HUMAN REPRODUCTIVE CLONING: CURRENT LEGAL, ETHICAL, AND PUBLIC POLICY CONSIDERATIONS

I. INTRODUCTION

Modern advances in biomedical research have significantly influenced the medical community in its approach to abating human disease and suffering. For example, genetically-engineered (transgenic) animals are routinely used to examine the effect(s) of gene alterations in mammalian species. These genetic manipulations allow scientists to induce disease-specific mutations in these animals. Biomedical researchers empirically test their hypotheses by developing novel treatment methodologies targeting the genetically altered animals, thereby furthering our understanding of therapeutic intervention in vivo. It is common practice for the scientific community to extrapolate these findings from transgenic animals to humans in order to provide future researchers with insight into potential cures for human disease and illness.

While the use of transgenic animals for biomedical research has become widely accepted, the advent of other modern research strategies are met with passionate opposition. Today, the most polarizing topic in the scientific and public arena is the notion of human reproductive cloning. This debate centers around the use of somatic cell nuclear transfer technology to implant a “cloned” embryo into the womb, thereby resulting in a genetically identical “twin” of an existing—or previously existing—person. The genesis of this heated debate over human reproductive cloning “has led certain religious coalitions, environmental groups and bioethicists to oppose almost every aspect of biotechnology, from patenting genes and transgenic plants to cloning humans.”1 Consequently, significant legal, ethical, and public policy considerations are raised regarding the potential implementation of this controversial technology in the United States.

Part I of this note gives the requisite scientific background to understand this issue from a biomedical perspective. Part II discusses the relevant legal considerations of human reproductive cloning, focusing on an analysis of the constitutional right to privacy and reproductive freedom. Part III considers the ethical and public policy implications impinged in the human reproductive cloning debate. Finally, Part IV will undertake the ambitious task of melding the foregoing considerations discussed in Parts I-III into a

“consensus opinion” regarding the future of human reproductive cloning in the United States.

II. THE SCIENCE OF HUMAN REPRODUCTIVE CLONING

A clone, as defined by Dorland’s Medical Dictionary, is “one or a group of genetically identical cells, organisms, or plants derived . . . from a single hybrid DNA molecule . . . by replication in a eukaryotic . . . host cell.”\(^2\)

Cloning, therefore, simply represents the production of an almost genetically identical organism (e.g., animal, plant) from the manipulation of non-reproductive cells to give rise to a virtual copy, or “twin,” of the organism that donated the nuclear DNA. In the context of the controversial human cloning debate, “cloning is a way to create later-born twins of an individual who is living or has already lived.”\(^3\)

Contrary to public perception, there are actually three distinct types of cloning proposed by the scientific and medical communities.\(^4\) First, embryonic cloning (a.k.a. experimental twinning) involves the “embryonic duplication produced by purposeful external intervention.”\(^5\) In this situation, “an embryo [is activated] to produce twins and is in essence a duplication of the natural process that produces ‘identical twins.’”\(^6\) The technical significance of embryonic cloning (or experimental twinning) is that “[t]hese cloned embryos contain an exact copy of the nuclear DNA as well as copies of the mitochondrial DNA from the original embryo.”\(^7\)

A second type of cloning is termed therapeutic cloning, which involves the “most foreseeable benefits to mankind.”\(^8\) This cloning technique “differs from [experimental] twinning [or embryonic cloning] in that the mitochondrial DNA of the unfertilized egg is retained in the developing clone.”\(^9\) This is significant because the “donor’s mitochondrial DNA is not transferred,” therefore, therapeutic cloning does not produce an exact genetic replica as does embryonic cloning (or experimental twinning).\(^10\) Therapeutic cloning techniques further differ from other cloning methodologies as therapeutic cloning “produces tissue or an entire healthy organ for transplantation into the [nuclear] DNA donor”\(^11\) rather than producing an entire

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6. Id. & Buckley, supra note 4, at 12.
7. Id.
8. Id. at 13.
9. Id.
10. Id.
11. Lesko & Buckley, supra note 4, at 14.
genetically identical organism. Consequently, therapeutic cloning is a method proposed by the medical and scientific communities as a way to combat host rejection of transplanted organs. This has led many to postulate that a market for therapeutic cloning “of just over $17 billion dollars exists in the U.S. alone.”

