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Responding to Requests for Assisted Reproductive Technology Intervention Involving Women Who Cannot Give Consent

Jennifer S. Bard

University of Florida Levin College of Law, bard@law.ufl.edu

Lindsay Penrose

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RESPONDING TO REQUESTS FOR ASSISTED REPRODUCTIVE TECHNOLOGY INTERVENTION INVOLVING WOMEN WHO CANNOT GIVE CONSENT

Jennifer S. Bard & Lindsay Penrose†

ABSTRACT

One of the plots of the Canadian science fiction thriller *Orphan Black* involves a scheme to create dozens of siblings by harvesting the eggs of one woman, fertilizing them with the sperm of a single man, and implanting them for gestation in dozens of apparently willing surrogates.¹ The casualness of the procedure speaks to how comfortable we have all become with reproduction by technology. Yet there are still aspects of this process that remain outside the normative boundaries of most of our worldviews. This article considers recent advances in assisted reproductive technology (ART) that can result in a viable, fertilized embryo even when the mother is herself either permanently unconscious from a severe injury or has actually lost all brain function and therefore meets the legal criteria for brain death. It reviews these advances and applies them to four scenarios, or vignettes, that represent different concerns about the prospective mother's intent to reproduce before losing her ability to give consent.

† Jennifer S. Bard, J.D., M.P.H., Ph.D. is the Alvin R. Alison Professor of Law and Director of the Health Law Program and the J.D./M.D. Dual Degree Program at Texas Tech University School of Law. She is also an Adjunct Professor at Texas Tech University Health Sciences Center School of Medicine in the Department of Psychiatry. Lindsay Penrose, Ph.D. is a Research Assistant Professor in the Department of Obstetrics and Gynecology at the Texas Tech University Health Sciences Center School of Medicine. Thank you to Professor Judith Daar who graciously provided comments on a draft of this document. Thank you also to Texas Tech University School of Law students Kathy Kassabian '13, Anna Acosta '16, and Maryam Aratsu '16, who provided very helpful research assistance.

1. *Orphan Black, To Hound Nature in Her Wanderings* (BBC television broadcast May 24, 2014), available at <http://www.bbcamerica.com/orphan-black/guide/season-2/episode-6/>.

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INTRODUCTION

Assisted reproductive technology (ART) has become what Harvard Business School Professor Clayton Christensen would describe as a “disruptive technology” because it has transformed “the way we live and work, enable[d] new business models, and provide[d] an opening for new players to upset the established order.”² Christensen’s examples are of companies that survived sweeping

2. See generally James Manyika et al., *Disruptive Technologies: Advances That Will Transform Life, Business, and the Global Economy*, MCKINSEY GLOBAL INST. (May 2013), http://www.mckinsey.com/insights/business_technology/disruptive_technologies; Clayton Christensen et al., *Will Disruptive Technologies Cure Health Care?*, HARV. BUS. REV., Sept. 2000, at 102, 102.

changes like the automobile or the personal computer—changes that destroyed other companies.³ But these developments in reproductive medicine that make it possible for doctors and scientists to successfully extract reproductive material from women who have been declared dead or who are in a permanent vegetative state threaten to have the same kind of disruptive effect on our current understanding of human reproduction. The particular disruptive technologies here are ones that make it possible to harvest and freeze unfertilized human oocytes so that they can indefinitely be preserved for later fertilization. The extraction and freezing process can occur while the ovaries are still functioning within the body of a woman or after they are extracted and transplanted into the body of another woman.

The legal and ethical implications of this new technology make it important for lawyers, ethicists, doctors, and scientists to pause and consider creating a framework or taxonomy about how to respond to requests by family or other surrogates to retrieve unfertilized eggs from women in permanent vegetative states (in other words, women who are still alive) or women who meet the legal criteria for brain death yet remain sustained through medical equipment and technology. Although there is substantial literature about requests to harvest sperm from men who are dead, the issue is far different with women because the process is far less direct.⁴ In general, men produce sperm on a continuous basis with a ready supply always available in the testicles. To retrieve the number of oocytes necessary for fertilization outside of the body, however, it is necessary to start a course of hormone therapy that induces the ovaries to make multiple eggs available for harvest.

This article considers the process of extracting, implanting, and requesting genetic material and in the context of four scenarios, outlines how medical personnel who receive these requests, and the lawyers and ethicists that medical personnel may consult for advice, should respond in the context of the current laws and norms in the United States. It develops and analyzes three scenarios involving female posthumous reproduction (PAR) that exemplify the extent to which current advances in science have outstripped any form of legal regulation and are in need, at least, of ethical guidelines. Although this state of lawlessness is in general true of many topics in ART, so far none of these cases have reached the legal system or have motivated practitioners or scholars to develop guidelines. By failing to

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3. See Clayton Christensen, *Disruptive Technologies: Catching the Wave*, HARV. BUS. REV., Jan. 1995, at 43, 43.
 4. Cynthia E. Fruchtmann, *Tales from the Crib: Posthumous Reproduction and ART*, 33 WHITTIER L. REV. 311, 318–321 (2012) (reviewing state laws governing male posthumous reproduction).

develop legislation in anticipation of, or even in response to change, the United States has essentially ceded control of important decisions affecting fundamental constitutional rights to the doctors who must make rapid decisions about how to use these powerful innovations. This is in contrast to the decisions made by many other countries with similar access to these reproductive technologies that control their use through central regulatory bodies.⁵

This article will consider the legal, ethical, medical, and scientific issues relevant to the use of these technologies in clinical care. The intent is not to supersede medical judgment in areas of clinical care, but rather to introduce transparent guidelines so that all involved know the perimeters of what interventions are and are not legal.

Because this article is authored by a law professor who teaches and writes in the area of bioethics—Professor Jennifer S. Bard—and a research scientist who works in the area of fertility and infertility—Lindsay Penrose, Ph.D.—this article presents a multi-disciplinary approach to what is likely to become an increasingly common dilemma as medical science becomes better able to collect and preserve unfertilized ovum for future reproduction. It will include not just a review of reported cases, but also the review of hypothetical scenarios in which a clinic might be asked to facilitate assisted reproduction with patients who are already dead and hypothetical scenarios developed based upon Dr. Penrose’s experience in assisted reproduction utilizing currently available techniques in the ART laboratory.

I. BACKGROUND ON ARTIFICIAL REPRODUCTIVE TECHNOLOGY

A. *History of the Regulation of Reproductive Technology*

We in the United States do not, of course, live in the dystopian world of fantasy novels where women have obligations to maximize their fertility.⁶ The U.S. Supreme Court has recognized that the rights of both women and men not to reproduce are as strong as those

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5. See generally Alicia Ouellette et al., *Lessons Across the Pond: Assisted Reproductive Technology in the United Kingdom and the United States*, 31 AM. J.L. & MED. 419, 419 (2005) (contrasting the U.S. system with those of countries where the government regulates access to assisted reproductive technology); Kirsten Riggan, *G12 Country Regulations of Assisted Reproductive Technologies*, CTR. FOR BIOETHICS & HUMAN DIGNITY (Oct. 01, 2010), <https://cbhd.org/content/g12-country-regulations-assisted-reproductive-technologies>.
 6. See, e.g., MARGARET ATWOOD, *THE HANDMAID’S TALE* (1985).

protecting the right to procreate without government interference.⁷ However, the landmark cases involving childbearing occurred well before the advent of technology that permitted first the extraction of oocytes and then their fertilization outside the body.⁸ The only U.S. Supreme Court case directly addressing reproductive technology is one interpreting the rights of posthumously conceived children to inherit under pension benefits.⁹ The law has always lagged behind scientific and medical advances in reproductive technology. Reproductive technology today depends on advances in cryopreservation to both freeze and safely thaw reproductive material. The first successful cryopreservation was of human sperm in 1953¹⁰ and the next was of fertilized embryos.¹¹ As discussed below, the freezing of unfertilized oocytes was a considerable technological barrier that has only recently been breached.¹²

Looking at the issue as two ends of a spectrum, the gestation period required for a viable birth has been steadily decreasing with the development of medicines and machines that can sustain the life and growth of a fetus that has only experienced half of the typical gestation time in its mother's womb. Emerging as a third lane in the

