

ARTICLES

**ABORTION AND TECHNOLOGY: SONOGRAMS, FETAL PAIN,
VIABILITY, AND EARLY PRENATAL DIAGNOSIS***John A. Robertson*^{*}

Attempts to limit abortion continue in state legislatures and in national politics. Many proposed restrictions arise from new technologies for visualizing and testing fetuses. This article examines the role that technology has played in past abortion conflict, showing the illusory nature of the belief that technology might dampen the virulence of the debate. It then looks at four recent technologies at the center of abortion controversy: forced viewing of sonogram; earlier survivability of premature newborns; fetal pain-capability before 24 weeks; and early noninvasive prenatal diagnosis. It shows the challenges that each technology poses for existing doctrinal understandings of abortion rights, such as the undue burden test, the 24 week line for viability, and the impermissibility of state inquiry into a woman's reasons for abortion. It concludes with a comparison of the effect of technology on Fourth and Eight Amendment jurisprudence, and shows why changes in abortion technology present a different set of problems.

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I. INTRODUCTION

Abortion controversy continues in state legislatures and in national politics. The Supreme Court's 2007 decision in *Gonzalez v. Carhart* and the 2010 mid-term elections have reinvigorated anti-abortion groups. Pro-choice groups, on the other hand, take heart from the growing acceptance of medical abortions as “[a]nother pill that could cause a revolution.”¹

¹ Nicholas Kristof, *Another Pill That Could Cause a Revolution*, N.Y. TIMES, Aug. 1, 2010, at WK8 (suggesting that new, widely available forms of medication could be safely used to induce abortions).

While many issues figure in current controversies, it is hard to overlook the role that technological developments are playing in the debate. The dream that technology can cut the Gordian knot of abortion politics is not new, but is being reasserted with renewed vigor. The anti-abortion side puts its faith in forced viewing of fetal sonograms and alleged new evidence of when fetuses feel pain. The pro-choice side thinks that attention to in vitro fertilized (IVF) embryos and the safety of pills that induce miscarriage will reduce resistance to choice in reproduction.

Although often appealed to as an arbiter of conflict, technology is invariably a chimera that seldom manages to fulfill that role. Attention, however, to how technological change is used in the abortion debate and why that appeal is so often illusory may teach something about the essence of the constitutional debate and its contours, and show where there is room for change and evolution. That is the burden of this Article.

A. Legislative Developments

Planned Parenthood of Southeastern Pennsylvania v. Casey reaffirmed the basic principles of *Roe v. Wade* but scrapped its trimester framework, and affirmed the state's interest in protecting prenatal life throughout pregnancy.² With its looser undue burden test, *Casey* opened the door to more regulation than had been acceptable under *Roe*. Many states took up the invitation, enacting informed consent, waiting periods, parental consent or notification laws, record keeping requirements, and much else. *Gonzales v. Carhart*³ in 2007 nudged the door open a bit further by upholding a federal ban on partial birth abortion thanks to Justice Kennedy, a key member of the *Casey* plurality, becoming the fifth vote in *Gonzales*.⁴ Even if the scope of new

² *Planned Parenthood of Se. Pa. v. Casey*, 505 U.S. 833, 878–79 (1992) (“We reject the rigid trimester framework of *Roe v. Wade* . . . [and] reaffirm *Roe*'s holding that ‘subsequent to viability, the State in promoting its interest in the potentiality of human life may, if it chooses, regulate and even proscribe, abortion’” (quoting *Roe v. Wade*, 410 U.S. 113, 164–65 (1973))).

³ *Gonzalez v. Carhart*, 550 U.S. 124 (2007) (finding that the Partial-Birth Abortion Act of 2003 was not void for vagueness and did not impose an undue burden on a woman's right to abortion).

⁴ At issue was whether there were alternatives that were as safe for the woman's health as the partial birth procedure that had been banned. Justice Kennedy, in contrast to most medical experts, found that the banned posed no threat to health. *See, e.g., id.* at 180 (Ginsberg, J., dissenting) (arguing in favor of the district court's findings that the government's witnesses had “slim authority for their opinions” that intact D&E was never necessary to preserve the health of the woman).

regulatory leeway is small, the victory has energized anti-abortion forces to chip away at the right recognized in *Roe* and *Casey*.

The midterm elections of 2010 have further reinvigorated the right-to-life movement. Although those elections focused on the economy, “many of the newly elected governors and legislators are also solidly anti-abortion, causing advocates of abortion rights to brace for a year of even tougher battles than usual.”⁵ Twenty-nine states now have governors considered to be solidly anti-abortion, compared with twenty-one in 2010. “In fifteen states both the legislature and the governor are [now] anti-abortion.”⁶

State legislatures have used their new political clout in a variety of areas. Several states have increased waiting periods prior to abortion, expanded mental health screening of women to make sure they can give informed consent, exempted doctors from liability for failing to reveal fetal anomalies during pregnancy, and targeted abortion providers with more stringent health requirements.⁷ In a few states, one house of the legislature has passed or entertained bills that endow the fetus with legal personhood from the time of conception.⁸

More significantly, many anti-abortion states have tried in various ways to limit private health insurance coverage of abortion or state funding of non-abortion services by abortion providers. Five states

⁵ Erik Eckholm, *Across Country, Lawmakers Push Abortion Curbs*, N.Y. TIMES, Jan. 22, 2011, at A14 (suggesting that Republican victories in the November 2010 midterm elections energized conservative state lawmakers to push for legislation limiting abortion).

⁶ *Id.*

⁷ The most striking here is South Dakota’s enactment of a law requiring a three-day wait between receiving state-mandated informed consent and the abortion, an expansion of the twenty-four hour waiting period. S.D. CODIFIED LAWS § 34-23A-56 (Supp. 2011); 2011 S.D. Sess. Laws Ch. 161, § 3; Michael Avok & David Bailey, *South Dakota Law Requires 3-Day Abortion Wait*, REUTERS (Mar. 22, 2011), <http://www.reuters.com/article/2011/03/22/us-abortion-southdakota-idUSTRE72L65320110322>; see also, e.g., TENN. CODE ANN. § 39-15-202 (West 2011) (requiring any physician’s offices or other type of facility that perform abortions to post a sign which explains that it is illegal for anyone to coerce a woman into having an abortion); H.B. 2656, 52d Leg., 2d Sess. (Okla. 2010), available at <http://webserver1.lsb.state.ok.us/WebBillStatus/main.html> (protecting doctors from lawsuits if they facilitate the birth of children, even if those children suffer from medical conditions); Eckholm, *supra* note 5, at A14 (“The elections brought even more gains for their side than expected, said Mary Spaulding, state policy director of the National Right to Life Committee . . .”); A.G. Sulzberger & Monica Davey, *New Law in Kansas Seen as a Threat to Abortions*, N.Y. TIMES, June 25, 2011, at A11 (discussing the controversy over a new license law that sets standards for abortion providers in the state).

⁸ Although such laws would not reverse *Roe* and *Casey*, they could limit what is done with surplus embryos in assisted reproduction and have many other implications. See John A. Robertson, *Assisting Reproduction, Choosing Genes, and the Scope of Reproductive Freedom*, 76 GEO. WASH. L. REV. 1490, 1490–91 (2008) (discussing the controversy surrounding assisted reproduction, genetic selection, and genetic enhancement). But see Katharine Q. Seelye, *Mississippi Voters Reject Anti-Abortion Measure*, N.Y. TIMES, Nov. 9, 2011, at A20.

enacted laws barring insurers from covering abortion in the insurance exchanges called for under the Affordable Health Care Act passed under President Obama, and more are likely to do so in 2011.⁹ Indeed, some states are seeking to ban any private health insurance policies that include coverage for abortion. Several states have also defunded Planned Parenthood for non-abortion related services, such as contraception and cancer screening.¹⁰ These bans apply both to state Medicaid funds, some of which come from the federal government, and independent state expenditures, even though no money is directly paid for abortions themselves.

Other restrictions have roots in the technological change that is the topic of this Article: fetal pain and sonogram laws. Nebraska has led the way with a 2010 ban on abortion after twenty weeks on the theory that the fetus is then pain-capable, a month earlier than the viability line in *Roe* and *Casey*.¹¹ Several states have followed this lead

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- 9 TENN. CODE ANN. § 56-26-134 (West 2011) (making it illegal for health care plans to cover abortions); S.B. 1305, 49th Leg., 2d Reg. Sess. (Ariz. 2010), *available at* <http://www.azleg.gov/FormatDocument.asp?inDoc=/legtext/49leg/2r/laws/0114.htm> (prohibiting state and federal funding of abortions except in the case of medical necessity); S.B. 241, 117th Gen. Assemb., 1st Reg. Sess. (Ind. 2011), *available at* <http://www.in.gov/legislative/bills/2011/IN/IN0241.1.html> (making it illegal for insurance companies to offer coverage for elective abortions); S.B. 3214, 125th Leg., Reg. Sess. (Miss. 2010), *available at* <http://billstatus.ls.state.ms.us/documents/2010/pdf/SB/3200-3299/SB3214IN.pdf> (disallowing health plans that cover abortions from participating in health exchanges within Mississippi); S.B. 793, 95th Gen. Assemb., 2d Reg. Sess. (Mo. 2010), *available at* <http://www.senate.mo.gov/10info/pdf-bill/tat/SB793.pdf> (prohibiting health insurance exchanges from funding abortions).
- 10 North Carolina, Indiana, and Kansas have already passed such laws. *See* H.B. 1210, 117th Gen. Assemb., 1st Reg. Sess. (Ind. 2011); H.B. 2075, 2011 Kan. Sess. Laws. Ch. 111; H.B. 200, N.C. Sess. Laws 2011-145. The “freedom of choice” provision in the federal Medicaid statute prevents a state from restricting recipients’ freedom to choose their health care provider, and a federal judge has enjoined the law from going into effect. *See* *Planned Parenthood of Ind. v. Comm’r of the Ind. State Dep’t of Health*, No. 1:11-cv-630-TWP-TAB, 2011 WL 2532921 (S.D. Ind. June 24, 2011) (granting, in part, a preliminary injunction that stops the state of Indiana from terminating all contracts with entities providing abortions); Robert Pear, *Indiana Law to Cut Planned Parenthood Funding Is Blocked*, N.Y. TIMES, June 25, 2011, at A11 (“The judge . . . blocked provisions of a new state law that penalized Planned Parenthood because some of its clinics performed abortions.”). Non-Medicaid state funds are another matter.
- 11 Pain-Capable Protection of Unborn Children Act, NEB. REV. STAT. ANN. § 28-3, 104(1) (LexisNexis Supp. 2009) (finding that “[a]t least by twenty weeks after fertilization there is substantial evidence that an unborn child has the physical structures necessary to experience pain”). Iowa has pushed the envelope further by placing the ban at eighteen weeks, and Ohio legislators would go even further by banning all abortions after a fetal heartbeat is detected, which usually occurs at eight to ten weeks of pregnancy. *See* H.B. 125, 129th Gen. Assemb., Reg. Sess. (Oh. 2011); Laura Bassett, *Iowa Advances Nation’s First 18-Week Ban on Abortion*, HUFFINGTON POST, June 9, 2011, http://www.huffingtonpost.com/2011/06/09/iowa-advances-nations-fir_n_874410.html.

and several more are expected.¹² The evidence supporting such laws is controversial, but differing views of the strength of evidence is not alone sufficient to render a law unconstitutional. With *Gonzales* showing more deference to legislatures, such laws could lead to an earlier ban on abortion than has been recognized since 1973.