A third type of cloning methodology, and, in many circles, the most controversial of the cloning techniques, is reproductive cloning. In reproductive cloning, “the cloned embryo produced by nuclear transfer is implanted into a womb” and allowed to “develop into a new human or other organism depending on the origin of the [nuclear] DNA transferred.” In contrast with a naturally born monozygotic (i.e., identical) twin, however, a reproductive cloning “twin” would not be 100% genetically identical to the donor of the nuclear DNA. This is because the “twin” would have genetically identical nuclear DNA, but would differ physically because of embryological factors including womb placement, nutrient uptake and treatment in the womb. Moreover, lest we forget that, in addition to genetic factors, evolutionary dogma dictates that environmental factors play a significant role in the development, adaptation, and survival of any organism.

The remainder of this note will address the specific legal, ethical, and public policy concerns entangled with this third type of cloning—namely, human reproductive cloning. It is here, in the area of human reproductive cloning, that recent events have sparked intense debate over this polarizing issue on a worldwide spectrum.

III. LEGAL CONSIDERATIONS OF HUMAN REPRODUCTIVE CLONING

The constitutionality of regulating the marital right to privacy and reproductive freedom were addressed in two seminal United States Supreme Court cases. In Griswold v. Connecticut, a licensed physician serving as executive of the Planned Parenthood League of Connecticut counseled a married couple about contraception. The physician and married couple were each convicted and fined $100 as accessories for violation of §§ 53-32 and 54-196 of the General Statutes of Connecticut. The issue in Griswold
rested on whether § 53-32 and § 54-196 violated the constitutional rights of marital privacy. The Court asserted that the issue before them “concerns a relationship lying within the zone of privacy created by several fundamental constitutional guarantees.” Moreover, the Court further asserted that it is not within its scope to “sit as a super-legislature to determine the wisdom, need, and propriety of laws that touch economic problems, business affairs, or social conditions.” The Court held that “Connecticut’s birth-control law unconstitutionally intrudes upon the right of marital privacy.”

In Eisenstadt v. Baird, William Baird (“Baird”) was convicted of violating a Massachusetts General statute on two separate counts. First, Baird was convicted for “exhibiting contraceptive articles in the course of delivering a lecture on contraception to a group of [predominantly unmarried] students at Boston University.” Second, Baird was convicted for “giving a young [unmarried] woman a package of . . . vaginal [contraceptive] foam” at the conclusion of his lecture. The issue in Eisenstadt was “whether there is some ground of difference that rationally explains the different treatment accorded married and unmarried persons under Massachusetts General Laws.” In holding that the Massachusetts General Laws violate the Equal Protection Clause of the Fourteenth Amendment, the Court elaborated by asserting “[i]f the right of privacy means anything, it is the right of the individual, married or single, to be free from unwarranted governmental

20. Id. Section 53-32 states: “Any person who uses any drug, medicinal article or instrument for the purpose of preventing conception shall be fined not less than fifty dollars or imprisoned not less than sixty days nor more than one year or be both fined and imprisoned.” Id.
21. Id. Section 54-196 states: “Any person who assists, abets, counsels, causes, hires or commands another to commit any offense may be prosecuted and punished as if he were the principal offender.” Id.
22. Id. at 485.
23. Id. at 482.
25. Eisenstadt v. Baird, 405 U.S. 438, 440-42 (1972). The Court specifically referred to chapter 272, section 21 of the Massachusetts General Laws: under which Baird was convicted, provides a maximum five-year term of imprisonment for “whoever . . . gives away . . . any drug, medicine, instrument or article whatever for the prevention of conception,” except as authorized in § 21A. Under § 21A, “(a) registered physician may administer to or prescribe for any married person drugs or articles intended for the prevention of pregnancy or conception. (And a) registered pharmacist actually engaged in the business of pharmacy may furnish such drugs or articles to any married person presenting a prescription from a registered physician.” As interpreted by the State Supreme Judicial Court, these provisions make it a felony for anyone, other than a registered physician or pharmacist acting in accordance with the terms of § 21A, to dispense any article with the intention that it be used for the prevention of conception. The statutory scheme distinguishes among three distinct classes of distributees- first, married persons may obtain contraceptives to prevent pregnancy, but only from doctors or druggists on prescription; second, single persons may not obtain contraceptives from anyone to prevent pregnancy; and, third, married or single persons may obtain contraceptives from anyone to prevent, not pregnancy, but the spread of disease.”