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7. I. Glenn Cohen, *The Constitution and the Rights Not to Procreate*, 60 STAN. L. REV. 1135, 1135 (2008).
 8. Ann Bindu Thomas, Note, *Avoiding EMBRYOS "R" US: Toward a Regulated Fertility Industry*, 27 WASH. U. J.L. & POL'Y 247, 251 n.29 (2008).
 9. *Astrue v. Capato*, 132 S.Ct. 2021 (2012).
 10. Yoel Shufaro & Joseph G. Schenker, *Cryopreservation of Human Genetic Material*, 1205 ANNALS N.Y. ACAD. SCI. 220, 220 (Sept. 2010).
 11. Jessica H. Schultz, Note, *Development Of Ectogenesis: How Will Artificial Wombs Affect The Legal Status Of A Fetus Or Embryo?*, 84 CHI.-KENT L. REV. 877, 884 (2010).
 12. Ri-Cheng Chian et al., *In Vitro Maturation of Human Immature Oocytes for Fertility Preservation*, 99 FERTILITY & STERILITY 1173, 1174 (2013); Am. Soc'y Reprod. Med. Prac. Committee, *Ovarian Tissue and Oocyte Cryopreservation*, 90 FERTILITY & STERILITY S241, S241 (2008); see 42 U.S.C. § 274e(c)(1) (2006) (excluding the term gametes or ova specifically from the definition of a human organ); Uniform Anatomical Gift Act, § 1(7) (2006) (amended 2008) (defining the word "part" as "an organ, an eye, or tissue of a human being"). There is some debate about whether the UAGA prohibits the sale of eggs because the definition of organ under the 1987 UAGA is broad and encompasses "blood, fluid, or other portion of the human body."; see Uniform Anatomical Gift Act, § 1(7) (1987) (defining the word "part" as "an organ, tissue, eye, bone, artery, blood, fluid, or other portion of a human body"); see LA. REV. STAT. ANN. § 9:122 (2008) ("The sale of human ovum, fertilized human ovum, or human embryo is expressly prohibited."); see Nicole Noyes et al., *Oocyte Cryopreservation as a Fertility Preservation Measure for Cancer Patients*, 23 REPROD. BIOMEDICINE ONLINE 323, 324 (2011).

race to disruption are advances in transplanting ovaries from one human to another and transplanting the uterus from one animal to another.¹³ At this pace, it would be irresponsible to deny that these technologies will not at some point merge into the development of a safe method of transferring an embryo at the very earliest stages of development from one womb to another. How that transfer occurs we cannot yet know, but the ability to interrupt a pregnancy at any point without harm to the developing embryo is a certainty.

B. History of Organ Donation

The first successful human organ transplant occurred in 1960.¹⁴ The need for legal regulation of the process soon became clear. Individual states began passing laws to standardize both organ donation and organ distribution. These processes became standardized as states adopted the Uniform Anatomical Gift Act.¹⁵ The National Organ Transplant Act of 1984 (NOTA) defines the term “human organ” to “mean the human (including fetal) kidney, liver, heart, lung, pancreas, bone marrow, cornea, eye, bone, and skin or any subpart thereof and any other human organ (or any subpart thereof, including that derived from a fetus) specified by the Secretary of Health and Human Services by regulation.”¹⁶ While each state has its own definition of death, all have been amended to allow a person being sustained on machines to be declared dead for the purpose of organ donations. It is also illegal anywhere in the United States to sell organs.¹⁷

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13. Univ. of Gothenburg, *World’s First Child Born After Uterine Transplantation*, SCI. DAILY (Oct. 7, 2014), <http://www.sciencedaily.com/releases/2014/10/141007092110.htm>; Mats Brannstrom et al., *Livebirth After Uterine Transplantation*, 385 LANCET 607, 607 (Feb. 15, 2015).
 14. Christine J. Watson, *Organ Transplantation: Historical Perspective and Current Practice*, 108(S1) BRIT. J. ANAESTHESIA. i29, i29 (2012); see generally, Janelle E. Thompson, Note, *The Eggsploitation of the United States’ Organ and Egg Donation Systems*, 48 VAL. U. L. REV. 469, 482 (2013).
 15. *Anatomical Gift Act (2006)*, UNIFORM LAW COMM’N, [http://uniformlaws.org/Act.aspx?title=Anatomical+Gift+Act+\(2006\)](http://uniformlaws.org/Act.aspx?title=Anatomical+Gift+Act+(2006)) (last updated 2014); *Legislative Fact Sheet - Anatomical Gift Act (2006)*, UNIFORM LAW COMM’N, [http://uniformlaws.org/LegislativeFactSheet.aspx?title=Anatomical%20Gift%20Act%20\(2006\)](http://uniformlaws.org/LegislativeFactSheet.aspx?title=Anatomical%20Gift%20Act%20(2006)) (last updated 2014); Joseph L. Verheijde et al., *The United States Revised Uniform Anatomical Gift Act (2006): New Challenges to Balancing Patient Rights and Physician Responsibilities*, 2 PHILOS., ETHICS, & HUMANITIES IN MED. 18, 19-20 (2007).
 16. 42 U.S.C. § 274e(c)(1) (2012).
 17. 42 U.S.C. § 274e (2006) (banning the sale of human organs).

The legal regulation of reproductive material depends on how it is classified. Sperm is not considered a tissue under these regulations because like blood (but not kidneys or hearts), sperm is replenished by the body.¹⁸ Oocytes, on the other hand, although renewable, are regulated as tissue that can be donated.¹⁹

One of the legal issues that needed to be resolved in order for organ donation to become widespread was a definition of death that allowed for the retrieval of usable organs. This has proved one of the more difficult legal and ethical issues about organ donation because of religious and ethical objections.²⁰ As organ transplantation has become more common, many religions have chosen to convene councils to consider the ethics of both receiving and donating organs. For example, the European Council for Fatwa and Research (ECFR) based in Dublin, Ireland issued a fatwa on organ donation finding that “(1) that the potential benefits of such an operation outweigh the probable ensuing harms and (2) that the purpose for this operation is legitimate which is the case, among others, when replacing a missing organ, restoring its shape or usual function or reforming a defect or removing ugliness that causes psychological or physical harm.”²¹

C. *The Law of Posthumous Conception*

Children have been born after the death of the father for as long as there have been children and fathers. More recently, children have been born after the death of their mother. Indeed, the development of

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18. See Rob Stein, *A Struggle To Define ‘Death’ For Organ Donors*, *Shots*, NPR (Mar. 28, 2012), <http://www.npr.org/blogs/health/2012/03/27/149463045/a-struggle-to-define-death-for-organ-donors>.
 19. See Judith F. Daar, *Accessing Reproductive Technologies: Invisible Barriers, Indelible Harms*, 23 BERKELEY J. GENDER L. & JUST. 18, 33 See Ina. N Cholst, Symposium, *Changing Conceptions: Exploring the Medical and Legal Advances in Fertility Preservation: Twenty-First Annual Law Review Symposium: Article: Oncofertility: Preservation of Reproductive Potential*, 61 DEPAUL L. REV. 763, 766-67 (2012); Naomi R. Cahn, *The New Kinship*, 100 GEO. L.J. 367 (2012).
 20. Mohamed Y. Rady & Joseph L. Verheijde, *Brain Dead Patients Are Not Cadavers: The Need to Revise the Definition of Death in Muslim Countries*, 25(1) HEC FORUM 25, 25 (2013).
 21. Mohammed Ghaly, *Religio-Ethical Discussions on Organ Donation Among Muslims in Europe: An Example of Transnational Islamic Bioethics*, 15(2) MED. HEALTH CARE & PHIL. 207, 209 (2012). See generally Paolo Bruzzone, *Religious Aspects of Organ Transplantation*, 40 TRANSPLANTATION PROC. 1064, 1064 (2008) (concluding that although “no religion formally forbids donation or receipt of organs or is against transplantation from living or deceased donors . . . donors may be discouraged by Native Americans, Roma Gypsies, Confucians, Shintoists, and some Orthodox rabbis.”).

technology to preserve lung and heart function mechanically has resulted in cases like that of Marlise Muñoz in Texas where pregnancies continued even when the women themselves were permanently unconscious or even, as in Ms. Muñoz' case, already dead.²²