Another set of technologically based restrictions is the growing use of sonogram technology as an anti-abortion weapon. Several states already require that doctors offer a woman a chance to see a sonogram of the fetus prior to the abortion. Oklahoma, however, has gone further by requiring that the “ultrasound screen be visible to the woman, though she may avert her eyes”¹³ at least one hour before the abortion.¹⁴ If she does, she must listen to the doctor or sonographer provide a detailed description of the fetus. Texas requires that the sonogram be done or described twenty-four hours before the abortion and that the woman listen to the fetal heartbeat or a description of it as well.¹⁵ Anti-abortion activists are promoting such laws in other states. If such laws were valid, they would greatly increase state regulatory power under *Casey*’s undue burden test.¹⁶

In addition to legislative activity, there was a significant technological advance in early non-invasive prenatal diagnosis that makes it likely that genetic assessment of fetuses may soon be available at five weeks of pregnancy. If proven reliable, such testing is likely to become routine in many, if not most pregnancies, greatly increasing the number of abortions on genetic risk grounds. If so, there will be legislative attempts to restrict prenatal testing or use of test results, thus calling into question the acceptable grounds for abortion and tests to establish them.¹⁷

These developments are playing out against a background of the growing use of medical abortion in the first trimester. In 2008, 17% of all abortions and 25% of first trimester abortions in the United

12 As of June 27, 2011 Idaho, Indiana, Kansas, Oklahoma, and Alabama have done so. See Erik Eckholm, *New Laws in 6 States Ban Abortions After 20 Weeks*, N.Y. TIMES, June 27, 2011, at A10 (detailing the increasing number of limitations on abortions throughout the country).

13 John Leland, *Abortion Foes Advance Cause at the State Level*, N.Y. TIMES, June 3, 2010, at A18.

14 OKLA. STAT. ANN. tit. 63, § 1-738.3d (West 2011). The law’s operation has been enjoined.

15 See Chuck Lindell, *Sonogram Bill on Fast Track*, AUSTIN AM. STATESMAN, Jan. 23, 2011, at A1 (detailing the legislative history of the bill requiring a woman to receive a sonogram of the fetus prior to having an abortion). Florida, Indiana, Maryland, Montana, Ohio, Virginia, and Wyoming are also likely to consider such legislation. See Eckholm, *supra* note 5, at A14 (discussing movements by conservatives legislators to limit abortions).

16 The forced viewing/hearing required in Oklahoma is a more significant burden than having to sign a refusal as the Florida bill had required.

17 See *infra* text accompanying notes 125–39.

States used non-surgical, medical means, which avoid the need to go to an abortion clinic and open the door to telemed terminations, greatly increasing access to abortion providers.¹⁸ Medical abortions have enormous potential worldwide to save the 70,000 lives a year that are lost to complications of often illegal surgical abortions, most of which occur in developing countries.¹⁹ They represent “a revolution in women’s reproductive health . . . [by] increas[ing] access to safe abortion[s] at minimal cost.”²⁰

These developments illustrate once again the role that technology plays in the abortion debate. Some people think that advances in scientific knowledge and abortion technology will tilt the controversy to one pole or the other or at least in some areas soften the sharp edges of the debate.²¹ In this Article I argue otherwise by focusing on four changes in technology that now loom large in the abortion debate and show how, though they may rebalance rights and in some cases offer the chance for a greater accommodation among warring factions than has yet existed, none will change the basic premises of the debate.

B. *Plan of the Article*

Before focusing on these four technological changes and their chimeric- or reality-based role in resolving abortion issues, Part II describes the role that technological change has played in the spread and development of abortion rights and its ongoing appeal in more recent controversies.

Part III discusses the recurring but illusory ways in which proponents on each side hope for support from technological developments for their position. Despite the inability of technology per se to resolve core normative issues, attention to technology and its limited ability to offer solutions may still be useful in revealing the value commitments, legal positions, and contradictions of each side. In

18 See Monica Davey, *Abortion Drugs Given in Iowa Via Video Link*, N.Y. TIMES, June 9, 2010, at A1 (detailing how doctors can, using computers and teleconferencing, provide mifepristone medication to induce abortions).

19 Kristof, *supra* note 1.

20 *See id.* (internal quotation marks omitted).

21 State Senator Lautenbaugh captured this sentiment in a public hearing on the Nebraska fetal pain bill when he asked a witness: “And is it your belief that since technology marches on and we’ve made great strides that it’s at least possible that opinions from 20–30 years ago might not hold a lot of validity anymore based upon what we know now?” *Adopt the Abortion Pain Prevention Act: Hearing on LB 1103 Before the S. Comm. on Judiciary*, 2010 Leg., 101st Sess. 22 (Neb. 2010) [hereinafter *Hearing on LB 1103*] (statement of Sen. Scott Lautenbaugh, Member, S. Comm. on Judiciary).

doing so, technology will show where there is room for change in the legal and doctrinal aspects of the debate. Having that effect, however, is dependent on continued acceptance of a due process or equal protection “living Constitution” approach to interpreting the Fifth and Fourteenth Amendments and continued acceptance of the reproductive rights found within.²²

Part IV discusses how an equality or equal citizenship stance complements a due process liberty approach to abortion but is not essential to elucidating the limited solutions that technological change offers in the abortion debate. Although every due process claim about abortion can be recast in equal citizenship terms, that approach is more apt for challenges to access to abortion than it is for whether the right to abort includes the right to select fetal and offspring genetic traits. This is the question presented by developments in early prenatal testing and abortion to select fetal genomic traits.

Part V addresses the limits of sonogram technology as a way to persuade women to refrain from abortion by mandating that women view sonograms of their fetus shortly before a planned abortion or hear a detailed description of it.²³ This analysis rests on what counts as an undue burden under *Casey* when the state purports to make consent more mature and intelligent by requiring the woman to view (or listen to a description of) the fetus that the abortion would destroy. It asks whether mandating accurate information regarding risks and consequences, which has been the focus of most litigation in this area, itself becomes ideological when forced on a woman who wishes fervently not to view a sonogram of her fetus.

Part VI deals with the import of improvement in neonatal intensive care and other technologies that extend the survivability of fetuses earlier than the twenty-four-week viability line drawn in *Roe* and maintained ever since.²⁴ As part of that inquiry, it also addresses the import of technical advances in neuroscience that appear to provide a basis for claiming that the fetus is sufficiently developed neurologically at twenty weeks to be capable of sensing pain, and thus whether previsible pain-capability is an independent ground for limiting abortions.

22 Obviously, a reversal of *Roe v. Wade*, 410 U.S. 113 (1973) (holding that a right to privacy under the Due Process Clause of the Fourteenth Amendment to the United States Constitution extends to a woman’s decision to have an abortion), would change the landscape significantly. Whether technology still played an important role would depend upon the scope of subsequent legislation.

23 Alternatively, women can opt to hear a detailed description of it.

24 *Roe*, 410 U.S. at 160.

Part VII deals with the less invasive and earlier forms of prenatal diagnosis that are about to enter routine obstetrical practice. If this promise is fulfilled, they are likely to greatly increase the number of women who learn, early in pregnancy, genetic information about their fetuses and then abort based on the results of those tests. Such a prospect is likely to inspire some states to restrict the kinds of prenatal tests that are available or what one might do with them, thus raising novel questions about the extent to which abortion rights exist regardless of the reasons or basis for the abortion.

Part VIII discusses how the importance of technological change in abortion is linked to the Court's willingness to find reproductive rights in its interpretation of the Due Process and Equal Protection Clauses of the Constitution. It shows how similar interpretive problems arise from technological change affecting other constitutional provisions as well, using the Fourth and Eighth Amendments as examples. While those parallels show the constraints that courts face in using technology in constitutional interpretation, they also show how technological change may have a greater potential in the abortion rights area for insight into legal and doctrinal change than in those other subject areas.

Each of the areas discussed focuses on a technology affecting a different part of pregnancy and its differing impacts on women. The sonogram issue is most relevant to later first-trimester and early second-trimester abortions, when the majority of abortions occur. Viability and fetal pain questions affect abortions from twenty to twenty-six weeks (late second and early third trimester). Early prenatal diagnosis brings us back to first-trimester abortions at five to nine weeks. So stages and trimesters inexorably work their way back in, with a finer-grained assessment than the rough-hewn and perhaps prematurely disparaged trimester approach *Roe v. Wade* allowed.

As I will argue, the idea that attention to technology will shear off the rough edges of the abortion debate is more a fantasy than a reality, but there are ways in which close attention to technological developments in embryology, genomics, neuroscience, and neonatology can illuminate the normative and legal issues at stake and advance constitutional understanding and possibly even accommodation. Doing so cannot occur without a Court receptive to its role as curator of the doctrinal positions regarding reproductive liberty and women's rights to which its past decisions have led, including the scope and meaning of procreative liberty in abortion, assisted reproduction, and beyond. At the very least the inquiry can deepen the debate and thus what might be legislatively acceptable in the space the Court leaves for regulation of abortion.

II. THE ROLE OF TECHNOLOGY AND TECHNOLOGICAL CHANGE IN ABORTION

Technology has played a role in the development of abortion rights and its ensuing controversies, including many of the newly enacted or proposed restrictions on abortion. *Roe* grew out of the development of vacuum aspiration methods of abortion in the 1960s and the imaging techniques that supported it. Although abortions at the time were mostly done in hospitals, those techniques lent themselves to routinization in free-standing clinics, which, due to stigma and medical resistance by mainstream doctors to abortion in the 1970s and 1980s, came to replace hospitals as the main site for abortions.²⁵ If the incipient movement to bring abortion into a gynecologist's or family doctor's office takes off, its success will owe much to technological advances in early suction and medical abortion.²⁶

The battles over the content of informed consent laws as to the risks of abortion are not about technology per se, though they do lean on putative medical claims about the personal and public health effects of any abortion, including those in the first trimester. The partial-birth abortion controversy in the 1990s may also be seen as the product of technological development—in this case, Dr. Martin Haskell's development of intact dilation and evacuation in late second-trimester abortions when trunk or head size made ordinary evacuation difficult. Initially practiced by him alone and not part of ob/gyn residency programs or taught in medical schools, Dr. Haskell's technique became, within a few years, a technique of choice

²⁵ This also explains why so many of the early cases, from *Doe v. Bolton*, 410 U.S. 179 (1973), to *Planned Parenthood of Central Missouri v. Danforth*, 428 U.S. 52 (1976), and *City of Akron v. Akron Center for Reproductive Health, Inc.*, 462 U.S. 416 (1983), involved requirements that hospitals had to meet in order to perform abortions. Emily Bazelon reports that, at the time *Roe* was decided, 80% of abortions were done in hospitals with many doctors participating, but abortion then moved to free-standing clinics as stigma and opposition built. See Emily Bazelon, *The New Abortion Providers*, N.Y. TIMES MAGAZINE, July 18, 2010, at 32 (discussing the shift of abortions away from mainstream physicians).

