserted and balanced here. In *Davis*, the mother advocated for the preservation of the potential life of the embryo, but the court found that, after weighing the interests, a person's right not to procreate outweighed the mother's interest in preserving the life of the embryo.[144] In contrast to an embryo in the abortion context, an embryo in the in vitro context is more analogous to an embryo used for stem cell research because it is outside the womb:

> Commentators have noted, however, that "the discussion of the embryo's status [as the subject of scientific procedures] must necessarily stand on a different legal footing than that of the discussion of fetal abortion." The abortion cases were decided in a normative adversarial context: The woman's right to control her own body was pitted against the fetus's proposed right to be born. *Roe* and its successors make clear that a woman's liberty interests in reproductive autonomy and bodily integrity often outweigh the State's interest in protecting unborn life. Similarly, the IVF cases were decided against the background of reproductive choice. Despite disagree-

137. *Id.* at 595.
138. *Id*. at 595–96.
139. *Id.* at 597.
140. *Id*.
141. *Id*.
142. *Id*. at 604.
143. *Id*. at 604–05.
144. *Id.* at 604.

> ment over the embryo's legal status, these cases confirm that the parents' mutual decisional authority is the primary concern in an IVF dispute.
>
> Experimentation involving deliberately fertilized embryos, however, is fundamentally different from both the abortion and IVF scenarios because individual reproductive autonomy is not implicated. The woman is wholly removed from this equation: The research embryo is an independent entity whose existence does not require a woman to sacrifice her constitutionally protected autonomy. The biological parents do not assert any rights to control the disposition of the potential child. Instead, only the researchers' right to investigate and the general public's interest in obtaining beneficial information from such experiments must be balanced against the embryo's proposed right not to be created and destroyed for the sole purpose of scientific research.[145]

Therefore, the legal status of the embryo is less restricted in the context of embryonic stem cell research than it is in the abortion and in vitro contexts.

The *Davis* case led some state legislatures to implement legislation dealing with the legal status of embryos before the technology changes again. A number of states have enacted legislation that protects embryos outside the womb with most also restricting the use of embryos for experimentation.[146] For example, Louisiana enacted a statute before *Davis* that defines an embryo created by in vitro fertilization as a "juridical person" and "biological human being" with the capacity to sue and be sued.[147] Not all states have laws that determine the legal status of embryos created by in vitro fertilization and commentators believe that this lack of statutory law is a result of the controversial issues surrounding in vitro fertilization and abortion.[148]

c. In Other Legal Contexts

American law recognizes the rights of the unborn in other contexts as well. At the beginning of the twentieth century, state common law had determined that an action in tort for prenatal injuries or wrongful death of a child in the womb did not exist because no duty could be owed to a being not yet in existence.[149] However, state policies began to

145. Christine L. Feiler, *Human Embryo Experimentation: Regulations and Relative Rights*, 66 FORDHAM L. REV. 2435, 2445–46 (1998).

146. Some of these states include Louisiana, Maine, Massachusetts, Michigan, Minnesota, Pennsylvania, Rhode Island, and Utah. *On Human Embryos*, *supra* note 1, at 263–64.

147. Martin & Lagod, *supra* note 88, at 270.

148. Stephanie J. Owen, Davis v. Davis*: Establishing Guidelines for Resolving Disputes over Frozen Embryos*, 10 J. CONTEMP. HEALTH L. & POL'Y 493, 509 (1993).

149. Sharon M. Parker, *Bringing the "Gospel of Life" to American Jurisprudence: A Religious, Ethical, and Philosophical Critique of Federal Funding for Embryonic Stem Cell Research*, 17 J. CONTEMP. HEALTH L. & POL'Y 771, 789 (2001).

change in 1946 and "[e]very jurisdiction now recognizes an action in tort for both prenatal injuries (if the child survives) and wrongful death (if he or she does not)."[150] For example, in *Smith v. Brennan*, the New Jersey Supreme Court was forced to determine the duty owed to an unborn child.[151] In that case, an unborn child was injured in an automobile accident.[152] After the baby's birth, the father brought an action on the baby's behalf against the injurer complaining that a duty of care was owed to the baby before he was even born.[153] The court overruled precedent and held that an action exists for a surviving child regardless of whether the injury occurred before or after the child was viable.[154] The court supported its opinion by stating that medical experts:

> recognize[] that an unborn child is a distinct biological entity from the time of conception, and many branches of the law afford the unborn child protection throughout the period of gestation. The most important consideration, however, is that the viability distinction has no relevance to the injustice of denying recovery for harm which can be proved to have resulted from the wrongful act of another.[155]

This case impacted the legal status of the human embryo because it discredited the use of the viability standard as a means for determining whether a person who is eventually born can recover for injuries inflicted while still in the womb.[156] The court reasoned that viability is not a proper standard because biologically, the embryo is a separate entity from its mother not just at viability, but also after conception.[157] Thus, the human embryo—a human developmental stage following conception—is a separate entity, especially when it is outside the womb.