But until very recently, in every case the only biological possibility was for a child to be born no more than ten months after the death of its father. Conception, as far as history records, occurred only when both parents were alive.²³ It was therefore safe for the law to establish boundaries to claims of paternity that paralleled the outer limit of natural gestation.²⁴

These cases involving disputes over the status of children conceived after a parent's death demonstrate the inadequacy of U.S. laws to keep up with changing norms. One of the reasons that the law in the United States is in its current unsettled state, however, is that the development of effective methods of freezing sperm for future use did not result in development of laws regulating the use of this technology or anticipating the inevitable disputes that would arise once it came into common use.²⁵ This puts the United States in direct contrast with most other countries offering similar medical services that have highly developed laws governing their use. This lack of forethought has left U.S. courts again and again scrambling with cases of "first impression" as frozen sperm cases progressed to the far more troubling issue of the frozen embryo. By again failing to act, the

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22. Ms. Muñoz's case had the added complication of her being kept on a ventilator against her family's wishes because of a state law that prohibited the withdrawal of life-sustaining technology if the result terminated a pregnancy. See Manny Fernandez, *Texas Woman is Taken Off Life Support After Order*, N.Y. TIMES, Jan. 26, 2014, <http://www.nytimes.com/2014/01/27/us/texas-hospital-to-end-life-support-for-pregnant-brain-dead-woman.html>; Manny Fernandez & Erik Eckholm, *Pregnant, and Forced to Stay on Life Support*, N.Y. TIMES, Jan. 7, 2014, http://www.nytimes.com/2014/01/08/us/pregnant-and-forced-to-stay-on-life-support.html?_r=0.
23. *Posthumous Reproduction*, AM. SOC. REPRODUCTIVE MED., <http://www.asrm.org/topics/detail.aspx?id=2274> (last visited Jan. 9, 2014).
24. KATHERINE DWYER, OLR REPORT 2012-R-0319, INHERITANCE RIGHTS OF POSTHUMOUSLY CONCEIVED CHILDREN IN OTHER STATES (Conn. 2012) available at <http://www.cga.ct.gov/2012/rpt/2012-R-0319.htm>.
25. See, e.g., Rachel Anne Fenton, *Catholic Doctrine Versus Women's Rights: The New Italian Law on Assisted Reproduction*, 14 MED. L. REV. 73, 73 (2006) (noting that Italy is the latest country in Western Europe to pass a law regulating ART); Fergus Walsh, *Let Me Keep My Dead Husband's Sperm*, BBC NEWS (Dec. 4, 2013), <http://www.bbc.co.uk/news/health-25188341>.

United States essentially ceded the oversight of this technology to the probate courts that were tasked with determining fundamental legal status issues involving custody, inheritance, and even citizenship.²⁶

Whatever laws exist directly affecting those who become involved with ART are those that describe the legal status of the embryo itself. In other words, the law in the United States focuses on the legal status of the relationship between a child conceived through ART and its parent rather than the actual process of ART itself.

The purpose of this article is not to further review the havoc caused by legislative inaction in the face of what has become the everyday reality that children who are the exact genetic heirs of their biological mothers and fathers can be born years if not decades after the death of either parent; rather, our purpose is to look forward in the hopes of avoiding the even greater havoc, if not catastrophic chaos, that the next round of disruptive technology may cause if nothing is done. This article will do so by using the cases of Marlise Muñoz to bring together the legal, ethical, and medical issues that are already emerging and, which if not addressed carefully, will create problems that will make us nostalgic for the relatively simple questions of whether or not a child conceived with the frozen sperm of its mother's dead husband is entitled to his social security benefits. Ms. Muñoz's tragedy is helpful here because it raises issues beyond custody and inheritance that lay at the core of the protection that individuals have from state interference with their decision to reproduce or not.

For the purposes of this analysis, the dispositive fact in Ms. Muñoz's case—whether she was alive or dead—is only part of the larger concern of what powers the state is likely to have when technology permits the development of a fertilized embryo without any burden to a woman who no longer wishes to be pregnant. Moreover, the Texas law which prohibited the termination of mechanical support for a woman who was pregnant is a variation on a law that exists in thirty-five other states.²⁷ Although it seems farfetched that a state could ever compel a woman to reproduce, laws such as Louisiana's, for instance, that prohibit the destruction of a fertilized embryo could well be a harbinger of what might come if it

26. *See, e.g.*, U.S. DEP'T OF ST., ACQUISITION OF U.S. CITIZENSHIP BY BIRTH ABROAD TO U.S. CITIZEN PARENT, 7 FOREIGN AFF. MANUAL (FAM) 1130 (2013), <http://www.state.gov/documents/organization/86757.pdf> (describing each state's requirements for determining the legitimacy of a child, and thus its citizenship status under several scenarios).

27. TEX. HEALTH & SAFETY CODE ANN. § 166.049 (West 2013).

were more practical to ensure that every fertilized embryo could be gestated to viability.²⁸

This article will also introduce to the discussion the role that technology that allows for the extracting and freezing of unfertilized oocytes might play in the development of laws that preserve potential life. For example, the ability to produce children from stored genetic material has wrought havoc in matters of estate planning because it leaves open the possibility of heirs being born decades after the testator's death. It also has created difficulties in administering government survivor benefit programs because, again, claimants can be born and make a claim for benefits long after their parent's death.²⁹ Both of these issues are addressed as matters of state law in that each state has the authority to define who is a "child" of an individual parent.³⁰ In matters of entitlement to federal survivor benefits, the Supreme Court in *Astrue v. Capato* interpreted the Social Security Act's definition of "child" to exclude benefits from twins conceived after their father's death.³¹ But that does not limit Congress' ability to amend the law.³² Nor does it affect matters of state law such as private inheritance or eligibility for state benefits.³³

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28. LA. REV. STAT. ANN. § 9:391.1 (2008) (prohibiting the destruction of a fertilized embryo could well be a harbinger of what might come if it were more practical to ensure that every fertilized embryo could be gestated to viability).
29. See Brooke Shemer, *Estate Planning for the Posthumously Conceived Child: A Blueprint for the Sperm Donor*, 42 U. BALT. L. REV. 181, 185 (2012).
30. See Fruchtman, *supra* note 4, at 318–322.
31. *Astrue v. Capato*, 132 S.Ct. 2021, 2026 (2012); Judith Daar, *Is There Life After Death? The Rise of the High-Tech Family*, CAL. ST. B.J. (2012), available at <http://www.calbarjournal.com/april2012/topheadlines/th3.aspx>. (“Capato is not only interesting because it raises novel legal issues involving posthumously conceived offspring, but because it displays the import of advancing reproductive technologies by joining three other federal court of appeals decisions involving virtually identical fact scenarios.”).
32. Julie Shapiro, *Michigan Weighs in on Posthumous Conception—Children Are Not Heirs, No Social Security*, JULIESHAPIRO.WORDPRESS.COM (Jan. 9, 2013), <http://julieshapiro.wordpress.com/2013/01/09/michigan-weighs-in-on-posthumous-conception-children-are-not-heirs-no-social-security/>.
33. *Astrue*, 132 S.Ct. at 2032; *Woodward v. Comm’r of Soc. Sec.*, 760 N.E.2d 257, 268 (Mass. 2002); Alycia Marie Kennedy, *Posthumous Conception and the Social Security Act*, 54 B.C. L. REV. 821, 841-42 (2012); Renee H. Sekino, *Posthumous Conception: The Birth of a New Class*, 8 B.U. J. SCI. & TECH. L. 362, 364 (2002); Lizzie McLellan, *Md.*

But the issue here is not one of inheritance from a dead person; rather, the issue is one of the intent of an incompetent or dead person to reproduce at all.³⁴ Since the advent of equipment that could artificially maintain heart and lung function after severe brain injury, there have been many reported instances of maintaining a pregnant woman on life-sustaining medical equipment long enough to allow the fetus to obtain viability. However, those situations only arise long after a child has been conceived and has begun to develop in its mother's womb.

New advances in the science of ART have made it possible to induce pregnancies in, or extract reproductive material from, individuals who were not pregnant when they have lost capacity.³⁵ The ability to do this raises complex issues of ethics and of law. As Dr. Gary S. Nakhuda explains, “[i]n some instances, initiation of posthumous conception may be a legitimate practice that engenders beneficence and accounts for the best interests of all parties involved. In other situations, it may be misguided and not respectful of the rights of the decedent, the offspring, or other family members.”³⁶ These are, of course, normative issues (*i.e.*, whether posthumous conception should be allowed) because such interventions are not illegal.