²⁶ Bazelon also notes,

Technological advances have made it easier to shift abortion to the earlier stages of pregnancy. Tests have become sensitive enough to detect pregnancies two weeks after conception. The M.V.A., or manual vacuum aspirator, is gradually replacing the electric pump as the equipment of choice for first-trimester procedures. It's about 10 inches long, costs only \$30 and looks like the kind of appliance you might find in a kitchen drawer.

Id. at 37, 44. A doctor can carry all the equipment needed for an M.V.A. procedure in her coat pocket, thus demonstrating its ease of use to other physicians.

for some situations and was backed by the American College of Obstetricians and Gynecologists (ACOG).²⁷

Other developments and controversies are even more clearly based on technological change. Fetal sonograms, which figure in the new Oklahoma and Texas laws, are not new. They have been around since the early 1970s and have improved in resolution and ubiquity. It is a central part of abortion and other medical practice to confirm pregnancy, gestational age, the number of fetuses, fetal anomalies, fetal position, and much more. Although not a recently developed technology, the requirement that women view a sonogram or listen to an account of it is a new wrinkle on an old issue. As we will see, forced viewing/hearing does not challenge the basic assumptions of *Roe* and *Casey* as developments in neonatology, fetal pain-capability, and early prenatal diagnosis do, but it does put pressure on the meaning of a woman's autonomy and informed consent under *Casey*'s undue burden test.²⁸

Advances in neonatology have always been a favorite example of how technology may affect abortion rights. 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 high risk of disability and impairment, thus giving anti-abortion forces more room to ban abortions.²⁹ Justice O'Connor recognized the "collision course" that improvements in neonatal technology posed for *Roe*'s trimester approach in 1983 in *City of Akron* and used that insight to articulate the undue burden test which moved to

27 Despite a trial record that showed there were valid health needs for use of the technique to minimize the risk of infection, perforation of the uterus, and other physical risks, Justice Kennedy found enough evidence in one of the three trials attacking the Partial-Birth Abortion Ban Act of 2003 to rule otherwise. See Pub. L. 108-105, 117 Stat. 1201 (codified at 18 U.S.C. § 1531) (2006) (prohibiting physicians from performing partial-birth abortions). His opinion for the Court held that Congress could rationally find that a consensus about the health need for an exception was lacking. See *Gonzales v. Carhart*, 550 U.S. 124 (2007) (upholding the Partial-Birth Abortion Ban Act of 2003 on the grounds that it did not impose an undue burden on the due process right of women to obtain an abortion). Otherwise, the opinion of a few doctors could always bar otherwise seemingly rationally based legislation.

28 *Planned Parenthood of Se. Pa. v. Casey*, 505 U.S. 833, 876–77 (1992) (holding that a state's regulation of abortion is unconstitutional if it places an undue burden on women seeking an abortion, which occurs when a state's regulation has the purpose or effect of placing a substantial obstacle in the path of a woman seeking an abortion or a nonviable fetus).

29 See *infra* notes 113–16 and accompanying text.

center stage in *Casey* ten years later. Senator Lindsey Graham raised it again in the confirmation hearings for Justice Kagan.³⁰

The Nebraska ban on abortion at twenty weeks, based on the fetus's alleged capability to feel pain, is connected with developments in neonatology and viability but has independent technological support in neuroscience and brain development. The technology here is less about gross anatomy as such, and more about how the developing neural apparatus of the fetus connects with the cortical, nonsensory subcortical, and thalamic centers where pain is sensed and responded to.³¹ While much of the physiology of the brain has become known, much also remains controversial. This has not stopped anti-abortionists from seeking to ban abortion at twenty weeks based on claims of fetal pain-capability, thus providing a new ground and earlier time for banning abortion than the later viability line recognized in *Roe* and *Casey*.

A technology on the verge of entry into routine obstetrical practice is early noninvasive prenatal diagnosis, which will give chromo-

30 See (TRANSCRIPT) *Senator Graham Questions Supreme Court Nominee Elena Kagan—Round Two*, LINDSEY GRAHAM (June 30, 2010), available at http://lgraham.senate.gov/public/index.cfm?FuseAction=AboutSenatorGraham.Blog&ContentRecord_id=8af83496-802a-23ad-4610-22b0873a0cd8&Region_id=&Issue_id= [hereinafter LINDSEY GRAHAM]. The most relevant portion of the hearing occurred as follows:

Graham: . . . Now, there's another court decision called *Roe v. Wade* that's being changed over time, being interpreted differently over time. The court basically held that, before viability, the right to have an abortion was—of a state to impose limitations on abortion was almost nonexistent. After viability, it was sort of a balancing test. Is that a general statement of *Roe v. Wade* over time, there's a difference between viability and post-viability in the eyes of the court?

Kagan: As I understand the law after *Casey*, it's that, after viability, the state can regulate as it pleases, except for situations where the woman's life or health interests are at issue. Before viability, the question is whether there is an undue burden on the woman's ability to have an abortion.

Graham: It is fair for the court to consider scientific changes in—when a fetus becomes viable as medical science evolves?

Kagan: Senator Graham, I do think that in every area that it is fair to consider scientific changes. We've—I've—I've talked in the past about how different forms of technology influence the evolution of the court's Fourth Amendment jurisprudence.

At this point Senator Graham refers to racial segregation of young school children. Although unrelated to abortion technology and scientific developments as such, it does relate to issues of living constitutionalism and how values and hence the meaning of the broad clauses of the Constitution change over time.

Graham: Well, I'm—I'm glad to hear you say that, because just as it would have been wrong to not consider the changes of how society had evolved versus segregation of young children based on race, I hope the court would consider the modern concept of viability in the 21st century. And whatever protection you could give the unborn would be much appreciated on my part by considering science, not your personal feelings, because I think it's appropriate for the court to do so.

31 See *infra* note 125 and accompanying text.

somal and even genetic information about fetuses as early as five weeks. The technology concerns the recovery from a pregnant woman's blood of fetal DNA and RNA sequences free of fetal cells, thus eliminating the need to intrude into the uterus or amniotic sac to obtain them and risk causing miscarriage.³² The technological innovation, however, is less the recovery of the fetal-free genomic material than the development of the algorithms and techniques for connecting those snippets into a meaningful and informative picture of the fetus's chromosomes and genes. This opens the door to routine chromosomal/genetic testing of fetuses as early as five weeks and potentially the performance of many more early abortions done to avoid genetic risks.

The drugs that now allow for chemical abortions safely and effectively up until nine weeks of pregnancy are also a technology that could change access to abortion and the perception of the moral and legal issues at stake. Unlike postcoital contraception, which operates mainly by preventing implantation, chemical abortions interrupt or abort the earliest stages of implantation. They do so, however, without an entry to evacuate the uterus, and can be administered in a doctor's office or at home.³³ A urine test can confirm pregnancy at two weeks. Typically, one pill (mifepristone, or RU486) is taken in the doctor's office and, forty-eight hours later, a second pill (misoprostol, a common prostaglandin) is taken at home, with a return visit to the doctor's office to confirm that the pregnancy has ended. After six years of regulatory battle, the FDA finally approved RU486 in 2000. Many had thought it would bring abortion into ordinary medical practice and quiet some of the most heated debate. Although it has helped increase the number of early abortions (90% of abortions now occur in the first twelve weeks of pregnancy, with 62% of them before nine weeks), it has not become part of routine office practice and has not had the calming effect on clinic controversy that many had hoped for.³⁴ Still, medical abortions comprised 17% of all abor-

³² This is similar to how standard prenatal diagnosis techniques of amniocenteses and chorion villus sampling are done, later in pregnancy. *See infra* notes 127–28 and accompanying text.

³³ For authority on medical abortion, see Marge Berer, *Medical Abortion: A Fact Sheet*, REPROD. HEALTH MATTERS, Nov. 2005, at 20 (explaining the risks and potential of non-surgical abortions).

³⁴ *See* JOHN A. ROBERTSON, CHILDREN OF CHOICE: FREEDOM AND THE NEW REPRODUCTIVE TECHNOLOGIES 63–66 (1994) (explaining the benefits of and challenges facing new reproductive technologies). In any event, presumably all state regulations for waiting periods, informed consent, parental notification and the like apply both to medical and surgical abortions.

tions in 2008 and 25% of those done in the first nine weeks.³⁵ It is waiting in the wings if greater physician willingness to do early abortions emerges. Telemedicine can extend access to abortion in areas where abortion providers are few.

In vitro fertilization (“IVF”) and assisted reproductive technology (“ART”) are major technological developments that overlap normatively with the abortion debate, though they do not directly affect abortion itself. IVF research was underway in 1973, but the first IVF child was not born until five years after *Roe*, in 1978. Since then, its use has spread widely as a treatment for infertility, with 120,000 children born every year in the United States and more than 1.5 million worldwide.³⁶ External fertilization has not been central to abortion battles, simply because no pregnancy exists when the fertilized eggs and embryos are still in a petri dish or laboratory freezer, but it does raise the issue of the state’s power to value embryos for their own sake.

Anti-abortion forces ignored IVF and ART until the ability to culture human embryonic stem cells, derived from discarded IVF embryos from infertile couples, was developed in 1998, and the question of federal funding for embryonic stem cell research became a national issue. This has emboldened anti-abortion forces to pay more heed to IVF labs and to propose state laws or constitutional amendment, none yet enacted, that would limit the number of embryos created or that can be discarded in treating fertility patients. While these developments touch more directly assisted reproduction practice than they do abortion, the widespread acceptance of IVF and embryo discarding clashes with the normative premises about respect for human life from fertilization that drive the anti-abortion movement.³⁷

³⁵ See Tamar Lewin, *Falling for Years, Abortion Rate Levels Off, with More Choosing Medication Over Surgery*, N.Y. TIMES, Jan. 11, 2011, at A13 (explaining that surgical abortions have become less popular among women, while medical abortions rose).