In addition, the court noted that protection of the unborn entity had become a legally recognizable interest and, therefore, tort law needed to evolve with this change in the legal system to provide remedies to those injured during the gestational period.[158] In the same way, regulations concerning experimentation using human subjects must also incorporate the legal system's recognition of the human embryo's potential life.

In the context of criminal law, the rights of the fetus and embryo are also increasing. At the time of *Roe v. Wade*, most jurisdictions differentiated between the killing of a fetus and the killing of a person who was born alive, with the latter carrying harsher penalties.[159] More recently, however, some states have passed legislation equating feticide with

150. *Id*. at 790.
151. 157 A.2d 497, 498 (N.J. 1960).
152. *Id*.
153. *Id*.
154. *Id*. at 504.
155. *Id*.
156. *See id.*
157. *Id.*
158. *See id.* at 504–05.
159. FURROW ET AL., *supra* note 86, at 1125.

homicide.[160] For example, in 1970, the California legislature added the killing of a fetus to its homicide statute, stating that "[m]urder is the unlawful killing of a human being, *or a fetus*, with malice aforethought."[161]

When prosecuted under these feticide statutes, defendants have tried (and failed) to constitutionally attack state murder statutes that do not expressly differentiate between the killing of a viable or nonviable fetus.[162] At least one defendant argued that feticide statutes violate due process because a defendant does not necessarily know, nor may the woman even know, that the woman is pregnant.[163] The Minnesota Supreme Court responded to this argument by stating that "[t]he fair warning rule has never been understood to excuse criminal liability simply because the defendant's victim proves not to be the victim the defendant had in mind."[164] Defendants have also argued that terms in feticide statutes like "unborn child" are vague and, consequently, violate due process.[165] However, an Illinois court responded to this claim by stating:

> [I]t is unnecessary to prove the unborn child is a person or human being. The statute only requires proof that, whatever the entity within the mother's womb is called, it had life and, because of the acts of the defendant, it no longer does. The name given to that entity is irrelevant to the liability under the statute. The trier of fact will only be asked to determine whether the particular entity, whether an embryo, fetus, person, or human being, once had life and, because of the acts of the defendant, no longer does.[166]

Courts have also rejected a defendant's claim that the feticide statute violates equal protection by treating the killing of a fetus by a woman and her doctor different from the killing of a fetus by any other person.[167]

While many states only criminalize the killing of a viable fetus,[168] the case of *People v. Davis* presented the Supreme Court of California with

160. *Id*.

161. *Id*. (citing CAL. PENAL CODE § 187(a) (1999)).

162. *Id*. *See generally* People v. Davis, 872 P.2d 591 (Cal. 1994); People v. Ford, 581 N.E.2d 1189 (Ill. App. Ct. 1991); State v. Merrill, 450 N.W.2d 318 (Minn. 1990).

163. FURROW ET AL., *supra* note 86, at 1125.

164. *Merrill*, 450 N.W.2d at 323.

165. *Ford*, 581 N.E.2d at 1201.

166. *Id.*

167. FURROW ET AL., *supra* note 86, at 1126; The court in *Merrill* explained:

> The equal protection clause of the Fourteenth Amendment requires that all persons similarly situated be treated alike under the law . . . . The situations [here] are not similar. The defendant who assaults a pregnant woman causing the death of the fetus she is carrying destroys the fetus without the consent of the woman. This is not the same as the woman who elects to have her pregnancy terminated by one legally authorized to perform the act . . . . *Roe v. Wade* protects the woman's right of choice; it does not protect, much less confer on an assailant, a third-party unilateral right to destroy the fetus.

Merrill, 450 N.W.2d at 321–22 (citations omitted).