There are four major scientific advances that have opened the door to posthumous pregnancies: (1) advanced life support that permits continuation of pregnancy when the mother is on life support; (2) posthumous retrieval of reproductive material (including a focus on both eggs and sperm); (3) transplant of ovaries or the uterus; and (4) cryopreservation of embryos conceived outside of the body.

Considers Limits on Posthumous Conception, S. MD. ONLINE (Mar. 29, 2012), <http://somed.com/news/headlines/2012/15315.shtml>.

34. See Daar, *supra* note 31 (“Intent figures prominently into assisted conception because typically the parties must perform an act they know can lead to the birth of a child.”); Arianna Renan Barzilay, *You’re on Your Own, Baby: Reflections on Capato’s Legacy*, 46 IND. L. REV. 557, 559 (2013) (“One social implication on the *Capato* decision concerns the ability to create children without sexual intercourse . . . and to enable new forms of families to function.”).
35. See Devon D. Williams, *Over My Dead Body: The Legal Nightmare and Medical Phenomenon of Posthumous Conception Through Postmortem Sperm Retrieval*, 34 CAMPBELL L. REV. 181, 182 (2012), available at <http://law.campbell.edu/lawreview/articles/34-1-181.pdf>; Irit Rosenblum, *The Biological Will – A New Paradigm in ART?*, NEW FAMILY ORG. (Feb. 25, 2013), <http://www.newfamily.org.il/en/4905/the-biological-will%E2%84%A2-%E2%80%93-a-new-paradigm-in-art/>.
36. Gary S. Nakhuda, *Posthumous Assisted Reproduction* 28(4) SEM. REPROD. MED. 329 (2010).

D. Legal Obligations to Maintain a Pregnancy

The current framework created by the U.S. Supreme Court protects a woman's right to terminate a pregnancy before viability through the Court's creation of a right to privacy and bodily integrity. However, that right is not absolute. The state too has an interest in the continued life of the embryo from the point of conception; and while the state may not "unduly burden" a woman's ability to terminate a pregnancy before viability, it may nevertheless restrict and regulate her ability to do so.³⁷ This focus on a balance between the woman and the state has resulted in many states mandating the continued life of the fetus when the mother suffers a medical event that requires her to be sustained using life support equipment. The justification for maintaining the mother's life in order to maintain the fetus' life, even in the face of a clear advanced directive or decision by a lawful surrogate decision maker is that, at that point, the burden to the mother in remaining pregnant is lower than the state's interest in preserving life.³⁸ Although these cases are rare, there are many reported cases of pregnant women on life support equipment delivering a healthy baby.³⁹

These laws and the undue burden balancing test, however, only apply to a woman who is already pregnant. Until the emergence of the disruptive effects of reproductive technology that allowed women to reproduce without becoming pregnant, U.S. courts had maintained a bright line between the right not to become pregnant or maintain a pregnancy, and any obligation to actually reproduce.⁴⁰ Beginning in

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37. *Planned Parenthood v. Casey*, 505 US 833, 877 (1992) (holding that a statute regulating abortion is unconstitutional if it imposes an "undue burden" by having the "purpose or effect" of "placing a substantial obstacle in the path of a woman seeking an abortion of a nonviable fetus.").
38. *See, e.g., State Laws on Pregnancy and Health Care Directives*, NOLO, <http://www.nolo.com/legal-encyclopedia/state-laws-pregnancy-health-care-directives.html> (last visited Jan. 20, 2014) ("Although health care providers are generally required to comply with the wishes you set out in your health care documents, pregnancy creates a big exception.").
39. *See, e.g., Mary R. Anderlik, End-of-Life Decision-making for Pregnant Women*, UNIV. OF HOUS. L. CTR. HEALTH L. & POL'Y INST. (Aug. 12, 1999), <http://www.law.uh.edu/healthlaw/perspectives/Reproductive/990812EOLDecisions.html>; *Woman on Life Support Gives Birth to Baby Girl*, L.A. TIMES (Aug. 3, 2005), <http://articles.latimes.com/2005/aug/03/nation/na-baby3>.
40. Lindsay F. Wiley, *Health Law as Social Justice*, 25 CORNELL J.L. & PUB. POL'Y 47, 60 (2014) (discussing reproductive justice as "the right to have children, not have children, and to parent the children we have in safe and healthy environments." (quoting *Why is Reproductive*

the early 1990s, courts began to see disputes between couples that had created embryos, cryopreserved them, but now disagreed if they should ever be advanced from the frozen state to implantation to birth.⁴¹ Courts—and society—were faced with what appeared to be a scenario from a dystopian fantasy—could a woman or a man be forced to go ahead with a decision to bring children into the world in what were now changed circumstances?⁴²

In some of these cases, the parent (again, usually the father) objected to being obligated to support a child he no longer wanted. In others, the parent simply objected to being made a parent against his or her will. Courts could have looked at these cases in terms of the “buyer’s remorse” that might often happen between conception and birth but which had never before given a father the right to back out.⁴³ Because the right to terminate a pregnancy was tied to the fact that the baby was inside the mother’s body, the Supreme Court rejected the father’s right to either stop a termination or require one.⁴⁴ Upon birth, every state mandates that a father support his biological children regardless of whether he wanted them or not. The purpose of these laws is to prevent the child from becoming a financial burden to the state. Except for a few rare cases in which the man was deceived into impregnating a woman, the law’s perspective is that any man engaging in consensual sexual intercourse accepts the risk of becoming financially responsible for a resulting child. But courts consider the situation of regretful fathers of frozen embryos to be a different matter since it was possible to stop the original voluntary act of reproduction from resulting in a child.

Justice Important for Women of Color?, SISTER SONG, http://sistersong.net/index.php?option=com_content&view=article&id=141 (last visited Aug. 31, 2014).

41. Mark P. Strasser, *You Take the Embryos But I Get the House (and the Business): Recent Trends in Awards Involving Embryos Upon Divorce*, 57 BUFF. L. REV. 1159, 1159 (2009).
42. *Davis v. Davis*, 842 S.W.2d 588, 591 (1992) (recognizing a right to “avoid parenthood” and resolving in the man’s favor a dispute between divorcing spouses in which the wife could not gestate the embryos she and her ex-husband had created and the husband objected to being implanted in a surrogate); *see also* *A.Z. v. B.Z.*, 725 N.E.2d 1051, 1057-58 (Mass. 2000) (rejecting an agreement between the intended parents to go ahead with gestating the embryos created even if they separated and writing that “forced procreation is not an area amenable to judicial enforcement.”).
43. *See* Strasser, *supra* note 41, at 1166-1168 (discussing the *Davis v. Davis* decision).
44. *Coe v. County of Cook*, 162 F.3d 491, 494 (1998).

Since resolving these disputes is a matter of state law, and since no state has adopted legislation requiring the gestation of embryos created in a laboratory, no nationally applicable rule exists. Moreover, even in states that have considered these issues and heard individual disputes, courts have made it clear that their decisions are based on the specific facts in front of them and that they may have decided differently under another set of circumstances. Statements by courts that distinguish between the interests of a person who has no other means of becoming a parent and one who does are the most relevant to predicting how a court might view a dispute over retrieving eggs from a woman who, because of severe brain damage (including a diagnosis of brain death) would not have children. In a case before a Massachusetts court in 2000 involving one party who wanted to procreate and the other who did not, one of the concurring justices agreed that no one should be required to procreate, but noted that “[w]e express no opinion in respect of a case in which a party who has become infertile seeks use of stored pre-embryos against the wishes of her partner”⁴⁵

II. POSTHUMOUS RETRIEVAL OF REPRODUCTIVE MATERIAL

A. *Why Extraction of Eggs is Different from Extraction of Sperm*

So far, posthumous assisted reproduction (PAR) situations have almost entirely involved posthumous retrieval of sperm for the purposes of reproduction. It is a relatively simple procedure since it involves removing the epididymis from the testicles in which the sperm is stored, retrieving the sperm, and cryopreserving it. Although this procedure may not yet be “common,” it is neither complicated nor unusual.⁴⁶ This male dominated trend is changing, however, because physicians are increasingly receiving requests to retrieve ovum from brain-dead or otherwise critically injured women for the purpose