³⁶ Stacey A Missmer et al., *Analysis of Multiple-Cycle Data from Couples Undergoing In Vitro Fertilization: Methodologic Issues and Statistical Approaches*, 22 EPIDEMIOLOGY 497 (2011); Caroline Ryan, *More than 3m Babies Born from IVF*, BBC NEWS (June 21, 2006), <http://news.bbc.co.uk/2/hi/health/5101684.stm>; see also Saswati Sunderam et al., *Assisted Reproductive Technology Surveillance—United States, 2006*, 58 MORTALITY & MORBIDITY WKLY. REP. 1, 5 (2009), available at www.cdc.gov/mmwr/pdf/ss/ss5805.pdf (reporting on the growth of ART procedures among women worldwide).

³⁷ It also figured into Justice O’Connor’s dissent in *City of Akron*, in which she notes that technology may be on a collision course with itself, in this case at the earliest stages rather than the later ones of viability that have drawn the most attention. See *City of Akron v. Akron Ctr. for Reprod. Health, Inc.*, 462 U.S. 416, 456–57 (1983) (explaining that improvements in technology will move forward the point at which the state may constitutionally regulate abortions for maternal health reasons while other advances will move back the point of viability).

III. TECHNOLOGICAL DREAMING AS A FIX TO THE ABORTION DEBATE

Both sides continue to draw on technological change as a potential fix to some if not all of the moral and legal controversies over abortion. The hope for a technological solution continually reappears, as we will see with technologies of fetal visualization, neonatology, fetal pain, and prenatal diagnosis discussed below. Each side wants to draw on technology to increase or to limit abortion rights. The practicalities and politics of the controversy thus morph and change as new technologies come online and open new opportunities for proponents to expand the meaning of the right and for opponents to challenge it.

One dream of technology is that it could cut through the heated battles of the last thirty-eight years to a more politically acceptable solution. But this dream is a chimera. The reality is that new technologies usually harden each side into its prevailing ideology. Yet, as I will argue, focusing on technological changes in abortion is not always a fruitless enterprise, and it might in some instances usefully deepen and extend the understanding of abortion rights and may even lead to change and evolution in those doctrines.

Anti-abortionists have drawn on medical and scientific knowledge to maintain that the fertilized egg, zygote, blastocyst, and fetus are each a new human individual and they therefore have all the rights of other individuals. By establishing those medical facts, they thought that it would make clear once and for all that there was a whole new individual here, which itself would resolve the legal debate. But it soon became clear that establishing the unique individuality of the fertilized egg was a medical or scientific fact and, as such, it could not sidestep the value judgment and analysis that was at the heart of the moral and constitutional debate.³⁸

The South Dakota informed consent law at issue in *South Dakota v. Rounds* illustrates the role, which the claim that the fetus is a “whole, separate, unique human being” plays for anti-abortionists within the ground rules set up by *Casey*.³⁹ The state was able to persuade the Eighth Circuit that requiring women to be so informed is simply a statement of scientific fact and thus is permissible.⁴⁰ The court sides-

38 See generally Judith J. Thomson, *A Defense of Abortion*, 1 PHIL. & PUB. AFF. 47 (1971) (defending abortion on philosophical grounds).

39 *Planned Parenthood Minn., N.D., S.D. v. Rounds*, 530 F.3d 724 (8th Cir. 2008) (en banc) (allowing a law that requires that doctors provide women seeking abortions with ideologically charged information, including that they will be terminating a human life, to take effect).

40 *Id.* at 736–38.

tepped the ideological content of the requirement by relying on another section of the statute that defined “human being” as a “living member of the species of *Homo sapiens*, including the unborn human being during the entire embryonic and fetal ages from fertilization to full gestation.”⁴¹ Since that is a biologically accurate statement, and could be as relevant to the patient’s decision to have an abortion as the gestational age of the fetus, the court found that it was not ideological and therefore constitutional.⁴² That out may not be available in other situations.

The urge for a technological solution is also evident in the hope, exemplified in Senator Graham’s confirmation exchange with then-Solicitor General Elena Kagan, that technological advances pushing back viability will affect lines drawn for when abortion may be banned.⁴³ Justice O’Connor’s own important insight in *City of Akron* about the trimester framework being on a collision course with itself also reflected a role for technology in demolishing the trimester approach, which happened nine years later in *Casey*.⁴⁴

Forcing women to view or listen to a description of a sonogram is also an example of technological dreaming. Behind the anti-abortion enchantment with sonograms is the idea that if a woman would just look and see what is there, she will see that it is a little tiny baby and will be incapable of killing it. Similarly, if fetuses at twenty weeks have the neurological apparatus to feel pain, surely they have independent legal and moral standing and cannot be sacrificed by a pregnant woman. The partial birth abortion controversy also relied on descriptions of actual abortion procedures to generate a moral revulsion that led to a federal ban on the technique.

Pro-choice groups also have their technological dreams. They think that IVF technology and first trimester sonograms will show how rudimentary embryos and early fetuses are, thus putting the lie to the claim that there is an entity with independent moral status and

⁴¹ *Id.* at 727.

⁴² Because the plaintiffs’ experts had not addressed that additional part of the statutes, they had failed to demonstrate that the required disclosure of § 7(1)(b) is untruthful or misleading or that it demonstrated an ideological message from which physicians could dissociate themselves under the plaintiff’s First Amendment theory. *Id.* at 736, n.9; *see also id.* at 738–41 (Murphy, J., dissenting) (arguing that the South Dakota law focuses on ideological beliefs rather than medically relevant information); Robert Post, *Informed Consent to Abortion: A First Amendment Analysis of Compelled Physician Speech*, 2007 U. ILL. L. REV. 939, 941 (2007) (clarifying that the “obvious objective of the Act . . . is to use the concept of ‘informed consent’ to eliminate abortions”).

⁴³ *See* LINDSEY GRAHAM, *supra* note 30.

⁴⁴ *Akron v. Akron Ctr. for Reprod. Health, Inc.*, 462 U.S. 416, 458 (1983) (O’Connor, J., dissenting).

rights from fertilization. They also think that early abortion techniques, such as manual vacuum aspirators or chemical abortions, will be more acceptable because they occur so early in the pregnancy and can be done in the privacy of an office practice.⁴⁵ So will the acceptance of routine early noninvasive prenatal diagnosis by cell-free fetal genomic assemblies. As more women are tested and more have abortions, they hope that this technology will help ease acceptance of early abortions, possibly even calling into question anti-abortion premises in later abortions.

But no new technology can close the distance between the underlying normative poles, or indeed, win much of the middle ground, of the moral, legal, and political conflict at the heart of the debate. Most technological change fits into the doctrinal and analytic categories laid down in *Roe*, *Casey*, and *Gonzales*. Still, technological change is significant for presenting new angles on old issues, thus highlighting the fetal status and procreative liberty arguments at the heart of the constitutional debate. As I will explore here, by focusing the debate even more closely on the legal and moral issues at stake, at some point technology might turn them inside out or at least push them to a new synthesis.

At issue then in revisiting the recurring view that science and technology can solve or modulate the abortion debate is the role of science when normative questions are at issue. As the naturalistic fallacy teaches, however, no “ought” flows from an “is” and vice versa. Yet there is a way in which new facts reposition or at least force confrontation with the value judgments built on those facts. Facts may be stubborn things, but they do not control or determine values. They may, however, force reengagement with values and thus the underlying meaning of the legal values and rights at issue. Advances in neonatology, fetal pain capability, and very early prenatal diagnosis will not change the nodes of disagreement, but they force us to confront what is at stake in them, as new situations presenting those conflicts appear.

⁴⁵ This is not inevitably the case, as IVF and development of RU486 for chemical abortion has shown. Many had speculated that technologies that focus on first, early stages would be less controversial if no implantation had yet occurred or it was interrupted at a very early stage. ROBERTSON, *supra* note 34, at 63–66. But with RU486 and even post-coital contraception, the resistance has been just as great. Few doctors do chemical abortions, and disputes have arisen in many states over whether pharmacists who object have a right not to fulfill prescriptions for either drug. See, e.g., Carol J. Williams, *Pharmacists Cannot Refuse Plan B Pill, Appeals Court Says*, L.A. TIMES, July 9, 2009, <http://articles.latimes.com/2009/jul/09/nation/na-pill-ruling9>.

IV. EQUAL CITIZENSHIP AND TECHNOLOGICAL CHANGE IN ABORTION

Roe and *Casey* approach abortion as a substantive due process liberty right. Ruth Bader Ginsburg, Sylvia Law, Reva Siegel, and others have criticized a liberty approach because it overlooks the impact of abortion laws on the equality and equal citizenship of women.⁴⁶ Equal citizenship concerns are now firmly situated in the plurality opinion in *Casey* and in Justice Ginsburg's dissent in *Gonzales*, but the tension between a liberty and equality approach to abortion still exists.⁴⁷ Much of this critique deals with access to abortion in the first and second trimesters and is less concerned with technology except as technological change limiting later abortions might affect those rights.

A more paternalistic approach to abortion based on women's interests has also influenced the anti-abortion movement. Reva Siegel has shown how the contemporary abortion restriction movement is split in its strategies, with one wing wanting to emphasize abortion bans as a way to protect women (incrementalists) and another wing continuing to emphasize the dignity and rights of fetuses per se (prohibitionists).⁴⁸ Women-protective anti-abortion measures, which received recognition in Justice Kennedy's opinion in *Gonzales*, however, do conflict with *Casey*'s commitment to the dignity of women as independent decisionmakers about the role of reproduction in their

⁴⁶ Ruth Bader Ginsburg, *Some Thoughts on Autonomy and Equality in Relation to Roe v. Wade*, 63 N.C. L. REV. 375, 386 (1985) (arguing that *Roe* is "weakened . . . by the opinion's concentration on a medically approved autonomy idea, to the exclusion of a constitutionally based sex-equality perspective"); Sylvia A. Law, *Rethinking Sex and the Constitution*, 132 U. PA. L. REV. 955, 955 (1984) (discussing modern constitutional sex equality and the issues that sex-based physical differences can raise in a "society committed to ideals of individual human freedom and equality of opportunity"); Reva Siegel, *Reasoning from the Body: A Historical Perspective on Abortion Regulation and Questions of Equal Protection*, 44 STAN. L. REV. 261, 264 (1992) (arguing that "regulation directed at women's role in reproduction demands exacting scrutiny to ensure it does not reflect or enforce traditional gender role assumptions"). An equality perspective might have been more appealing to women and other supporters of abortion rights, but it would not have lessened any of the moral and constitutional conflict. Anti-abortionists would still have preferred life of fetuses to the equality of women, and those leery of judicial invalidation of state legislation on Fourteenth Amendment grounds would not have found equality a more convincing basis for invalidation of state abortion ban.

⁴⁷ See *Gonzales v. Carhart*, 550 U.S. 120, 171 (2007) (Ginsburg, J., dissenting) ("[A]t stake in cases challenging abortion restrictions is a woman's control over her [own] destiny." (internal quotation mark omitted)); see also *Planned Parenthood of Se. Pa. v. Casey*, 505 U.S. 833, 924 (1992) (Blackmun, J., concurring) ("[T]he liberty of the woman is at stake in a sense unique to the human condition and so unique to the law." (internal quotation marks omitted)).