Id. (emphasis added).
27. Id.
28. Id. at 447.
In light of the broad decisions by the United States Supreme Court in *Griswold* and *Eisenstadt*, the Court’s position regarding the right to marital privacy and reproductive freedom may “arguably encompass . . . assisted reproductive technologies [such as human reproductive cloning].”  

Clearly, the right to reproductive freedom provides the right to choose contraception to prevent pregnancy without the fear of governmental intervention.  

In addition, “the right to reproductive freedom arguably [also] includes the right to take affirmative steps, through the use of assisted reproductive technologies [including human reproductive cloning], to become pregnant.”  

Moreover, “[i]t seems inconsistent that a society would recognize the right of the fertile to conceive coitally, and not also recognize the right of the infertile to conceive noncoitally.”  

Until the Court actually addresses the issue of human reproductive cloning, however, “it is unclear whether the choice to create a child through [human reproductive] cloning would be viewed in the same light as the fundamental right to procreative liberty,” as held in *Griswold* and *Eisenstadt*.

While the United States Supreme Court has remained silent on the issue of human cloning, over half of the states have recently implemented legislation addressing this issue. The primary areas of anti-cloning legislation include: “prohibiting governmental expenditures for any research using cloned cells or tissue; banning governmental expenditures for cloning an entire individual; banning any research using cloned cells or tissue; and banning cloning of an entire individual.”  

Additional anti-cloning proposals in some state legislatures include the “prohibit[i]on [of] human cloning by qualifying the human cloning research as a Class B felony.” Therefore, state legislatures do not appear to align themselves with the broad interpretation of the right to marital privacy and reproductive freedom promulgated by the United States Supreme Court, at least as it applies to human reproductive cloning.

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29. *Id.* at 453 (emphasis added).
31. *Id.* at 322.
32. *Id.*
34. Smith, *supra* note 30, at 321 (emphasis added).
36. *Id.*
37. *Id.* at 176-77.
The question remains whether there is a constitutional right to clone humans under the protections of the marital right to privacy and reproductive freedom. Proponents of human cloning will advance the theory that the Court has gone to great lengths to avoid governmental intrusion in matters concerning these freedoms. Advocates of cloning also assert that “a ban on human cloning . . . unduly interferes with a right of scientific inquiry.”\(^{38}\) Proponents of cloning concede that “there is no specifically enumerated right to research in the U.S. Constitution.”\(^{39}\) However, it could be argued that “support for such a right could be derived from the Fourteenth Amendment right to personal liberty and the First Amendment right to free speech.”\(^{40}\) In particular, the “right to research consists of the freedom to pursue knowledge” and “[t]he strongest claims have been made for a First Amendment right of scientific inquiry.”\(^{41}\)

Opponents to human cloning, on the other hand, advocate that “[t]he Court should be most reluctant to invoke the due process clause to strike down [anti-cloning] legislation on substantive grounds.”\(^{42}\) In previous decisions by the Court, opponents of human cloning contend, “the Court has acted . . . because of an implicit understanding that the case did not . . . involve substantive due process.”\(^{43}\) Opponents bespeak heightened judicial deference for anti-cloning legislation, as “the area of cloning is a prime arena for [such] deference.”\(^{44}\) Anti-cloning legislation, therefore, should not be held as unconstitutional “[u]nless there is some problem in the process that led to the law under review.”\(^{45}\) It is further argued by opponents of human cloning that “the Constitution does not create a presumptively protected right [to clone human beings for reproductive purposes]—and thus the government is not required to show more than a rational justification for its actions.”\(^{46}\) Here, according to some, “the government has such a justification.”\(^{47}\) If and until the United States Supreme Court addresses this hot button issue, we will not have anything but speculation on behalf of either proponents or opponents regarding human reproductive cloning.