45. J.B. v. M.B., 783 A.2d 707, 720 (N.J. 2001).

46. Michelle L. Brenwald & Kay Redeker, *A Primer on Posthumous Conception and Related Issues of Assisted Reproduction*, 38 WASHBURN L.J. 599, 600-601 (1999) (describing a 1998 incident in Britain); Ruth Zafran, *Dying to be a Father: Legal Paternity in Cases of Posthumous Conception*, 8 HOUS. J. HEALTH L. & POL'Y 47, 95 (2008); Neetu Chandra, *'Posthumous Conception' Joy for Bereaved Families*, DAILY MAIL, Sept. 2, 2012, <http://www.dailymail.co.uk/indiahome/indianews/article-2197283/Posthumous-conception-joy-bereaved-families.html> (“In recent years, many people in the Capital [of India] are opting for PSR in which the sperms of the deceased are banked and later used for giving birth through artificial insemination.”).

of cryopreserving them for later reproductive purposes.⁴⁷ This is a relatively recent phenomenon because the process of preserving an unfertilized human oocyte is more difficult than freezing either sperm or embryos since all ARTs must be performed by highly specialized clinics. This process is complicated in the case of posthumous retrieval because unlike men whose sperm is constantly formed and stored within the testis in a mature form, women do not have an easily available supply of mature ovum because they mature in a cyclic wave each month one at a time or in small numbers. Sperm, however, are available in the tens of thousands. Indeed, any woman undergoing a form of ART involving egg retrieval must first undergo at least two weeks of intensive hormone treatment in order to bring the number of ovum needed to maturity.

When a woman undergoing a form of ART is critically injured, and her life is being sustained only through machines that breathe for her and maintain her circulation, the medical management and ethical issues become far more complex than a man in a similar situation due to the need to mature viable oocytes before cryopreservation which could require several weeks of long-term life support. While the process may become somewhat simpler in the future if it becomes possible to remove the ovaries and then subject them to hormonal stimulation outside of the body, for now it is impossible.

B. Recently Reported Case of PAR Involving a Woman

A recent case from the Massachusetts General Hospital describes in detail a tragic situation in which an otherwise healthy young woman suffered a pulmonary embolism during an international flight (the International Traveler).⁴⁸ She never regained consciousness and although not legally brain-dead, and therefore not an eligible organ donor, both her husband and her parents requested that she be maintained on life-sustaining equipment long enough for her ovum to be harvested.⁴⁹

The request from the family of the International Traveler reported in the *New England Journal of Medicine* (NEJM) triggered an explosion of legal, ethical, and medical consultations within the

47. Judith Daar, *Is There Life After Death? The Rise of the High-Tech Family*, 54 CAL. B. J. 16, 17 (2012) (“With an estimated 500,000 to one million embryos in frozen storage in the United States, countless vials of preserved sperm, and a burgeoning market in egg freezing, the number of children born after the death of a gamete provider is sure to swell.”).

48. See David M. Greer et al., *Case 21-2010-A Request for Retrieval of Oocytes From a 36-Year-Old Woman with Anoxic Brain Injury*, 363 NEJM 276, 276 (2010).

49. *Id.* at 279.

hospital that are carefully documented in the NEJM article.⁵⁰ Although legal counsel and a law professor were consulted, the matter never came before a court but it was instead decided by the medical team.⁵¹ They refused the family's request to maintain the patient on life-sustaining equipment for the two weeks necessary to administer hormone treatment.⁵² Instead, they gave the family two options: either keep her on life-sustaining equipment until she qualified for a diagnosis of brain death, or remove the equipment and provide comfort care.⁵³ The family chose the latter and the patient died.

Because requests for posthumous fertility treatment are still rare, there are no direct precedents establishing the need for consent for posthumous assisted reproductive technology.⁵⁴ The American Bar Association's draft rules require that ART be "voluntary" but do not speak to the status of surrogate decision makers.⁵⁵ The American Society for Reproductive Medicine has published guidelines for PAR with the consent of the donors, but does not consider the issue of retrieval of reproductive material without prior consent.⁵⁶

The staff of the Massachusetts General Hospital which was treating the International Traveler proceeded on the advice of their legal counsel that there was, in fact, no relevant law which bound their decision.⁵⁷ Instead, they acted like a court and sought evidence of their patient's past wishes about having children. Finding none, they concluded that she had not consented to be a parent and therefore should not undergo a procedure that would result in her involuntarily becoming a mother.

50. *See generally id.*

51. *Id.* at 280-82.

52. *Id.* at 282

53. *Id.* at 278.

54. Daniel Sperling, *Maternal Brain Death*, 30 AM. J. L. & MED. 453, 497 (2004); Deborah M. Feldman et al., *Irreversible Brain Injury During Pregnancy: A Case Report and Review of the Literature*, 55 CME REV. ARTICLE 708, 710 (2000); Bethany Spielman, *Pushing the Dead into the Next Reproductive Frontier: Post Mortem Gamete Retrieval Under the Uniform Anatomical Gift Act*, 37 PHARM. REG. 331, 333 (2009); William P. Dillon, *Life Support and Maternal Death During Pregnancy*, 248 JAMA INTERNAL MED. 1089, 1089 (1982).

55. MODEL CODE GOVERNING ASSISTED REPRODUCTION (2007), available at http://apps.americanbar.org/family/committees/artmodelcode_feb2007.pdf.

56. Ethics Comm. of the Am. Soc'y for Reprod. Med., *Posthumous Reproduction*, 82 FERTILITY & STERILITY S260-S262 (2004).

57. Dillon, *supra* note 54, at 1089.

The question going forward is, whether in the absence of any binding law, is it appropriate for an individual hospital to make this decision itself, not just on medical grounds, but on legal and ethical ones as well? While it is a well-established principle that no patient or her surrogate can require a physician to act against his or her best medical judgment, it is far less established that a hospital can ignore the wishes of a legal surrogate based on its own interpretation of what it means to make a voluntary decision to be a parent.⁵⁸ What the hospital did here was to transpose the standards for removing life support to one of preserving the option to reproduce. They did so because they saw surrogate decision-making for reproduction as different from surrogate decision making to withdraw life support or to allow organ donation. Other authors also see a difference. Dr. Gary S. Nakhuda writes in *Seminars in Reproductive Medicine*:

[u]nlike other medical decisions that a proxy may authorize on behalf of a medically incompetent patient, the person making a decision on a patient's behalf for perimortem gamete retrieval may stand to directly benefit from the procedure. Unlike organ donation, procurement of gametes is not an altruistic, lifesaving procedure to help an anonymous individual but an elective procedure serving the interest of the requesting party.⁵⁹

In the larger picture, few hospitals have the kind of resources that are available to Massachusetts General Hospital that allowed it to conduct such a comprehensive investigation in a relatively short time. Moreover, as short as the time available was in the case of the comatose International Traveler, there are cases within the experience of one of the co-authors, Dr. Penrose, in which the decision whether or not to attempt to retrieve gametes postmortem must be made within minutes rather than days or even hours because of the natural deterioration of human tissue after death.

The special characteristics of retrieving oocytes requires considerable interaction between the doctors and scientists who facilitate PAR and the patient who is at best completely unresponsive and may well be legally dead. This is quite different from the normal structure of their work with women who come to them wanting to be parents now or at least, in the case of ovum preservation, in the very near future. Even women who donate ovum are doing so with the documented intent of passing to someone else their ability to have a child from their own ovum. But a woman whose family is requesting

58. See generally MARSHA GARRISON & CARL E. SCHNEIDER, *THE LAW OF BIOETHICS: INDIVIDUAL AUTONOMY AND SOCIAL REGULATION* 514-530, 869-882 (2d. ed. 2009).

59. Nakhuda, *supra* note 36, at 331.

perimortem or posthumous ovum retrieval by definition cannot become the mother of her own child nor has she documented her intent to forgo this right. Unlike the women in cases where fatal injury comes after an established pregnancy, these patients have not even expressed an interest in reproducing, let alone the intent to do so.