⁴⁸ See Reva B. Siegel, *Dignity and the Politics of Protection: Abortion Restrictions Under Casey/Carhart*, 117 YALE L.J. 1694 (2008).

lives.⁴⁹ Yet, as Siegel shows, government can “demonstrate respect for the dignity of human life so long as such regulation also demonstrates respect for the dignity of women.”⁵⁰ At some point women-protective abortion restrictions violate or infringe a woman’s decisional dignity protected by *Casey*, and so in the end must yield to it. Justice Kennedy’s adoption of women-protective rhetoric in *Gonzales* throws a toothy bone to anti-abortion activists, but in a showdown he would likely back the decisional dignity of women he so forcefully backed in *Casey*.

What are the implications of technological changes in abortion for an equal citizenship approach? Such an approach is central with regard to forced viewing of sonograms because that requirement operates directly as a way to stop women from having abortions and imposes unnecessary distress in the process, thus interfering with their decisional autonomy and ability to function as equal citizens. The equal citizenship approach is also important for determining when abortions may be banned in the second trimester on grounds of fetal pain or viability. At those points the women-protective concerns of the sonogram and informed consent controversies are supplemented by concerns about the rights and dignity of fetuses, which also feed into women-protective concerns as the main point of conflict with a woman’s equal citizenship and decisional autonomy.⁵¹ Those technological developments become important to the extent that moral, policy, and constitutional decisions give them determinative value.

The question of early prenatal selection at first blush seems less centrally involved with equal citizenship and more directly engaged with liberty. Now the issue is not whether a woman may choose to end any pregnancy but whether she may choose to do so because of genetic or other traits of the fetus and prospective child. Yes, women have a right to the reproductive decisional autonomy essential for

49 In situating the abortion debate within the woman’s rights movement Siegel shows how an anti-abortion position comes out of traditional attitudes of keeping women in their place by denying them freedom over their reproductive lives. *Id.* at 1773–80. Kristin Luker’s *Abortion and the Politics of Motherhood* is the locus classicus of this position. See generally KRISTIN LUKER, *ABORTION AND THE POLITICS OF MOTHERHOOD* (1984) (arguing that the abortion debate reflects the conflict between the traditional female role of rearing children and the modern one of women as equal actors in work and civil activities).

50 Siegel, *supra* note 48, at 1702.

51 Anti-abortionists argue, as they did successfully in *Gonzales*, 550 U.S. at 159–60, with the particulars of partial birth abortion, that women need to be protected against ignorantly causing their fetuses pain, lest they live for the rest of their lives with the sorrow and pain that will surely result when they learn that they have allowed a doctor to kill their fetus in a painful way. (I am indebted to Cary Franklin for clarification of this point.)

equal citizenship, but the question is whether being able to choose medical and nonmedical traits of offspring is such an important part of personal liberty that it is essential for equal citizenship. If it is, then whether cast in liberty or equal citizenship terms, women will have the right to the tests and information needed to make abortion decisions on whatever basis they choose, including the genetic features of fetuses.

V. WORDS AND IMAGES: SONOGRAM TECHNOLOGY, INFORMED CONSENT, AND COMPELLED SPEECH

Ultrasound is a standard tool of obstetrics and gynecology and used routinely to establish and date pregnancy both in abortion and non-abortion settings. For anti-abortionists, sonograms are a technological fix for the uncertainty or ignorance that pregnant women might have concerning the fetus they are carrying, and hence the moral and emotional meaning of having an abortion. They have been an anti-abortion cudgel since *Silent Scream* in 1984.⁵² Anti-abortionists dream that sonogram technology will reduce the number of abortions by showing vividly the impact of what an abortion will do to a living fetus with a beating heart.⁵³ Less tendentiously, it will also give women more complete information about their decision, making them better informed when they do decide.⁵⁴

Laws already exist in nineteen states that require that a woman, in addition to being informed of fetal gestational age, medical and psychological risks of abortion, and child support and adoption alternatives, be offered the chance to view an ultrasound of the fetus.⁵⁵ These laws appear to be constitutional—they inform the woman of the opportunity to get more information about the fetus if she chooses. By leaving the choice to her, they respect her autonomy and

⁵² See *SILENT SCREAM* (American Portrait Films 1984), available at <http://www.silentscream.org/silentscream.html>.

⁵³ It is a bit like a vegetarian requiring that meat eaters see images of slaughterhouses or factory farming of hogs and chickens before purchasing meat.

⁵⁴ Ultrasonography may also be important for nurses and doctors who are willing to do some early abortions to identify the lines of what they find acceptable. Emily Bazelon gives several examples of how movement on ultrasound affects what residents, doctors, and nurses will accept participation in, say at nine or eleven or thirteen weeks, and whether they will do just chemical abortions. Bazelon, *supra* note 25, at 37, 44.

⁵⁵ GUTTMACHER INST., STATE POLICIES IN BRIEF: REQUIREMENTS FOR ULTRASOUND (2011), available at http://www.guttmacher.org/statecenter/spibs/spib_RFU.pdf [hereinafter GUTTMACHER INST.].

create no undue burden.⁵⁶ Still, it is no secret that they are motivated by a sentiment that if women are reminded that the fetus can be seen on ultrasound and they choose to see it, they may hesitate in going forward with the abortion because of their “natural” maternal feelings.⁵⁷

Oklahoma and Texas now require that women not only be informed that a sonogram may be viewed, but also that the sonogram image be displayed in a manner so that the pregnant woman may view it and simultaneously receive “a verbal explanation of the results of the sonogram images, including a medical description of the dimensions of the embryo or fetus, the presence of cardiac activity, and the presence of external and internal organs.”⁵⁸

Although the woman is not required to view the image, the doctor or sonographer must still provide a verbal description of anatomical features. Indeed, Texas goes further and requires that she listen to the fetus’s heartbeat or a verbal description of it.⁵⁹ In Oklahoma, the viewing/description of the sonogram must occur at least two hours before the abortion;⁶⁰ in Texas, it must occur twenty-four hours before.⁶¹

Pro-choice advocates argue that forced viewing/hearing laws are less about ensuring fully informed consent to abortion and more about forcing women to hear, in a particularly vivid way, the State’s normative position on fetal life. They believe that mandated viewing/hearing will change few minds but will create more stress or an-

56 Presumably having to put their choice for or against viewing the ultrasound in writing is not enough of a burden to make it “undue.”

57 As the Guttmacher Institute says about both mandatory offer and viewing of sonogram laws: “Since routine ultrasound is not considered medically necessary as a component of first-trimester abortion, the requirements appear to be a veiled attempt to personify the fetus and dissuade a woman from obtaining an abortion.” GUTTMACHER INST., *supra* note 55.

58 Informed Consent to an Abortion Act, 2011 Tex. Sess. Law Serv. ch. 73, H.B. No. 15 § 2(a)(4)(C). There are exceptions for pregnancies due to sexual assault, incest, or where the fetus has “an irreversible medical condition or abnormality, as previously identified by reliable diagnostic procedures and documented in the woman’s medical file.” *Id.* The Oklahoma law contains very similar language. OKLA. STAT. ANN. tit. 63, § 1-738.3d (West Supp. 2011).

59 Informed Consent to an Abortion Act, 2011 Tex. Sess. Law Serv. ch. 73, H.B. No. 15 § 2(a)(4)(C).

60 OKLA. STAT. ANN. tit. 63, § 1-738.3d(B) (stating that a sonogram must be provided at least one hour prior to having any part of an abortion performed or induced).

61 Informed Consent to an Abortion Act, 2011 Tex. Sess. Law Serv. ch. 73, H.B. No. 15 § 2(b) (West) (stating that in Texas the sonogram may be provided two hours in advance if the woman lives more than one hundred miles from an abortion facility).

noyance at a time that is already stressful.⁶² The key question, however, is whether mandated viewing/hearing fits within the information model of informed consent upheld in *Casey*. If it does, it would also have to meet First Amendment standards for content-based compelled speech.

A. *The Casey Standard*

To assess how these laws would fare under *Casey*, recall how *Casey* dealt with informed consent under its newly articulated undue burden standard. *Casey* addressed a Pennsylvania statute that required that the physician inform her patient about:

[T]he nature of the procedure, the health risks of the abortion and of childbirth, and the ‘probable gestational age of the unborn child’ . . . [as well as] the availability of printed materials published by the State describing the fetus and providing information about medical assistance for childbirth, information about child support from the father, and a list of agencies which provide adoption and other services as alternatives to abortion.⁶³

Addressing the question under due process, the plurality in *Casey* jettisoned *Roe*’s trimester framework and asked instead whether the restrictions before it were an “undue burden.”⁶⁴ That term was

shorthand for the conclusion that a state regulation has the purpose or effect of placing a substantial obstacle in the path of a woman seeking an abortion of a nonviable fetus. A statute with this purpose is invalid because the means chosen by the State to further the interest in potential life must be calculated to inform the woman’s free choice, not hinder it.⁶⁵

The plurality went on to say that the State could “further its legitimate goal of protecting the life of the unborn by enacting legislation aimed at ensuring a decision that is mature and informed, even when in so doing the State expresses a preference for childbirth over abortion.”⁶⁶ If so, “[r]egulations which do no more than create a

⁶² See, e.g., Carol Sanger, *Seeing and Believing: Mandatory Ultrasound and the Path to a Protected Choice*, 56 UCLA L. REV. 351, 377 (2008) (arguing that these measures are intended to enforce the state’s position).

⁶³ *Planned Parenthood of Se. Pa. v. Casey*, 505 U.S. 833, 881 (1992) (stating that an abortion may not be performed unless the woman certifies in writing that she has been informed of the availability of these printed materials and has been provided them if she chooses to view them).

⁶⁴ See *id.* at 844–45 (explaining that in addition to informed consent, there were regulations concerning a twenty-four hour waiting period between consent and the abortion, spousal notice, parental notification, record-keeping, and emergency notification). All regulations except the spousal notice were upheld as not imposing an undue burden.

⁶⁵ *Id.* at 877.

⁶⁶ *Id.* at 883.

structural mechanism by which the State . . . may express profound respect for the life of the unborn are permitted, if they are not a substantial obstacle to the woman's exercise of the right to choose."⁶⁷

B. The Validity of Forced Viewing/Hearing of Sonograms under Casey

The Oklahoma and Texas requirements of viewing a sonogram or hearing an anatomical description of the fetus extends beyond the Pennsylvania requirement upheld in *Casey* of describing the "probable gestational age of the unborn child" as well as the availability of state provided printed materials describing the fetus.⁶⁸ Is the more robust requirement of requiring that the woman view or hear a description an undue burden on the new standard articulated in *Casey*? This depends on whether the purpose or effect of the law is to place "a substantial obstacle in the path of a woman seeking an abortion."⁶⁹ If the laws do not create an undue burden and are not impermissibly vague, they may still raise First Amendment problems.⁷⁰ Validity, however, under the *Casey* standard will go a long way toward resolving other plaintiff arguments, such as claims that such laws violate medical ethics, compel government speech, or discriminate against women.