168. *See* FURROW ET AL., *supra* note 86, at 1126; *see also Merrill*, 450 N.W.2d at 321 ("Of the 17 states that have codified a crime of murder of an unborn, 13 create criminal liability only if the fetus is 'viable' or 'quick.' Additionally, two noncode states have expanded their definition of common law homicide to include viable fetuses.").

the question whether, under the California murder statute, a murder conviction could be based on the killing of a nonviable fetus or, on the other hand, whether the murder statute only included fetuses that were viable.[169] In *Davis*, the defendant had shot a woman who was twenty-three to twenty-five weeks pregnant in the chest after she refused to give him her purse.[170] The fetus subsequently died.[171] The defendant was charged with assault, robbery, and fetal homicide.[172] Drawing on the viability analogy from the abortion context, the defendant argued that a murder conviction could only be substantiated if the State could prove that there was a reasonable chance that the fetus could survive outside the womb.[173] The court concluded "that when the mother's privacy interests are not at stake, the Legislature may determine whether, and at what point, it should protect life inside a mother's womb from homicide. Here, the Legislature determined that the offense of murder includes the murder of a fetus with malice aforethought."[174] The court interpreted the word "fetus" to include an unborn offspring that is past the embryonic stage—approximately seven to eight weeks after fertilization.[175] The court expressly refused to address the situation where the unborn was an embryo.[176] Notwithstanding this interpretation, the court decided that it could not hold the defendant criminally responsible because, up to that point, the term "fetus" as used in the feticide statute had only referred to a viable fetus and applying this interpretation retroactively would violate due process.[177]

The protection of an embryo by a homicide statute was specifically examined in the case of *State v. Merrill*.[178] In this case, the defendant was charged with the murder of a woman's "unborn child" after he allegedly shot and killed a woman who was found to be pregnant with a twenty-seven to twenty-eight day old embryo.[179] The state's statutes criminalizing murder of the "unborn child" were written exactly like murder statutes for the born except that the term "unborn child" appeared instead of "human being" or "person."[180] "The term 'unborn child' is defined as 'the unborn offspring of a human being conceived, but not yet born.'"[181] The defendant argued:

169. People v. Davis, 872 P.2d 591, 593 (Cal. 1994).
170. *Id*.
171. *Id*.
172. *Id*.
173. *Id*. at 593–94.
174. *Id*. at 599.
175. *Id.*
176. *Id*.
177. *Id*. at 602.
178. *See generally* State v. Merrill, 450 N.W.2d 318 (Minn. 1990).
179. *Id*. at 320.
180. *Id*.
181. *Id*. at 320–21 (citing MINN. STAT. § 609.266(a) (1998)).

> [T]o cause the death of an embryo, the embryo must first be living; if death is the termination of life, something which is not alive cannot experience death. In short, defendant argues that causing the death of a 27-day-old embryo raises the perplexing question of when "life" begins, as well as the question of when "death" occurs.[182]

The court rejected this argument by reminding the defendant that the statute does not state when the life of a human being begins—it only requires that the embryo or fetus had life and that it no longer has life.[183] "To have life, as that term is commonly understood, means to have the property of all living things to grow, to become."[184]

These cases involving the murder of unborn entities also imply that the embryo possesses a certain legal status. Again, in these cases, legislation created protection for the unborn entity. Thus, the unborn entity does not itself have this interest until granted to it by the force of law. Additionally, the convictions of the defendants for causing the death of an unborn entity imply that the embryo is living. Finally, these cases represent the growing public opinion that the same moral reprehensibility attaches to the murder of an unborn entity as to the murder of a constitutional person. Although the embryo in the research context is outside the womb and the embryo in *Merrill* was inside the womb, there is no significant difference because the definition of the "unborn entity" in the murder statute included those that are *conceived* although not yet born.[185] Additionally, whether the embryo is inside or outside the womb has no bearing on its life potential, which is the legal interest being asserted.[186]

3. The Classification of the Human Embryo by the National Bioethics Advisory Commission

While the previous analysis concerning the human embryo's legal status examined the human embryo in several contexts, this section considers the human embryo's status in the specific context of embryonic stem cell research. In 1999, the National Bioethics Advisory Commission[187] released its report and recommendations on the ethical issues involved in stem cell research.[188] The goal of the Advisory Commission was to make a detailed analysis of all of the issues involved with stem cell

182. *Id*. at 324.
183. *Id*.
184. *Id.*
185. *See supra* note 181 and accompanying text.
186. *See supra* note 124 and accompanying text.
187. In October 1995, President Clinton established this Commission for the purpose of "identify[ing] broad principles to govern the ethical conduct of research." Exec. Order No. 12,975, *at* http://bioethics.georgetown.edu/nbac/about/eo12975.htm (Oct. 3, 1995).
188. 1 NATI'L BIOETHICS ADVISORY COMM'N, ETHICAL ISSUES IN HUMAN STEM CELL RESEARCH (1999) [hereinafter ETHICAL ISSUES].