C. *Reproductive Exceptionalism*

Every state has some version of a law that protects the ability of individuals to not only express in advance their wishes for the kind of end-of-life care they want to receive, but also to designate the person who can make those decisions on their behalf. These statutes provide enforceable authority for decisions to direct care including the ability to terminate care that is sustaining life. But hospitals that have faced requests for sperm or egg extraction from legally authorized surrogate decision makers have not felt themselves bound by these laws. So, although a 2012 online survey of 1,049 Americans ages 18 to 75 found that half of the respondents in an online poll “said they thought a person should be able to request sperm or eggs be taken from their dead or dying partner,”⁶⁰ many hospitals still reserve the right to refuse the request unless the person making the request is a spouse or parent.

Determining the unexpressed intent of an incompetent patient is one of the most common problems in clinical bioethics. These cases fall into several major categories including consent to withdraw life-sustaining treatment, refusal to withdraw life-sustaining treatment, consent to terminate or continue a pregnancy,⁶¹ and consent to donate organs.

The Supreme Court has established guidelines for preserving the medical autonomy of individuals who can make their preferences known and those who cannot in a series of important cases which can be considered as a trilogy: *Cruzan v. Director, Missouri Department of Health*, *Washington v. Glucksberg*,⁶² and *Vacco v. Quill*.⁶³ Following

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60. Amy Norton, *Public Favors Posthumous Reproduction, with Consent*, REUTERS (July 13, 2012), <http://www.reuters.com/article/2012/07/13/us-posthumous-reproduction-idUSBRE86C0ZK20120713> (noting that 70% of those would require mandatory written consent).
61. *In re A.C.*, 573 A.2d 1235, 1240 (D.C. 1990) (granting a hospital’s motion to deliver by caesarean section, a twenty-six-and-a-half-week-old fetus from a 28-year-old woman dying of cancer in the face of opposition from the pregnant woman’s parents).
62. *Washington v. Glucksberg*, 521 U.S. 702, 720 (1997).
63. *Vacco v. Quill*, 521 U.S. 793, 804 (1997).

Cruzan,⁶⁴ states may require “clear and convincing” evidence of a patient’s past wishes before honoring a surrogate’s decision to remove life-sustaining equipment.⁶⁵ Some states like Missouri do require such evidence while others do not.⁶⁶ These states instead allow surrogate decision makers to make these decisions based on the standard that it “more probably than not” reflected the patient’s wishes.

D. Financial Considerations: Who Pays?

One of the concerns with leaving decisions about posthumous conception to hospitals and medical staff is the issue of cost. Even if the patient is alive, few employers provide insurance coverage for fertility benefits. Although there is no legal barrier to their doing so, no state’s Medicaid plan provides fertility benefits nor does the federal Medicaid program or the Veteran’s Administration. Without the requirement to cover fertility treatments, insurance companies need only cover medically necessary treatments.⁶⁷ There is an increasing body of literature describing the legal and ethical issues surrounding the collection of gametes for posthumous reproduction at the end of life.⁶⁸

E. Transplantation of Reproductive Organs

The first reported successful transplantation of a reproductive organ from one woman to another occurred between identical twins in 2008.⁶⁹ Since then, uterine transplants have become, if not commonplace, then certainly not rare. Ovaries, however, are different. A uterine transplant provides a place for the embryo to gestate.

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64. *Cruzan v. Dir.*, Missouri Dept. of Health, 497 U.S. 261, 261 (1990).
65. See Alexia M. Torke, *Substituted Judgment: The Limitations of Autonomy in Surrogate Decision Making*, 23 J. GEN. INTERN. MED. 1514, 1515 (2008).
66. See *Cruzan*, 497 U.S. at 268.
67. See Kathy L. Cerminara, *Hospice & Health Care Reform: Improving Care at the End of Life*, 17 WIDENER L. REV. 443, 453 (2011); AM. CANCER SOC’Y, AFFORDABLE CARE ACT: HOW IT HELPS PEOPLE WITH CANCER & THEIR FAMILIES, http://action.acscan.org/site/DocServer/Affordable_Care_Act_Through_the_Cancer_Lens_Final.pdf?docID=18421 (last visited Jan. 20, 2014).
68. Caprice Knapp et al., *Posthumous Reproduction & Palliative Care*, 14 J. PALLIATIVE MED. 895, 896 (2011).
69. Gordon Rayner & Rebecca Smith, *Ovary Transplant Mother Speaks of Her “Indescribable” Joy After Giving Birth*, TELEGRAPH (Nov. 14, 2008), <http://www.telegraph.co.uk/women/womens-health/3460954/Ovary-transplant-mother-speaks-of-her-indescribable-joy-after-giving-birth.html>.

Ovaries, on the other hand, contain the actual oocytes that when combined with sperm, develop into embryos. Uterine transplants are still considered experimental.⁷⁰

But consider this: Every adult woman carries within her ovaries all the oocytes that will be available for fertilization and development into a biological child. This is in contrast to sperm, which die and are replenished by the testis throughout a man's lifetime. So, every woman who dies before menopause (and thus before exhausting her supply of oocytes) is taking to her grave perhaps hundreds of potential children.

The interest in reproductive organ transplants strongly suggests equal interest in a similar situation only recently made possible by evolving medical technology: The possibility of initiating a pregnancy through ART when the mother who is to carry the child is in a permanent vegetative state or has been declared brain-dead. Although it is easy to overuse the phrase "stranger than fiction" when discussing the frontiers of ART, in fact, requests for posthumous sperm donation have become, if not common, then not rare, and recent improvements in technology have already resulted in reported cases involving egg retrieval.

F. Separating the Dead from the Almost Dead

Although the line between life and death may be a continuum in medicine, in law it is as definite as a light switch. Living people have rights and interests and dead people do not. Relatives and heirs of dead people have rights in the deceased's body and how it is treated, just as they may have rights in her property.⁷¹

In an article discussing the close relationship to abortion politics and technology, Professor John Robertson writes:

Neonatal intensive care technology has consistently extended viability to earlier stages of pregnancy, so that viability in some sense has been pushed back from the twenty-four to twenty-eight weeks first recognized in *Roe* to twenty-two weeks or earlier, allowing 500–600-gram fetuses to survive, albeit with a

70. See Sarah B. Rodriguez & Lisa Campo-Engelstein, *Conceiving Wholeness: Women, Motherhood, and Ovarian Transplantation, 1902 and 2004*, 54.3 PERSP. IN BIOLOGY & MED. 409, 412 (2011); Nick Collins, *Australian Woman Pregnant After Pioneering Ovarian Transplant*, TELEGRAPH, Sept. 2, 2013 ("More than 20 people worldwide have undergone ovarian tissue transplants, but the latest operation is the first to successfully transplant the tissue into a different area of the body.").

71. Dahlia Lithwick, *Habeas Corpses: What are the Rights of Dead People?*, SLATE, http://www.slate.com/articles/news_and_politics/jurisprudence/2002/03/habeas_corpses.html (last visited Jan. 21, 2014).

high risk of disability and impairment, thus giving antiabortion forces more room to ban abortions.⁷²

Robertson notes that Justice O'Connor was well aware of what she described as a "collision course" between advancing technology and the trimester schedule of pregnancy in *Roe v. Wade* which is why in *Casey v. Planned Parenthood* she abandoned it in favor of an "undue burden" analysis.⁷³ But it is one thing to push viability back to the second trimester and another to contemplate technology that could interrupt a pregnancy at any stage without significantly lowering the chances of a healthy, live birth.

III. SCENARIO ANALYSIS

The scenarios below are drawn from the literature and from Dr. Penrose's personal experience. They consist of situations in which a family might request the intervention of an assisted reproductive technology team to preserve the future fertility of a woman who either meets the legal criteria for brain death or who has suffered irrevocably incapacitating brain death.

A. *Scenario 1: ART Interrupted*

A thirty-two-year-old female and her thirty-five-year-old husband have tried for three years to conceive a child. The couple has been diagnosed with blocked tubes, which is considered female factor infertility, and low motility, which is considered male factor infertility. It has been recommended that they undergo *in vitro* fertilization (IVF) with intra-cytoplasmic sperm injection (ICSI). The day before the scheduled egg retrieval, the woman is in a car accident. She sustains massive head trauma and is declared brain-dead. The family wishes to keep the woman on life support until the next day so her oocytes can be harvested as scheduled, then cultured with her husband's sperm, and frozen as embryos until a surrogate can be identified. The family also wishes to donate the woman's organs.