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39. Id.
40. Id.
41. Id. at 662.
43. Id.
44. Id.
45. Id. (emphasis added).
46. Id. at 1005.
47. Sunstein, supra note 42, at 1005.
IV. ETHICAL AND PUBLIC POLICY CONSIDERATIONS OF HUMAN REPRODUCTIVE CLONING

Law is not a sterile and static body of rules and regulations. Rather, “[l]aw embodies the [dynamic] moral judgments of a society.”48 “Once the people decide which of many, often-competing moral views they desire, law can provide the tool to create the desired outcome.”49 For example, in 1997, the initial public response to the idea that human reproductive cloning “moved further away from science fiction and closer to a genuine possibility” with the successful cloning of a sheep named “Dolly,” was one of concern.50 Almost immediately, “President Clinton instituted a ban on federal funding related to attempts to clone human beings in this manner.”51 While this Executive decision does not affect a scientist’s ability to obtain private funding for human cloning research, “except as it regards the interests of the subject or the general public affected by the research,”52 it did send a sharp and decisive signal to those contemplating this type of human experimentation. Most importantly, however, the banning of federal funding for human cloning research was the crucial first step in laying the groundwork for future anti-cloning legislation. As “the government can constitutionally restrict the funds it grants to research, and because a large portion of research depends on government funds, the prohibition is bound to [negatively] affect the progress of research in genetic manipulation.”53 A delicate balancing act of sorts, however, must be attained between proposing legislation that proscribes any form of human cloning and legislation permitting “legitimate research[] on topics such as the regeneration of nerve tissue or skin for burn victims.”54

The most compelling reason given by advocates of human reproductive cloning is that it allows “an infertile couple to have a genetically related child.”55 “Cloning, they argue, is just the next step after in vitro fertilization, which remains largely unregulated” after more than twenty years since its inception as a treatment for infertility.56 In this context, the “use of [human] reproductive cloning presents a potential method of obtaining the biological or genetic connection to one’s children that is so crucial to society’s conception of reproduction and family.”57 Moreover, human reproductive

49. Id.
51. Id.
53. O’Brien, supra note 52, at 549.
55. Id.
56. Martyn, supra note 48, at 379 (emphasis added).
cloning, “like all other forms of assisted reproduction technology, should be presumptively protected as part of a fundamental right to have children, unless some compelling harm requires its prohibition.”

Anti-cloning advocates assert that the compelling harm mentioned above is ostensibly the “fears about harm to the children who may be created in this manner, particularly psychological harm associated with a possibly diminished sense of individuality and personal autonomy.” Therefore, this compelling harm should override any presumptive right to have children and prohibit the use of human reproductive cloning. Proponents of cloning counter this concern by asserting that “[b]ut for the use of the [human reproductive cloning] technique . . . the child would never have been born.” At the core of this counter-argument is the assumption that the “child is worse off if born through cloning than if never born at all.” This rationale parallels that found in “wrongful life tort cases” and has found little support under “American tort law.”

An additional concern for opponents of human reproductive cloning is the fear of implementing this methodology to “undermine important social values by opening the door to a form of eugenics.” Proponents of human reproductive cloning acknowledge that this concern is “worthy of widespread and intensive debate.” However, proponents contend that the mere concern over the possibility of eugenics is subservient to the broader concerns of “important social and constitutional values.” The values proponents of cloning rely most heavily upon include “protecting the widest possible sphere of personal choice, particularly in matters pertaining to procreation and child rearing; maintaining privacy; protecting the freedom of scientific inquiry; and encouraging the possible development of new biomedical breakthroughs.”