research and then recommend to the federal government the best public policy choice—one that the largest portion of American society would consider justifiable.[189] Before making its recommendations, the Advisory Commission struggled with the appropriate moral status of the human embryo.[190] It adopted the "position, one with which many likely would agree: that the embryo merits respect as a form of human life, but not the same level of respect accorded persons."[191] After considering the many ethical issues surrounding embryonic stem cell research, the Advisory Commission recommended that federal agencies be permitted to fund and conduct embryonic stem cell research as long as restrictions were imposed to minimize the moral concerns.[192] The Advisory Commission "recognize[d] that these research proposals may not follow the paradigm that is usually associated with human subjects research."[193]

The Advisory Commission's findings were meant to reflect how the majority of society views the human embryo's status in embryonic stem cell research.[194] Consequently, it concluded that a majority of society would agree that the human embryo is a form of human life.[195] The findings also suggest that a majority of society believes that the embryo, because it is a form of human life, should be respected.[196] Indeed, this view is consistent with previously discussed case law recognizing society's interest in protecting the embryo because of its potential for human life.[197] Lastly, the Advisory Commission's findings reflect the majority view that the human embryo used in embryonic stem cell research is a human subject used for scientific experimentation.[198] While this view can be inferred from the first two points, it is also supported by the Advisory Commission's note that its proposal departed from regulations placed on research using *human subjects* conducted and funded by federal agencies.[199] In addition, the previous governmental panel examining the fetal tissue transplantation issues categorized a dead fetus as a human subject: this only confirms that a human embryo used in research should be considered a human subject because the embryo, which still has the potential for life, deserves at least the same protection as a fetal cadaver, if not more.[200]

189. 1 *id*. at 51.
190. 1 *id*. at 49–51.
191. 1 *id*. at 50.
192. 1 *id*. at 70.
193. 1 *id*. at 78.
194. 1 *id*. at 2.
195. *See supra* notes 191–93 and accompanying text.
196. *See supra* notes 191–93 and accompanying text.
197. *See supra* Part III.A.2.
198. *See* 1 ETHICAL ISSUES, *supra* note 188, at 78.
199. *Id.*
200. *See infra* note 209 and accompanying text.

4. An Analogous Situation Involving the Classification of Fetal Tissue

In the early 1970s, in the wake of *Roe v. Wade*, the newest biotechnology was fetal tissue transplantation research, which, like stem cell research, held great promise for the treatment of several diseases, such as Parkinson's.[201] Also, medical researchers claimed that to obtain the best results, fetal tissue obtained from abortions was needed because the fetal cadaver was the most intact, healthy, and recently dead.[202] This preference for aborted fetal tissue over fetal tissue obtained from miscarried fetuses stirred an ethical debate.[203] Many individuals feared that the availability of this type of research would encourage women to have abortions solely for research purposes and possibly produce a "black market" for the sale of fetal tissue.[204] Thus, the United States faced a similar dilemma that it now faces with embryonic stem cell research. If the source of the fetal tissue is aborted fetuses, any medical benefits obtained are tainted with the complicity of the abortion decision.[205] On the other hand, if fetal tissue research was limited to tissue obtained from miscarried fetuses, medical progress may be stifled.[206]

To chill the controversy until a public policy decision could be made, the Assistant Secretary of Health and Human Services placed a moratorium on federally funded fetal tissue research in 1987.[207] In 1988, the Human Fetal Tissue Transplantation Panel was delegated the task of deciding this battle "between two 'lives,' the unborn versus the infirm."[208] The Panel's purpose was to study and make recommendations related to fetal tissue research.[209] In a 1975 report, the fetus was considered a human subject in the context of research:

> Throughout the deliberations of the Commission, the belief has been affirmed that the fetus as a human subject is deserving of care and respect . . . . [T]he members of the Commission are convinced that moral concern should extend to all who share genetic human heritage, and that the fetus, regardless of life prospects, should be treated respectfully and with dignity.[210]

201. John A. Robertson, *Abortion to Obtain Fetal Tissue for Transplant*, 27 SUFFOLK U. L. REV. 1359, 1360 n.6 (1993).

202. Babbo, *supra* note 32, at 406.

203. *Id*.

204. Casell, *supra* note 1, at 554–55.

205. *See* Jose L. Gonzales, *The Legitimization of Fetal Tissue Transplantation Research Under* Roe v. Wade, 34 CREIGHTON L. REV. 895, 910 (2001).

206. *See id*. at 911.

207. Nikki Melina Constantine Bell, *Regulating Transfer and Use of Fetal Tissue in Transplantation Procedures: The Ethical Dimensions*, 20 AM. J.L. & MED. 277, 278 (1994).