1. Purpose

The undue burden test is one of both purpose and effect. Few would doubt that the purpose of those backing the sonogram law is to reduce the number of abortions. But it is a purpose they seek to accomplish by giving the woman more complete factual information about the gestational status of the fetus at or shortly before the abortion occurs. The ultimate purpose—reducing abortions—is accomplished by the proximate purpose of giving more specific information about her particular fetus, thus arguably fitting within the *Casey* model of a more informed and autonomous choice on her part.⁷¹

⁶⁷ *Id.* at 877.

⁶⁸ 18 PA. CON. STAT. ANN. § 3205 (West).

⁶⁹ *Casey*, 505 U.S. at 877.

⁷⁰ Both the Oklahoma and Texas challenges stress heavily the lack of specificity in what the laws require a physician to tell the patient. *See Nova Health Systems v. Edmondson*, No. CV-2010-533, (Okla. D. Ct. filed Apr. 27, 2010).

⁷¹ *See* Susan Donaldson James, *Oklahoma Abortion Law: No Exceptions, Even Rape*, ABC NEWS (Apr. 29, 2010), <http://abcnews.go.com/Health/okla-abortion-law-exceptions-rape/story?id=10507849&singlePage=true> ("[F]ellow lawmakers hoped it would curtail abortions in the state . . . [by] allowing her to have informed consent prior to an abortion."); *see also id.* ("Unfortunately in Oklahoma, we have encountered a lot of women who, by

Oklahoma and Texas law, however, already require that a pregnant woman be given information about the fetus's gestational stage of development in a prior conversation with the doctor.⁷² Nevertheless, anti-abortion legislators might still sincerely believe that there is a meaningful difference between a general account of gestational age and seeing an actual sonogram of the fetus within her and/or hearing a verbal description of its anatomy. For most women such more specific and vivid information may make no difference or simply cause them distress, but that possibility does not negate a legislative purpose to ensure that a sonogram image and/or oral anatomical description will make women more informed.⁷³

2. *Effects*

This part of the undue burden test questions whether the effect of the sonogram requirement is to create a "substantial obstacle to the woman's exercise of the right to choose."⁷⁴ Logistical and psychological burdens need to be distinguished. The Oklahoma and Texas laws do create logistical problems in requiring that the doctor who will do the abortion provide the sonogram and description two or twenty-four hours before the abortion, respectively.⁷⁵ This creates scheduling problems and may require more physician time, thus increasing the costs or price of the abortion. But it is unlikely that these costs are so much greater that they will pose "a substantial obstacle" to access.⁷⁶ This is true even if it requires two trips for the woman, be-

the time the ultrasound is provided, they were already asleep and didn't know The real purpose is to give patients all the information that is relevant before they make a life-altering decision.").

72 2011 Tex. Sess. Law Serv. ch. 73, H.B. No. 15 § 2(a) (West) (stating all the information and materials that the physician must inform the patient of prior to the abortion). In Oklahoma the doctor is already required twenty-four hours prior to the abortion to read to the woman in person or over the telephone a prescribed script, describing the risks and complications of the procedure and gestational age. OKLA. STAT. ANN. tit. 63, § 1-738.2 (West 2011).

73 *See, e.g.,* Ariz. Free Enter. Club's Freedom Club Pac v. Bennett, 131 S. Ct. 2806, 2830 (2011) (Kagan, J., dissenting) (showing that a similar conclusion is drawn in First Amendment law, where a law burdening free speech that has both a permissible and impermissible purpose is constitutional if the permissible purpose alone would justify the restriction on speech).

74 *Casey*, 505 U.S. at 877.

75 Both states allow a certified sonographer to do the ultrasound, but their standards for certification are extremely narrow and do not include nurses who have been trained in sonography. *See* OKLA. STAT. ANN. tit. 63, § 1-738.2 (West 2011); 2011 Tex. Sess. Law Serv. ch. 73, H.B. No. 15 § 2(a) (West).

76 *Casey*, 505 U.S. at 846. The Oklahoma two-hour sonogram law makes it harder to schedule and process patients because the abortion provider must meet with or talk to them

cause the Supreme Court in *Casey* has already upheld the two visits that a twenty-four hour wait between informed consent and the abortion entails.

If scheduling inefficiencies and additional costs are constitutionally acceptable, then it is unlikely that the sonogram viewing/hearing requirement itself will be found to constitute an obstacle that prevents women from having an abortion. The limited data available shows that few women change their minds because of the opportunity to view an ultrasound (having the image displayed and having to listen to a verbal description of anatomical features is a different matter). One study in British Columbia found that 29% of patients wanted to see an image if offered a chance and that 83% of 254 women who choose to view ultrasounds in a supportive environment said it did not make the experience more difficult, with none reversing their decision.⁷⁷

Alabama, which enacted a law offering ultrasound images in 2002, found that half of women opted to look at the image, but it changed almost none of their minds. Most women who chose not to view said that they did not want to subject themselves to images that might haunt them. However, some women who viewed the image found the sonogram to be reassuring because at nine or ten weeks human features were barely detectable.⁷⁸ The Alabama law had no apparent effect on the number of abortions (about 11,300 per year). In the few cases where it did change a woman's mind, it was because the sonogram revealed a multiple pregnancy or when the woman was already deeply troubled about the abortion.

The question of burden when viewing/hearing the ultrasound is mandatory is another matter. Anecdotal evidence from a Tulsa abortion clinic that successfully obtained a temporary injunction against enforcement of the Oklahoma law claimed that the law had been up-

twice. OKLA. STAT. ANN. tit 63, § 1-738.2 (West 2004). In Texas, the provider must meet with them at least twenty-four hours in advance unless certain exceptions apply or they live more than one hundred miles away from an abortion provider. TEX. HEALTH & SAFETY CODE ANN. § 171.012(a), (b) (West 2010). Even if these were unconstitutional, it would be feasible to impose the same requirement of viewing/listening with a different doctor or sonographer providing the information.

77 Ellen R. Wiebe & Lisa C. Adams, *Women's Experience of Viewing the Products of Conception After an Abortion*, 80 *CONTRACEPTION* 575 (2009); see also A.A. Bamigboye et al., *Should Women View the Ultrasound Image Before First-Trimester Termination of Pregnancy?*, 92 *S. AFR. MED. J.* 430, 431 (2002) (showing that seeing an ultrasound did not make the decision to terminate more difficult).

78 See Kevin Sack, *In Ultrasound, Abortion Fight Has a New Front*, *N.Y. TIMES*, May 28, 2010, at A3 (discussing how one patient said, "It was really the picture of the ultrasound that made me feel it was O.K.").

setting to the women who have been subjected to it. In the six days the Oklahoma law was in effect, all the patients at a Tulsa clinic averted their eyes.⁷⁹ The director of the clinic, which does 3000 abortions a year, reported that “Not one patient would look at the screen and they all closed their eyes or turned their heads . . . But it’s hard to turn your ears off . . . Several of the patients were in tears afterwards. No one changed their mind.”⁸⁰

Indeed, if they do change their minds and do not go through with the abortion, this alone would not demonstrate that the law was an undue burden. A decision not to have an abortion after the sonogram is consistent with the more complete informed consent the sonogram requirement aims to provide. On the other hand, going ahead with the abortion shows that the requirement did not constitute an obstacle, but it does not show that the woman was not burdened by it. She may be more distressed as a result of the sonogram viewing/description requirement, and annoyed that she has had to listen to the state-mandated anatomical description. Even if she has not been distressed, she has still had to undergo a physical and auditory experience that she preferred not to have. It may not be a “substantial obstacle” to having an abortion, but it is still a burden that needs justification.⁸¹

It may be that one goal of the law is to make it as hard as possible emotionally for the woman to go forward. But a willingness to impose unpleasant information on women contemplating abortion is not the same as a purpose to prevent them from exercising that right if that information is an inextricable part of a fully informed decision to abort.⁸² The weak link in this argument, however, is that forced

⁷⁹ *Id.*

⁸⁰ James, *supra* note 71. The abortion clinic director said that the “law was ‘outrageous,’ particularly for traumatized rape and incest survivors. It’s very painful for them . . . They are already a victim . . . Forcing women against their will causes even more pain and distress.” *Id.*

⁸¹ *See* *Ariz. Free Enter. Club’s Freedom Club Pac v. Bennett*, 131 S. Ct. 2806, 2823 (2011) (“If the state made privately funded candidates pay a \$500 fine to run as such, the fact that candidates might choose to pay it does not make the fine any less burdensome.”).

⁸² Might the state go even further, for example, by mandated viewing/description of an actual abortion, showing the dismemberment and ripping apart of the fetus that occurs after the first weeks? *See, e.g.,* *Gonzales v. Carhart*, 550 U.S. 124, 136–40 (2006) (graphically describing dilation and evacuation, which seems every bit as offensive as intact dilation and evacuation, the partial birth abortion procedure at issue there). Recall also *Silent Scream’s* image of the prodding and poking of a fetus by an instrument introduced into the uterus. *The Silent Scream, Script and Photos*, THE SILENT SCREAM, http://www.silentscream.org/silent_e.htm (last visited Oct. 27, 2011). On the other hand, a lecture about the state’s position on when life begins so that women will more ful-

viewing/description presents an image or an oral description, which is more specific, but no new facts are provided beyond about what state informed consent law already requires to be disclosed about gestational development. Despite the factual accuracy of sonograms and the greater specificity of the oral description, requiring the woman to view or listen to these when she has chosen not to have a sonogram has all the hallmarks of an ideological requirement.⁸³

Lower court judges may differ as to whether there is such an important increase in cognitive understanding that all women can be subjected to hearing the unwanted description when many will not want it and very few will change their minds as a result. Some judges might say that the burden is not undue because the viewing/description is more specific and thus has made women more fully informed. Other judges will find that requiring an unwanted anatomical description is a burden that cannot be justified.

Given the differing views about abortion among current Supreme Court Justices, a decision to uphold precisely drawn versions of forced viewing/hearing sonogram laws will likely depend on Justice Kennedy's view. He was insistent in *Gonzales* that partial birth abortion techniques could be banned because women might not be told what exactly had been done to their fetus and be greatly upset if they later learn the details.⁸⁴ On this theory, Kennedy could find that women have not been fully informed unless they have seen an image or heard a description of the fetus as part of informed consent twenty-four hours before the abortion.