There are plausible ethical and policy arguments on both sides of the human reproductive cloning issue. We all must keep in mind, however, that the law is simply a reflection of the social and ethical values of the people it governs. As such, the American legal system must proceed with great caution and apprehension before setting sail to the uncharted waters of human reproductive cloning. If not, we may lose the opportunity “to get our hands

58. Id. at 39 (emphasis added).
59. Shapiro, supra note 50, at 195.
60. Robertson, supra note 57, at 40.
61. Id.
62. Id. (citing Robak v. United States, 685 F.2d 471, 474 n.3 (7th Cir. 1981)) “Every jurisdiction that has considered actions for wrongful life, except for California, has held that no such cause of action exists.” Id.
63. Shapiro, supra note 50, at 195.
64. Id.
65. Id.
66. Id.
on the wheel of the runaway train now headed for a post-human world and to steer it toward a more dignified human future.”

V. “Consensus Opinion” of Human Reproductive Cloning?

While preparing a true “consensus opinion” on a matter as controversial and polarizing as human reproductive cloning may not be realistic, a few “[g]eneral observations can be made about the current world legislative landscape” regarding human cloning methodologies. First, a movement toward banning human reproductive cloning while allowing other forms of human cloning (e.g., therapeutic cloning) is quickly gaining support in the International arena. Second, there are surprisingly few International prohibitions on human cloning currently in place. Specifically, “human cloning is legal in the almost 180 countries worldwide which are silent on the matter.” Finally, no country has assumed the leadership role on this issue and taken the first step to prohibit all human cloning—including embryonic, therapeutic, and reproductive forms of human cloning.

Turning our attention back to the United States, the Griswold Court “established the principle that the right to freedom of speech includes freedom of inquiry, freedom of thought, and freedom to teach.” These freedoms are constitutionally guaranteed to all private citizens of the United States “by the penumbras emanating from the First, Third, Fourth, Fifth and Ninth Amendments.” However, the freedom of scientific expression of private citizens must be tempered with ethical and societal concerns when the “research has an effect beyond the confines of the scientist’s private domain.” It is here, at the threshold point of the state’s interest in society as a whole, that society’s concerns should override the individual’s private right to scientific freedom thereby granting “the state…ample rights to interfere.”

On July 11, 2002, the President’s Council on Bioethics prepared its highly anticipated recommendations for a federal policy on human cloning to President George W. Bush. The Council recommended “that the government should [permanently] ban [any] cloning for reproductive purposes and observe a 4-year moratorium on cloning for biomedical research.”

68. Lesko & Buckley, supra note 4, at 9.
69. Id.
70. Id.
71. Id. at 10.
72. Id.
73. O’Brien, supra note 52, at 547 (citing Griswold, supra note 18).
74. Id. (citing Griswold, 381 U.S. at 480).
75. Id. at 547-48.
76. Id.
77. Hall, supra note 67, at 322.
78. Id.
While the Council was deeply divided on many issues, including “favor[ing] the moratorium [on cloning for biomedical research] by a [narrow] 10-7 margin,” one point of consensus among this distinguished group of scientists, physicians, and bioethicists was a “unanimous agreement to recommend a [permanent] ban on reproductive [human] cloning.”\textsuperscript{79}

While this note has focused specifically on the conundrum of human reproductive cloning, “[human reproductive] cloning is merely a harbinger of a broader problem: adapting to technology enabling the alteration of the human genome prior to birth.”\textsuperscript{80} The bigger question that we must face as a society today is “whether one has the right not only to reproduce, but also to \textit{totally select the genome of his or her offspring}.”\textsuperscript{81} While the scope of this Note provides a current legal, ethical, and public policy perspective on the issue of human reproductive cloning, the issue itself remains largely unresolved. Furthermore, it will remain unresolved until that much anticipated day when the United States Supreme Court addresses the issue of human reproductive cloning and the constitutional right to marital privacy and reproductive freedom. I suspect that this day is closer than we realize.

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\textsuperscript{79} Id. at 323.
\textsuperscript{80} Robertson, supra note 57, at 43.
\textsuperscript{81} Id. at 9 (emphasis added).