208. Chrysso Barbara Sarkos, *The Fetal Tissue Transplant Debate in the United States: Where Is King Solomon When You Need Him?*, 7 J.L. & POL. 379, 379, 405–06 (1991).

209. Babbo, *supra* note 32, at 392.

210. *Id*. at 393 (quoting a 1975 report issued by the United States National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research).

Notwithstanding this conclusion, the Panel recommended that fetal tissue transplantation should proceed.[211]

Despite this recommendation, in the fall of 1989, the new Assistant Secretary under the Bush administration continued the ban on the use of federal funds for fetal tissue research.[212] In 1993, the ban was lifted by President Clinton, who nonetheless recognized the need for safeguards that would fulfill society's respect for human life.[213] While the Bush administration can be considered the conservative side of this ethical debate, in contrast to the Clinton administration representing the liberal side, "both agree that it would be wrong to transplant fetal tissue if abortions greatly increased or occurred solely to obtain tissue for transplant."[214] Implicit in this fear is the recognition that to end a fetus's life potential for the sole purpose of benefiting society through medical research is unethical. "Indeed, the fetal tissue transplantation legislation which Congress passed and President Clinton signed into law makes it a federal crime to have an abortion and designate the recipient of a fetal tissue donation" to prevent possible incentives to have the abortion.[215]

Although federal and state laws dealing with the donation of entire bodies or body parts already existed,[216] the legislation regulating fetal tissue donation needed to account for the fact that society values human life and cannot treat a dead fetus like a kidney or some other body part.[217] Therefore, society can only allow fetal tissue research to continue if the abortion, or the termination of the potential life of the fetus, is wholly separate from the consideration of obtaining the benefit of research. Drawing on this analogy, embryonic stem cell research contradicts the United States' position that the termination of potential life be kept separate from the concern for obtaining medical benefits.[218] Unlike in the abortion context where it may be possible to separate these decisions, embryonic stem cell research inherently involves the termination of the embryo's life potential for the exact benefit of medical advancement.[219] Because the decision to terminate an embryo and the decision to use the embryo for experimentation cannot be separated, using the human embryo as a research subject violates the United States's policy of

211. *Id.* at 403.

212. Kenneth J. Ryan, *Tissue Transplantation from Aborted Fetuses, Organ Transplantation from Anencephalic Infants and Keeping Brain-Dead Pregnant Women Alive Until Fetal Viability*, 65 S. CAL. L. REV. 683, 688 (1991).

213. *See* Bell, *supra* note 207, at 281.

214. Robertson, *supra* note 201, at 1360.

215. By prohibiting abortions for the sole purpose of tissue donation, the Clinton administration made a policy choice that the protection of potential life was a more laudable goal than increasing the supply of fetal tissue for research. *Id.*

216. Most states had adopted the Uniform Anatomical Gift Act and the Department of Health and Human Services imposed additional restrictions on the donation of fetal remains. Bell, *supra* note 207, at 281–82.

217. *Id*. at 292.

218. *See supra* note 215 and accompanying text.

219. *See supra* Part II.A.

giving a status to potential life that reflects society's respect for human life.

In summary, this section analyzed the legal status of the human embryo in varying contexts. After examining the embryo's biological attributes, case law recognizing the embryo's life potential, reports given by the National Bioethics Advisory Commission and the Human Fetal Tissue Transplantation Panel, three main points can be discerned. First, a majority of American society recognizes that the human embryo deserves special respect because it is an early stage of human life. Second, an embryo receives its legal status and rights from federal or state legislation. Finally, and most importantly, because society has special respect for the embryo and an embryo's life potential that can only be protected by legislation, the human embryo should be classified as a "human subject." Thus, embryonic stem cell research should be subject to the same ethical and legal restrictions as all other research using human subjects.

B. The Violation of the Ethical Standard

1. The Ethical Standard Set by the Nuremberg Code

The Nazi regime is often studied "in the belief that we must learn from history and that its darkest moments have much to teach us . . . ."[220] Human experimentation was at its worst during the Holocaust; many now question how the Nazi physicians could have strayed so far from medical and human ethics.[221] By the end of the Doctors' Trial, the judges had learned that inherent in medical research is a temptation to sacrifice the subject's well being in the pursuit of science.[222] While having a responsibility to heal, a physician researcher is also struggling with the possibility of personal academic advancement, economic benefits, and controlling what everyone fears—death.[223] The Nazi ideology gave the scientists additional incentives to cross ethical boundaries because the researchers were aware that these experiments were using what were considered only "inferior" human subjects.[224] The justification for the victim's death was the improvement of life for mankind. This inherent conflict led the judges to create the Nuremburg Code in the hope that it would prevent future researchers from pushing ethics and humanity aside to gain the knowledge that would minimize human suffering.[225]