1. Medical Analysis

While additional medical support will be needed to sustain the patient through the oocyte retrieval, this case of perimortem oocyte retrieval is straightforward from a medical standpoint, provided there were no internal injuries in the lower abdomen. The ovaries have already been stimulated to create many mature oocytes with a good

72. John Robertson, *Abortion and Technology: Sonograms, Fetal Pin, Viability, and Early Prenatal Diagnosis*, 14 U. PA. J. CONST. L. 327, 337 (2011).

73. *Id.*

chance of fertilization. Sustaining the hormone profile necessary to complete maturation of the follicles can easily be maintained through the injections the patient was already receiving. The physician and laboratory are already prepared to harvest and culture the oocytes and embryos to the blastocyst stage prior to freezing. Cryopreservation will most likely be required, as it is highly unlikely that a surrogate mother can be identified who: (1) is at the right point in her menstrual cycle to optimize chances of conception, (2) can be tested and cleared medically to be both free of communicable diseases and physically fit to serve as a surrogate, and (3) complete all required documentation in time to allow a fresh embryo transfer.⁷⁴

2. Legal Analysis

The first legal distinction in this case is the woman's status as either a living or a dead person. Each state has a specific statute defining the criteria for declaring an individual dead. The vast majority of states make that distinction based on an assessment of brain function. These laws take as their premise that the human brain is comprised of three parts: the brain stem, the middle brain, and the higher brain. For a person to be declared dead, a physician must swear to a medical certainty that the individual has permanently lost function in all three parts of the brain.⁷⁵ Such a person lacks the ability to direct her body to perform any of the functions necessary to maintain blood circulation. Thus, without mechanical intervention and chemical stimulation, that person's heart, lungs, and every other organ in the body will stop working thereby allowing decay to begin. If this woman has no brain function at all, but her body is being kept animated by mechanical means, then the legal basis for extracting her eggs will be the same as for any other organ donation. She will have ceased to legally exist as a person, and her family⁷⁶ will now acquire

74. See generally Claus Y. Andersen et al., *Long-Term Duration of Function of Ovarian Tissue Transplants: Case Reports*, 25(2) REPROD. BIOMED ONLINE 128, 130-31 (2012).

75. Eelco F.M. Wijdicks et al., *Evidence-based Guideline Update: Determining Brain Death in Adults*, 74 NEUROLOGY 1911, 1911 (2010).

76. The word "family" here is used for clarity of argument, but of course the legal concept of who can make decisions on behalf of an individual incapable of making her own either because of incompetency or death is far more nuanced. Living individuals have the right to designate any competent person as their surrogate decision maker. In the absence of a specific designation, each state has established a hierarchy of surrogate decision makers. While these laws all give primacy to "family," how that term is defined and by what method others can be empowered to make these decisions varies significantly.

Also, as a matter of law, while an incompetent person retains the full legal rights as every other living person, it is the ability to exercise these

the legal ability to control what happens to her remains within the restrictions of public health laws governing the handling of corpses.

The laws relevant to organ donation have not yet been extended to ovum. This means that unless there is a need for the state to examine her body as a matter of criminal law or to investigate a possible danger to the public's health, no one but her family has the legal right to extract her ovum. Equally, there is so far in the United States no individual or entity with standing to prevent her family from taking this action. However, if a state wanted to impose a restriction on the family's right, it is likely that the state's interest in the life and potential life of everyone in its jurisdiction would allow it to do so.

Still, there is one substantial difference: So far, the interest recognized by the Supreme Court has been one in preserving life. A state therefore can limit the ability of a woman to have an abortion. It can also require a higher burden of proof from those who, on behalf of an incompetent woman, seek to withhold or withdraw life-sustaining treatment. Given that the Supreme Court has recognized a state's ability to intercede in the exercise of a living woman's fundamental liberty interest in terminating a pregnancy, it is likely that they would grant the state power to do so when the woman is dead. The dead have no constitutional rights.

A good starting point for this analysis is to agree to the premise that the rights recognized by the U.S. Constitution exist separately from the technological advances that affect the way people live and interact. In the case of a woman's right to privacy, for example, the fact that there were no safe and effective means of abortion at the time the Constitution was written does not mean that laws written today must reflect those constraints. After all, the Supreme Court is frequently required to consider the effects of modern technology (such as long lens cameras, high-powered microphones, and internet tracking devices) on previously established limits to governmental intrusion on privacy.

So with the arrival of technology that makes it possible to salvage an unfertilized ovum, a fertilized ovum, or a very young embryo,

rights which is transferred to a substitute, or surrogate, decision maker. In contrast, a dead person has no rights of her own. Upon death, a person becomes a corpse for which legally identified individuals (that is, "family") acquire quasi-property rights. "Quasi," in that the rights are ones of control of disposition, not actual ownership. It is, therefore, not legal to sell a corpse even though a family's right to direct the method of burial has been repeatedly confirmed in high dollar tort verdicts on behalf of families who claim improper burial procedures. These rights coexist with the state's rights to protect the public's health in the proper disposition of bodies as well as the need to gather information for criminal trials or disease monitoring or control.

comes the need for a new understanding of the balance between a woman's right to both privacy and bodily integrity with the state's right to preserve and promote life. The question for today is this: Does the state have a right to prevent a family from extracting the ovum of a dead woman? But the question for tomorrow is likely to be a more interesting one: Can the state require, even in the face of the family's objections, the extraction of potential life from a dead or incompetent woman?

The premise of the current balance that the Supreme Court has struck between the mother's right to bodily integrity and the state's right to preserve life has been that there is a time period before which an embryo or fetus cannot survive outside of its mother's body. That concept is described as "viability." As medical technology advances in its ability to sustain younger and younger embryos outside of the mother's womb, the date of viability gets pushed further and further back. If it is possible to sustain the potential life of an ovum or, in an even stronger case, the life of a fertilized embryo outside of its mother's body, then a state may well take the choice away from the family and demand extraction.⁷⁷

3. Ethical Analysis

In this case where the couple has already begun the process of assisted reproduction, the issue of intent is clearer. Unlike other situations, both the intended mother and intended father have, by their actions, expressly agreed to create embryos and to have the intended mother carry them to term. However, in the absence of any contract or other documentation about what to do in case of the death of either party, both intent and consent, from an ethical point of view, are still at issue. Just because the intended mother wanted to gestate an embryo that would become her child does not mean that she would have wanted to create a child that lived on after her death. The fact that she and the father are married and that they had already begun the IVF process makes it more likely that this would become a wanted child. Had the accident occurred after the embryo had been implanted, its status would be the same as any biological child being raised by the father after the mother's death. Without evidence that the mother had contemplated this situation and had expressed her wishes about what to do with the embryos if she died

77. Another way states have approached regulating the posthumous use of embryos has been through restrictions on what becomes of embryos which are not immediately implanted. Julie Shapiro, *Disposition of Frozen Embryos: Maryland Court Chooses the Person Who Wants to Use Them*, JULIESHAPIRO.WORDPRESS.COM (Jan. 10, 2013), <http://julieshapiro.wordpress.com/2013/01/10/disposition-of-frozen-embryos-maryland-court-chooses-the-person-who-wants-to-use-them>.

before she could gestate them, it would be just to let the father go ahead with their plan and move forward with the IVF.

B. Scenario 2: Just Starting Out Together

A twenty-five-year-old female and her twenty-five-year-old fiancé have discussed their wish to have children in the future and are doing nothing at this time to prevent conception. The woman is diagnosed with an advanced-stage aggressive cancer and must start treatment before fertility preservation may be performed. In spite of superior medical care, the young woman passes away shortly after her diagnosis. The fiancé requests that her oocytes be harvested so that he may still attempt to have children with her.