On the other hand, Justice Kennedy might also find that it is an indignity to women. After all, those seeking an abortion have been told "the probable gestational age of the unborn child," presented with additional printed materials, and then been given the opportunity to have an ultrasound. If they must also then have an ultrasound done, sometimes vaginally, be subjected to a verbal description of fetal features, and hear or have its heartbeat described, he might agree that these requirements go beyond simply making consent more informed. Although all this information is factual, providing it in this way becomes ideological because it assumes that women cannot de-

ly understand the "evil" of what they will be doing is less factual than an ultrasound image and thus more likely to be found unconstitutional as ideological.

83 See GUTTMACHER INST., *supra* note 55, at 1; Sanger, *supra* note 62, at 396 ("[A] woman seeing or being offered the sight of her own unseen fetus for the first time is being forced into something like a religious or sacred moment.").

84 See *Gonzales*, 550 U.S. at 159–60 (arguing that learning the details of the medical procedure conducted on the fetus will cause the mother to feel "grief more anguished and sorrow more profound").

cide on their own how much information they want, in effect trying to ensure an outcome or simply make it more difficult for women.

3. *First Amendment and Other Claims*

Meeting *Casey*'s undue burden, however, alone may not suffice to validate fetal sonogram laws. Such laws are also subject to attack based on a First Amendment right against compelled speech.⁸⁵ The *Casey* plurality dealt with a First Amendment objection to mandatory informed consent only summarily. As it noted at the end of its opinion in *Casey*:

All that is left of petitioners' argument is an asserted First Amendment right of a physician not to provide information about the risks of abortion, and childbirth, in a manner mandated by the State. To be sure, the physician's First Amendment rights not to speak are implicated, but only as part of the practice of medicine, subject to reasonable licensing and regulation by the State. We see no constitutional infirmity in the requirement that the physician provide the information mandated by the State here.⁸⁶

Since Pennsylvania had required that the risks, benefits, and alternatives to the abortion be presented, including the "probable gestational age of the unborn child,"⁸⁷ and additional materials, the idea that this information could be required of physicians as part of licensing and regulation of medicine raised no serious issue of compelled speech.

The Texas (and Oklahoma) fetal sonogram statutes, however, require much more.⁸⁸ In addition to the information required in the statute at issue in *Casey*, each state requires the physician to describe the anatomical features of the fetus and its heartbeat in cases in which the pregnant woman does not wish to view the sonogram or listen to the heartbeat. For opponents of such laws, a First Amendment attack is stronger, for the government will have to satisfy a scrutiny stricter than that of undue burden.⁸⁹

85 Arguments against sonogram laws based on medical ethics and sex discrimination are not discussed here. If these laws are not invalid on undue burden or First Amendment grounds, these claims will not independently carry the day.

86 *Planned Parenthood of Se. Pa. v. Casey*, 550 U.S. 833, 884 (1992) (citations omitted).

87 *Id.* at 902.

88 *See supra* note 72.

89 That standard will demand a showing of a compelling state interest and narrow tailoring, e.g., why existing informed consent requirements, such as notice of the availability of ultrasound imaging and materials that describe the probable anatomical and physiological characteristics of unborn child at two week-intervals, do not make the woman as well informed. *See also Post, supra* note 42 (arguing that First Amendment questions are raised when the state requires physicians to engage in ideological speech and when the state ei-

As the district judge evaluating the plaintiff's attack on the Texas sonogram statute put it, the government must prove that "the compelled speech portions of the Act further a compelling governmental interest and are narrowly tailored to achieve that interest."⁹⁰ This is more demanding than the *Casey* standard which spoke about the required information provided to the woman be "important," "substantial," and "legitimate," but not compelling.⁹¹ Also, he noted that allowing the state to require, as *Casey* did, that "[i]f the information the State requires to be made available to the woman is truthful and not misleading, the requirement may be permissible" was not *carte blanche* to force physicians to deliver and force women to consider whatever information the government deems appropriate, such as the more intrusive information of forced viewing/hearing of a sonogram when the woman has already been told of the probable gestational age.⁹²

To get the full flavor of the opponents First Amendment claim, recall that free speech attacks on disclosure requirements in the abortion debate had previously focused on information that had been contested on factual or ideological grounds. The factual disputes in prior debates had concerned whether women must be informed that abortion carries risks of breast cancer, infertility, depression, and suicide. Since the overwhelming consensus of medical evidence is that such information is not truthful, it should not be acceptable as part of informed consent under *Casey*.⁹³ But a description of the anatomical features of the pregnant woman's fetus is truthful, and thus not invalid on those grounds.

Nor is it necessarily ideological as long as it is limited to an anatomical image or factual description. The ideological question was most squarely presented in *Planned Parenthood v. Rounds*.⁹⁴ South Dakota had required that the doctor inform the woman orally and in writing "that the abortion will terminate the life of a whole, separate,

ther requires the physician to espouse information the medical community regards as false or prohibits them from communicating information regarded as the truth).

90 Tex. Medical Providers Performing Abortion Servs. v. Lakey, No. A-11-CA-486-SS, at *42 (W.D. Tex. Aug. 31, 2011); accord *Stuart v. Huff*, No. 1:11CV804 (M.D. N.C. Oct. 25, 2011) (finding that mandating sonogram description to abortion patient violates provider's First Amendment rights).

91 *Casey*, 505 U.S. at 881-82.

92 *Id.* at 882.

93 See *supra* note 86.

94 *Planned Parenthood of Minn., N.D., S.D. v. Rounds*, 530 F.3d 724 (8th Cir. 2008) (en banc).

unique living human being.”⁹⁵ The Eighth Circuit rejected the claim that such a statement was ideological because the South Dakota statute had provided a biological definition of that term.⁹⁶ Similarly, sonogram laws purport simply to present the facts. Other than requiring that the facts be presented, they themselves do not demand a normative evaluation of those facts. The sonogram is a real-time true image of the fetus, and the anatomical description purports to describe biological facts. There is no normative evaluation of the moral status of the fetus as such or description of it as “a living human individual.”⁹⁷

Still, sonogram laws require physicians to deliver government speech about a factual matter that many patients will consider unwanted, immaterial, and/or irrelevant. Although the visual information or verbal description presented is accurate, the argument is that pressing that information on those who do not want it becomes ideological when they have already been told about gestational age, have written materials available to them that provide essentially the same information, and say they want no further information. The question is whether providing this additional information, though it is factually accurate, is “compelling” in that it will make women more informed than simply telling them the probable gestational age and providing materials or the ability to view the image if they wish.

Framed in First Amendment terms, it will be easier for strong defenders of First Amendment rights, such as Justice Kennedy, to find that these statutes are invalid, even if they are not invalid under the *Casey* undue burden standard.⁹⁸ It will be difficult for the government to show that the requirement will enhance informed consent beyond what is already acceptable under *Casey*. In a free speech context it is all the more evident that the sonogram requirement is evaluative and hence ideological relative to the woman’s own social and economic needs and moral evaluation.⁹⁹

95 *Id.* at 728 (internal quotation marks omitted).

96 *Id.* at 727–35.

97 *Id.* at 742–43.

98 To note only two of Justice Kennedy’s votes in favor of First Amendment rights, he was the key vote in both *Citizens United v. FEC*, 130 S. Ct. 876 (2010), and in *Sorrell v. IMS Health, Inc.*, 131 S. Ct. 2653 (2011). These cases, however, involved the rights of corporations and business interests.

99 As my colleague Cary Franklin puts it, “[I]t’s one thing to see a picture; it’s another to see a picture in those circumstances, where the state is, through its behavior, making very clear its understanding of what you are seeing and of the kind of action you are contemplating.” Interview with Cary C. Franklin, Professor of Law, Univ. of Tex. at Austin Sch. of Law (Jan. 19, 2011).

To summarize this discussion, sonogram technology is a central feature of abortion practice, essential for confirming and dating pregnancy. Viewing and/or hearing a description of the sonogram may provide relevant information to women planning an abortion, but women already receive that information in a less vivid verbal or written form. Forcing women to view the sonogram and listen to the heartbeat or hear a verbal account of anatomical details goes beyond informing them of the physical status of the fetus. It advocates for the state's preference for childbirth, and thus has all the hallmarks of an ideological requirement. However, based on *Casey's* delineation of the undue burden test and the factual accuracy of the sonogram image or description, many courts and the Supreme Court itself may permit states that choice. If states do so, they will still have to confront a First Amendment claim against compelled speech that does not serve a compelling interest in a narrowly tailored way. Even if Justice Kennedy votes with the government on both the due process and First Amendment point, forced viewing/hearing of a sonogram or fetal heartbeat is unlikely to have an appreciable effect on the decision of most women to have an abortion.

VI. ABORTION BANS AT TWENTY WEEKS: FETAL VIABILITY AND FETAL PAIN

With "viability" as the outer limit of the core right to terminate pregnancy, technological developments in neonatology and the survivability of very premature newborns has played a key role in the abortion debate. More precise knowledge of how the fetal neurological system develops and thus when fetuses become sentient may provide an additional reason for limiting abortions in the vicinity of viability. Nebraska has now raised this issue by banning abortions after twenty weeks on the ground that fetuses are then "pain-capable."¹⁰⁰ This is a direct challenge to the later line based on viability (roughly twenty-four weeks but creeping backwards) that has held sway since *Roe* and *Casey*.¹⁰¹

¹⁰⁰ See NEB. REV. STAT. ANN. § 28-3,106 (LexisNexis Supp. 2009) (banning abortions at twenty weeks gestation, with exceptions only when the woman's life is at risk, to prevent "[a] serious risk of substantial and irreversible physical impairment of a major bodily function," or where it is necessary to terminate one fetus to save another, but excludes mental health, including prevention of suicide).

¹⁰¹ The Supreme Court has consistently held that bans after viability must make an exception for when an abortion "is necessary, in appropriate medical judgment, for the preservation of the life or health of the woman." *Roe v. Wade*, 410 U.S. 113, 165 (1973). It has long emphasized that psychological health is a component of woman's health. See *Gonzales v.*

Under existing precedents, the Nebraska law is almost certain to be struck down both because it conflicts directly with these cases and because of its very narrow exception for the life and health of the woman.¹⁰² In addition, its claim of pain-capability at twenty weeks and other developments in neonatology focus attention once again on the viability line and its justification. With further technological developments, the Court might eventually have to rethink the basis for drawing the line at viability, either reaffirming it or cutting into a woman's ability to get an abortion late in the second trimester of pregnancy.¹⁰³ Although not affecting the 90% of abortions that occur by the sixteenth week of pregnancy, the line is important for those who do not have that earlier opportunity, for example, those who learn of a fetal anomaly late in pregnancy as well as those who are not able to get access to abortion services earlier. It will also clarify the constitutional basis for abortion and by implication the reasoning that supports early abortion.