The Nuremburg Code was not a religious doctrine reflecting the idea of life, but was rather developed from what the judges considered

220. Katz, *supra* note 32, at 404.
221. *Id*. at 404–05.
222. *Id*. at 413.
223. Annas, *supra* note 46, at 120.
224. *See* Babbo, *supra* note 32, at 401–02.
225. *Id*. at 402.

was universally moral, ethical, and legal.[226] The existence of these universal concepts is substantiated by the fact that all later codes and regulations relating to human research have been based on the Code's principles.[227] Thus, the Nuremberg Code was the first to explicitly establish the ethical standards for human experimentation, and now all human research is judged according to these universal principles. For embryonic stem cell research to ethically continue, it must be performed within these ethical limits.

2. Embryonic Stem Cell Research Violates the Language of the Nuremberg Code

The first and most prominent condition in the Code is the requirement of voluntary and knowing consent by the human subject with the duty of obtaining the necessary consent lying with the researcher.[228] This condition recognizes that "[s]acrifice can be voluntary or involuntary. The distinction is crucial. Participation in human research always involves an element of sacrifice, for subjects are asked to submit to interventions that expose them to risks for the sake of the advancement of knowledge."[229]

In the context of embryonic stem cell research, the ethical requirement of consent,[230] which has now become a legal requirement,[231] poses a significant dilemma—an embryo does not have the capacity to give informed consent. A possible solution to this problem is to obtain consent from another on behalf of the embryo. For example, current federal regulations allow parents to consent to a child's use as a human subject but require consent from the child if he or she has the capacity to do so.[232] However, this substituted consent by the parent produces problems of its own.[233] One major difficulty is the question of who has the capacity to give consent on the embryo's behalf. In the situation where the embryo is created by in vitro fertilization, the natural response is that the genetic parents should be able to give consent.[234] However, the genetic parents' consent on behalf of the embryo might be suspect because they could be donating the embryo for a benefit they may obtain rather than on *behalf* of the embryo.[235] When the embryo is created by the process of thera-

226. *Id*. at 387–88.
227. *See id.* at 388.
228. *Id*. at 385 n.8.
229. Katz, *supra* note 32, at 402.
230. *See* Annas, *supra* note 46, at 121.
231. *See* Babbo, *supra* note 32, at 386–96.
232. *Id*. at 397–98; *see also* 45 C.F.R. § 46.408 (2001).
233. *See* Babbo, *supra* note 32, at 397–98 (explaining that the federal regulations require the parents or guardian to give consent on behalf of minors when using them as research subjects because the law generally regards minors as lacking the capacity to give informed consent).
234. *See id.*
235. *See* 1 ETHICAL ISSUES, *supra* note 188, at 72–73.

peutic cloning,[236] the question of who can provide consent is even more vexing. One suggestion might be the researcher who created the embryo; this, however, gives the researcher a conflict of interest because, on the one hand, the researcher is giving consent on behalf of the embryo and on the other, the researcher is motivated by the great potential for stem cell research that led the scientist to create the embryo in the first place.[237] These problems arising from substituted judgment show that the question of who can provide true and informed consent on behalf of the embryo is left answerless. Because the first and most basic provision of the Nuremberg Code—the requirement of consent by the human subject—cannot be sufficiently met in the case of embryonic stem cell research, use of the embryo to derive stem cells violates the Nuremberg Code.

The second provision of the Code states that "[t]he experiment should be such as to yield fruitful results for the good of society, unprocurable by other methods or means of study, and not random and unnecessary in nature."[238] Thus, the judges recognized that to preserve human dignity, research on human subjects should not be performed before all other alternatives have been exhausted. The human subject is a last resort.

This provision also calls into question the validity of embryonic stem cell research. As previously discussed, adult stem cells can be used as an alternative to embryonic stem cells.[239] Many proponents of embryonic stem cell research note that stem cells derived from embryos are thought to be more advantageous than those derived from developed human tissue.[240] This conjecture is irrelevant, however, because the Code provision requires that all alternatives to the use of a human subject be used first and, once it has been determined that the research goals cannot be obtained by these alternative methods, then, and only then, may the researcher use human subjects. Also, the notion that adult stem cells are limited in their research capabilities is currently only speculation. Recent research using adult stem cells, which have already developed into a specific type of stem cell, seems to even indicate the opposite.[241] Because researchers do not know with scientific certainty that medical advancements are *unprocurable* using adult stem cells, they must postpone using human subjects until this condition is met. The Nuremberg Code requires that the use of a human subject be necessary; thus, because viable

236. Therapeutic cloning refers to the cloning of an organism for the sole purpose of research. This is in contrast to reproductive cloning, which is done for the purpose of reproducing the organism. Gushee, *supra* note 26, at 38.