1. Medical Analysis

From a medical standpoint, this case of postmortem oocyte retrieval is fraught with difficulty. Harvesting oocytes from a female who is at an unknown stage of the menstrual cycle is difficult and could result in no oocytes being harvested, for instance during the luteal phase after ovulation. Depending upon the pervasiveness of her disease and the course of treatment, her menstrual cycle could have ceased or been severely compromised, indicating that there may be no developing follicles to harvest for *in vitro* maturation (IVM) techniques. Immature oocytes are not uncommon, accounting for 10 to 15 percent of oocytes harvested during an IVF cycle. Oocyte maturity is evaluated based upon morphological changes that occur within the oocyte structure as the time of ovulation approaches and fall into three stages named after these morphological changes: germinal vesicle stage (GV), metaphase I stage (M1), and metaphase II stage (M2) which represents mature oocytes. While pregnancy has been achieved using IVM from oocytes at the GV and M1 stages, the process of maturing these oocytes has not been perfected into an exacting protocol. There has been some success bringing M1 oocytes to the M2 stage by culturing them with cumulus cells and sperm. Others have suggested that culturing with cumulus cells and follicular fluid will stimulate GV stage cells to mature to M2. The likelihood of success would depend largely on the stage of the menstrual cycle the woman was in at the time of her death, or if she was suffering from amenorrhea or some other factor that would compromise her fertility, and the skill of the facility that would undertake the process of harvesting and potentially using IVM to obtain freezable embryos.

2. Legal Analysis

As this woman was in a long-term relationship with a man she intended to marry, this procedure would fall under the rules governing sexually intimate partners. However, because this couple has not previously been evaluated at an infertility clinic, it is impossible to rule out male factor infertility as an additional hurdle to creating

embryos for cryopreservation. Because the embryos would have to be transferred into a third party for conception, all surrogate rules would apply.

If the state's interest in preserving life extends to retrieval of ovum, then this woman's situation is no different than the others. But if the issue here is one in which a court must analyze the woman's interest in procreating, then this falls in the category of cases where courts have analyzed the unexpressed wishes of a biological parent to bring offspring into the world. Here again, there are no relevant laws. Courts have decided these issues based on common law principles of contract and consent.

Here, the process of extraction imposes a high burden on the woman. This would be dispositive if her legal surrogates were objecting. But if, like in the *International Traveler* case, there were no objection from her family, but rather a concern raised by the medical team, then the issue of burden would be highly relevant.

Also, primary to an analysis of this scenario is the understanding that there is no common law obligation whatsoever on any medical professional to engage in activity against his or her medical judgment. The medical team here would not be facing an order by a court requiring them to extract the ovum. More likely, they would be facing a lawsuit by the family seeking damages for their failure to do so. This lawsuit would require that the family prove that the medical professionals acted below the standard of care of a reasonable professional.

3. Ethical Analysis

Unlike the couple who had already begun the process of IVF at the time of the accident, there is no evidence that this young couple had ever contemplated becoming parents. However, the fact that they were engaged suggests that the woman had already decided that if she were going to become a mother, this individual would be the father. Again, there is a strong analogy here to the status of a living child or a frozen embryo whose parent has died. The legal and ethical presumption is that unless they had expressed contrary wishes, the women had already decided on who would be the father of their children and who would raise these children in the event of their death. In contrast to the preceding scenario, although being engaged suggests intent to have children and raise them with this particular man, the lack of information about the woman's wishes to have children at this time or to have children raised without her presence raises ethical concerns. Perhaps she did not believe her fiancé was ready to be a father. Also, by not being alive when her child is born, she is in the same situation as the woman who had already started IVF in terms of having someone else becoming the mother of her child. Without clear indicia that she wanted to have a biological child

in the near future, the lack of evidence about how she would feel about that child being raised by someone else is of concern.

C. *Scenario 3: The Single Teenager*

A seventeen-year-old female is killed while riding her friend's motorcycle. She has never expressed an interest in having children. However, her parents have read about a new procedure used in cancer patients where the ovarian cortex, the part of the ovary containing the primordial oocytes, can be harvested and frozen, then transplanted back onto the woman's ovary or onto a donor ovary.

1. Medical Analysis

Early research has reported successful spontaneous pregnancy in women who have undergone this procedure. The young woman's parents wish to have the ovarian cortex of their daughter harvested so her mother or a surrogate can undergo ART treatment to conceive a grandchild. But none of that research was done on minors. So if it is performed on the teenager, it will involve using a methodology that has not been tested in girls her age.

Very few programs have the technical know-how to perform this type of procedure. Not only is the harvesting of the ovarian cortex and reapplying it difficult, it requires a skilled surgeon. The methods for freezing whole explants of tissue are in their infancy. A more viable option for this family would be *in vitro* maturation. By all accounts, the female in question was healthy and young with no known infertility issues. The likelihood of recovering oocytes from her ovaries that are in the GV and M1 stage are fairly good depending upon the stage of the menstrual cycle that the woman was in at the time of her accident. If there are oocytes, even immature oocytes, a donor sample could be acquired from a commercial bank and used to create embryos, which currently tend to survive freezing better than oocytes, though many practices are now offering oocyte freezing as a method for fertility preservation for young women either undergoing treatment for cancer or desiring to delay childbirth.

2. Legal Analysis

Because the teenager in our scenario is dead, she is not legally a patient eligible for medical care. As a result, the fact that she was a minor when she died does not change the legal ability of her parents to make decisions on her behalf. Once she died, the legal framework shifts from one of surrogate decision making to property interest in a dead body. Had the girl been an adult, she could have left postmortem instructions about who would be allowed to take custody of and bury her body. But as a minor, any such documentation would be void. What the parents are asking, essentially, is to donate their daughter's corpse for scientific research. Legally, they have a quasi-property interest in the body and can transfer it to the research team.

Courts have recognized a family's right to control the use of a dead body. For example, the family could decide to release her body for research, yet stipulate that it be returned for burial. Here, what the family is asking—specifically, that they be given access to her ovarian cortex—is the legal equivalent of a directed organ or tissue donation. Such directed donations are legal.

3. Ethical Analysis

This scenario presents some of the most troubling issues regarding consent and intent. This young girl was a minor and had expressed no interest in becoming a mother, nor had she taken any steps in that direction. On a continuum, there is far less evidence of whether she would have wanted to reproduce in this situation than in the previous scenarios involving the young, engaged couple and the couple who had started IVF. In all these cases, we do not know what the mothers would have wanted in the event of their death. But here, this teenager is so far from giving any indication of what decisions she would want to have made if she had been alive, that it is a situation where the parents are essentially making a decision for themselves. If these potential grandparents wanted more children, there is no law stopping them from hiring a surrogate and an egg donor. As a matter of ethics, however, it would be reasonable for the clinic to ask whether it would have agreed to accept this girl for IVF had she been alive and interested in having children, but for some reason unable to do so herself. This is not an exact parallel because the question would be whether this teen had the maturity to make a decision about being a mother and here, of course, those duties would be taken over by the grandparents.

CONCLUSION

Advances in technology that now make it possible to initiate assisted reproduction after a woman is dead or suffers a brain injury that renders her permanently unconscious requires that lawyers, doctors, and ethicists reconsider the laws and principles that had previously governed assisted reproductive technology. Although the experience of addressing requests for sperm extraction from a man who cannot give consent are somewhat helpful, the vastly more complex process of initiating reproduction in a woman presents new and significant challenges. The cases that have arisen as well as those foreshadowed by the scenarios in this article highlight further how serious the gaps in the legal regulation of assisted reproduction have become. By applying legal and ethical analysis to current and forthcoming processes for initiating reproduction in women who are permanently unconscious or who meet the legal criteria to be declared brain-dead, this article hopes to be of assistance to not just clinicians and families, but also to those lawyers and lawmakers who can play a

role in resolving the legal issues raised by requests for assisted reproductive technology when a woman can no longer give consent.

The biological differences between female and male reproduction makes the use of assisted reproductive technology after death a far more complicated process in the case of women than in men. Rather than a simple procedure that can be performed on a male corpse, female posthumous assisted reproduction requires sustaining a woman for two weeks or more on life-support machines. Moreover, the legal consent issues, while ostensibly the same as for men, raise different cultural concerns when an egg from a dead biological mother is removed, fertilized, and implanted in a surrogate who may or may not have the intent of raising the child. Not only does this represent a substantially greater use of scarce resources, it also brings into clearer focus the legal and ethical concerns about ART in general and PAR in specific that may have evaded scrutiny with less complex procedures.

The new reality of children conceived after their mother has died or become permanently unconscious will need to be recognized in the array of family and inheritance law issues already created by posthumous reproduction. But this reality will also need to be incorporated into societal norms and values that are still adapting to the changes in what can be possible in the creation of new human life.