237. *See supra* notes 222–24 and accompanying text.

238. Babbo, *supra* note 32, at 385 n.8.

239. *See supra* Part II.A.

240. *See supra* notes 29–31 and accompanying text.

241. *See supra* note 31 and accompanying text.

alternatives to the use of a human embryo exist, embryonic stem cell research violates the Code.

A third provision of the Nuremberg Code is that "[n]o experiment should be conducted where there is an a priori reason to believe the death or disabling injury will occur; except, perhaps, in those experiments where the experimental physicians also serve as subjects."[242] This part of the Code implies that the death or disabling injury of a human subject is too great a cost even for the benefit of medical breakthroughs. The Code, however, only gives one exception to the rule that no experiments shall be conducted when the death of a human subject is likely—when the scientist actually serves as a human subject along with the other subjects.[243] When a researcher is so convinced that the experiment requiring death will result in a great benefit for society that the researcher is willing to sacrifice his or her life for the benefit of society, human testing is deemed appropriate. This condition also assures that a researcher truly believes that the death of the human subject is the only way to procure the benefit. Additionally, requiring the researcher to participate in the deadly experiment assures that the researcher does not believe that his or her life is any worthier than the rest of the human subjects' lives.[244] In the case of embryonic stem cell research, the scientist is not willing to "die" alongside the embryo subjects. Hence, embryonic stem cell research does not meet the exception and violates the Nuremberg Code.

3. Embryonic Stem Cell Research Violates the Purpose of the Nuremberg Code

The medical community interprets the Nuremberg Code as a set of strict standards developed for the sole purpose of condemning the atrocities committed by the Nazi doctors.[245] Yet, this argument ignores the reason for the Code's development. Its purpose was to prevent a similar situation from reoccurring because researchers often tend to sidestep ethical standards when faced with the prospect of scientific advancement.[246] Circumventing ethical standards becomes even easier once the researcher views his or her human subject as inferior when compared to

242. Babbo, *supra* note 32, at 385 n.8.

243. *Id.*

244. This belief that inferior humans exist led them to be used as expendable human subjects. *See supra* note 224 and accompanying text.

245. *See supra* note 49 and accompanying text.

246. *See supra* note 45 and accompanying text. As one author explained:

> The problem with science lies not with the scientific method but with the larger culture that has arisen around it. Society tends to presume that science has all the answers and that scientific knowledge can determine how people ought to live without any need for fundamental values or ethical choices. On a more dangerous level, some even think that science ultimately will liberate people from nature's limits. The drawback of technology is that it, too, can be bad as well as good, productive of disease as well as health, depending on the purposes it serves.

FREYFOGLE, *supra* note 102, at 35.

other human subjects.[247] In the context of embryonic stem cell research, many scientists have already tried to narrow the concept of the embryo to the status of human tissue while others emphasize the embryo's potential life.[248] These scientists can then argue that, because the embryo deserves less respect, embryos can be sacrificed for the benefit of society generally. The fact that the embryo is not a constitutional person does not change the fact that it is a human subject. Human subjects deserve the protection of the Nuremberg Code to prevent their unethical exploitation in the name of progress.

4. The Protection of Vulnerable Human Subjects by Current Legislation

As stated in the background section, American society realizes that certain vulnerable populations are exceptionally at risk of being exploited "by researchers who are often unrealistically optimistic in their expectations and believe their subjects cannot be harmed."[249] Women, children, and prisoners are already protected by law.[250] In addition, some commentators recommend that the terminally ill be added to this list.[251] The characteristics that place these groups at particular risk are: their true and informed consent is suspect, their biological nature place them at greater risk of death or injury, and their attributes as human subjects, especially when dealing with prisoners and the terminally ill, place them at risk of being "weighed" differently in the cost-benefit analysis.[252]

The embryo as a research subject shares these qualities. The embryo does not have the capacity to give consent to the research that will ultimately destroy its life potential.[253] Also, the embryo, because of its small number of cells, is biologically at risk of death or severe injury during any type of research. Moreover, the embryo is vulnerable to being placed in a subclass of human subjects because its death is certain to occur unless implanted in the womb. These characteristics do not make the embryo an "inferior" human subject; rather, they make embryos vulnerable human subjects. The fact that terminally ill individuals are near death does not decrease their worth as individuals to overcome the presumption found in the Nuremberg Code that the protection of any human subject's dignity takes precedence over the achievement of medical breakthroughs. Thus, the value of the embryo should not be discounted just because the embryo's death is likely and near.

247. *See supra* note 224 and accompanying text.
248. *See* Irving, *supra* note 122.
249. Annas, *supra* note 46, at 137–38.
250. Addicott, *supra* note 69, at 485–86.
251. *See supra* notes 69–84 and accompanying text.
252. *See id.*
253. *See supra* notes 230–37 and accompanying text.

IV. RECOMMENDATION

After analyzing the human embryo's legal status and applying the ethical standards required by the Nuremberg Code, embryonic stem cell research should clearly be prohibited because it fails to comply with the ethical standards for the use of human subjects in experimentation.[254] Therefore, federal legislation prohibiting embryonic stem cell research should be promulgated to fulfill the United States' policy that medical advancement be secondary to the human subject's protection. Without this legislation, society's demonstrated special respect for the potential of human life will be undermined.[255] Also, without such legislation, the American scientific community will continue to violate the ethical standards established by the Nuremberg Code by causing the death of embryos for the benefit of society.[256] Lastly, the United States cannot ignore its policy of creating heightened safeguards for the protection of human subjects who have characteristics that make them particularly vulnerable to unethical exploitation in research.[257]

As previously stated, society recognizes that the embryo is a form of human life and that the only way to protect it is to enact laws conferring an interest in the potential life of the embryo.[258] In addition, society is beginning to equate the wrongness of the killing of an unborn entity with the harm from killing a constitutional person.[259] Thus, to further this American public policy decision, legislation classifying the human embryo involved in research as a human subject is necessary.[260]

Once the embryo is given the status of a human subject, the normal protections given to all human subjects, and especially those given to vulnerable human subjects, must be assigned to the embryo. The Nuremberg Code sets the ethical standard for the use of human subjects; hence, embryonic stem cell research must be compared to this standard.[261] Several provisions of the Nuremberg Code are violated by em-

254. Of course, legislation banning embryonic stem cell research cannot ensure that no embryonic stem cell research takes place, but such legislation can suggest that it is ethically unacceptable and hold those who violate the law accountable. *See* FURROW ET AL., *supra* note 86, at 1470 (describing blatant violations of research ethics and legislation requiring the consent of human subjects during the Tuskegee Syphilis Study and the Human Radiation Experiments by the U.S. government).

255. *See supra* Part II.B.

256. In other words, embryonic stem cell research will not cease without legislation specifically banning it. By allowing this research to continue, the United States is allowing the violation of the language and purpose of the Nuremberg Code. *See id.*

257. *See supra* Part II.B.2.

258. *See supra* Part II.B.

259. *See supra* notes 159–61 and accompanying text.

260. *See supra* Part II.B.

261. It would be unethical for the United States to hold others accountable for the violation of the Nuremberg Code ethical standards but not follow the rules itself. If the U.S. government determines that the Nuremberg Code set these standards too high, it must also realize that it unreasonably applied these high standards to obtain the conviction and execution of the Nazi Doctors. *See* FURROW ET AL., *supra* note 86, at 1462. On the other hand, if the Nuremberg Code was truly a universal ethical standard, the United States should be the first to comply.

bryonic stem cell research.[262] Consequently, it is *per se* unethical to conduct this type of experimentation on a human subject. Because the interest of the embryo's potential life cannot be furthered without some specified public policy decision enacted into legislation and because experimental research using human subjects is already regulated by the federal government, Congress should enact legislation classifying the human embryo as a human subject and prohibiting embryonic stem cell research.

V. CONCLUSION

Embryonic stem cell research is at the forefront of a heated political debate because it involves the termination of the potential life of a human embryo. Opponents of embryonic stem cell research usually point to conception as the beginning of a human person and, thus, the killing of the embryo for stem cell research should be prohibited because it involves the killing of a person. However, this argument is currently unnecessary. The human embryo involved in stem cell research qualifies as a human subject and should be protected by ethical standards established for all experimentation on human subjects. Because embryonic stem cell research violates the language and purpose of the Nuremberg Code and contradicts the United States' policy of adding heightened safeguards to ensure the protection of vulnerable human subjects, future legislation should ban embryonic stem cell research.

262. *See supra* Part III.B.