Before turning to issues of fetal pain and sentience and whether, if that physiologic basis for fetal pain is established, it provides an earlier and independent ground than viability for banning abortion, I first review the problematics of the Supreme Court's position on viability and its precedents implementing that standard.¹⁰⁴ The Court's clumsy handling of viability makes it dubious that earlier survivability alone will change the outer limit on when abortion may occur. Similar problems arise if neurologic evidence of fetal sentience is established at twenty weeks.

Carhart, 550 U.S. 124 (2007) (upholding the constitutionality of Congress's Partial-Birth Abortion Ban Act of 2003); *Planned Parenthood of Se. Pa. v. Casey*, 505 U.S. 833 (1992) (upholding the essential holding of *Roe*, but introducing the "undue burden" standard as another factor to be considered by the courts); *Roe*, 410 U.S. at 163 (holding that the state has a legitimate interest in the unborn fetus at the point of viability outside of the womb); *United States v. Vuitch*, 402 U.S. 62 (1971) (holding that the District of Columbia's ban on abortions, except when necessary to preserve the mother's life or health, was not unconstitutionally vague).

¹⁰² See *supra* note 100.

¹⁰³ See *City of Akron v. Akron Ctr. for Reprod. Health Inc.*, 462 U.S. 416, 461 (1983) (O'Connor, J., dissenting) (claiming that the trimester framework of *Roe* was on a collision course with itself as the time of viability moved backwards closer to conception, the maintenance of embryos outside of the body moved forward, and protection of women's health moved later in pregnancy toward childbirth).

¹⁰⁴ All references to viability, fetal sentience, or other substantive grounds assume that those limits do not apply if the woman's life or health is at risk. See *Casey*, 505 U.S. at 879.

A. *The Problematics of Viability*

For more than thirty-seven years the Court has held that the Constitution bars a state from banning abortion prior to the point in pregnancy when a fetus is viable.¹⁰⁵ It has also held that “viability” is necessarily a “flexibl[e] . . . term,” and that states cannot “place viability, which essentially is a medical concept, at a specific point in the gestation period.”¹⁰⁶ Moreover, because “[t]he time when viability is achieved may vary with each pregnancy,” the determination of viability must be left to the physician’s judgment.¹⁰⁷

While existing precedent is clear and the line might be justified, the Court has never given a convincing account of why viability is key, thus contributing yet another reason for critics to question the validity of its rulings. There is an intuitive appeal in choosing a point roughly two thirds through a normal pregnancy to say “no” to abortions (except to protect the life and health of the woman), which is later than almost any country in Europe permits. But attempts to provide that justification are quickly wrapped in paradox and contradiction. The Court in *Roe* simply said:

With respect to the . . . interest in potential life, the ‘compelling’ point is at viability. This is so because the fetus then presumably has the capability of meaningful life outside of the womb. State regulation protective of fetal life after viability thus has both logical and biological justifications.¹⁰⁸

As John Hart Ely so eloquently noted, the Court “seems to mistake a definition for a syllogism.”¹⁰⁹ It simply repeated what “viability” means—“presumably . . . the capacity of meaningful life outside the mother’s womb.”¹¹⁰ But this definition is not an argument for why

¹⁰⁵ *E.g.*, *Casey*, 505 U.S. at 877; *Roe*, 410 U.S. at 160.

¹⁰⁶ *Planned Parenthood of Cent. Mo. v. Danforth*, 428 U.S. 52, 64 (1976).

¹⁰⁷ *Id.* at 64; *accord Webster v. Reprod. Health Servs.*, 492 U.S. 490, 492–93 (1989) (holding that the determination of viability is a matter for the judgment of the attending physician); *Colautti v. Franklin*, 439 U.S. 379, 388–89 (1979) (“Viability is reached when, in the judgment of the attending physician on the particular facts of the case before him, there is a reasonable likelihood of the fetus’ sustained survival outside the womb, with or without artificial support. Because this point may differ with each pregnancy, neither the legislature nor the courts may proclaim one of the elements entering into the ascertainment of viability—be it weeks of gestation or fetal weight or any other single factor—as the determinant of when the State has a compelling interest in the life or health of the fetus. Viability is the critical point.”).

¹⁰⁸ *Roe*, 410 U.S. at 163.

¹⁰⁹ John Hart Ely, *The Wages of Crying Wolf: A Comment on Roe v. Wade*, 82 *YALE L.J.* 920, 924 (1973).

¹¹⁰ *Id.* at 924 (quoting *Roe*, 410 U.S. at 163) (internal quotation marks omitted). As previously noted, the court in *Colautti* spoke of “a reasonable likelihood of the fetus’ *sustained survival* outside of the womb.” 439 U.S. at 388 (emphasis added). Arguably this is broader than the “*meaningful life* outside the . . . womb” of *Roe*, with its suggestion that mere exist-

survivability should matter, nor are “logical and biological justifications” for using viability as the cutoff point so easily discerned. Much more needs to be said to persuade that drawing the outer limits of abortion at ex utero survivability is constitutionally justified. It was yet another reason why the Court’s opinion struck so many as an ipse dixit, not founded in any valid conception of constitutional law.¹¹¹

1. *Logical Justification*

One logical inconsistency is that if the fetus at viability could have “meaningful life outside the mother’s womb,” why would that not be a time when abortion could occur as long as the method used (prostaglandin induction of labor or even hysterotomy) allowed the fetus to survive?¹¹² Now in fact deliberately inducing a premature birth at twenty-four weeks or later in pregnancy is not as desirable for the newborn as staying in the womb as long as possible, though even that changes after thirty or thirty-two weeks. If so, at and after viability a woman should be able to terminate the pregnancy, albeit with a technique that does not kill the fetus, and then relinquish parental rights if she is not interested in rearing a child.

If that logic is not appealing, it is because of the poor outcomes that very premature newborns have, particularly at twenty-four to twenty-six weeks or earlier. True, some of them may survive, but the earlier the birth the lower the number and the greater extent of long stays in NICUs, physical and mental impairment, and the like.¹¹³ Yes,

tence without some sort of “meaningful[ness]” for the infant is not required, as long as survival for some indefinite period—“sustained”—is established. *Roe*, 410 U.S. at 163 (emphasis added). Would this mean survival for several weeks or months or even years? This raises questions of when treatment can be stopped on very premature newborns. See *infra* note 113 and accompanying text. As technology extends survivability earlier, it raises the issue of what is the basis for valuing life inside the womb when outside it the parents and doctors may no longer choose or be obligated to sustain it.

111 Stronger criticisms of the Court’s lack of argument in *Roe* applied first to its finding that the right of privacy in *Griswold* included a right to terminate a pregnancy and second to its conclusion that the states had no power to value the fetus even if they were not obligated under the Fourteenth Amendment’s “personhood” clause to do so. *Griswold v. Connecticut*, 381 U.S. 479, 485 (1965).

112 *Roe*, 410 U.S. at 163.

113 American Heart Association, *2005 American Heart Association (AHA) Guidelines For Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC) of Pediatric and Neonatal Patients: Neonatal Resuscitation Guidelines*, 117 PEDIATRICS 1029 (2006), available at <http://pediatrics.aappublications.org/content/117/5/e1029.full.pdf+html>; James A. Lemons et al., *Very Low Birth Weight Outcomes of the National Institute of Child Health and Human Development Neonatal Research Network, January 1995 through December 1996*, 107 PEDIATRICS 1, 1 (2001), available at <http://pediatrics.aappublications.org/content/107/1/e1.full.html>; Jon E. Tyson et al., *Intensive Care for Extreme Prematurity—*

they can survive, and can even have a “meaningful life,” broadly construed. But it hardly seems ideal and would lead us to question the intention or responsibility of parents who would induce a very premature birth and then rear the child, unless that were medically necessary to ensure that the child would survive at all. If they are intent on not parenting, then they might—under the stated logic of the viability line—do so by terminating without killing and having others rear. Yes, it seems callous, but rights are rights.

But if survival at twenty-four to twenty-six weeks or earlier is too fraught with physical and mental difficulties, then why is that point one at which there is “presumably . . . the capability of meaningful life outside the mother’s womb?”¹¹⁴ If that life is not meaningful enough because of the risks of prematurity, then why is it sufficient to limit a woman’s liberty to terminate a pregnancy in a non-lethal or even lethal manner?

At this point the discussion must take account of a related body of ethics, law, and practice concerning parental decisionmaking with regard to very premature or handicapped newborns, with wider discretion for decisions about very premature and compromised infants. This area has a long history, and has led to less parental discretion over medical and surgical decisionmaking in the case of children who are born with Down syndrome and other anomalies. This dilemma gave rise to the Baby Doe controversy of the earlier 1980s and the recognition that more had to be done to protect the well-being of disabled newborns once in the world.¹¹⁵

As that debate has subsided, parental discretion over aggressive treatment has moved to the borders of extreme prematurity. The one area where parental discretion is more widely recognized is with how aggressively to treat very premature newborns, say at twenty-four weeks or earlier. Some centers will adhere to the parents’ wishes stated before birth and not have a neonatologist present at birth who can immediately resuscitate a very premature newborn. Others will resuscitate but then allow parents to stop treatment at a later point. There is great variability in state law on precisely where discretion

Moving Beyond Gestational Age, 358 *NEW ENG. J. MED.* 1672 (2008); Nicholas S. Wood et al., *Neurologic and Developmental Disability After Extremely Preterm Birth*, 343 *NEW ENG. J. MED.* 378 (2000), available at <http://www.nejm.org/doi/pdf/10.1056/NEJM200008103430601>.

114 *Roe*, 410 U.S. at 163.

115 *See Bowen v. Am. Hosp. Ass’n*, 476 U.S. 610, 647 (1986) (holding that regulations for infant care review committees and other procedures for protection of seriously ill newborns were improperly promulgated); *see also* Child Abuse Amendments of 1984, Pub. L. No. 98-457, 98 Stat. 1749 (codified as amended at 42 U.S.C. § 5102 (2006)).

lies, as the Sidney Miller case from Texas shows.¹¹⁶ It does mean, however, that parents might be able to stop treatment or aggressive action once the twenty-two to twenty-four week fetus is outside of the womb. Laws that limited abortions on grounds of earlier viability (survivability) might prevent women from ending pregnancies at an earlier time; they would not by themselves require aggressive treatment once a very premature child is born. At that point, unless state law required otherwise, parents could withdraw further treatment.

2. *Biological Justification*

So if “capability of meaningful life outside of the womb” has logical problems, what then about “the biological logic” that at viability—twenty-four weeks (or even earlier)—the abortion should be impermissible? Although the Court said nothing more about the biological justification of survivability *ex utero*, one can construct a justification based on the arguably less personal or religious view of fetal moral status when it is anchored in the physiological development necessary for survival *tout court*. Opposing abortion before the physiological milestones that appear around twenty-two to twenty-four weeks seems to reflect a more subjective personal religious/moral view of the fetus, over which people have widely divergent views.

As the fetus grows and develops, more physiologically based grounds for valuing it emerge which moves beyond the purely personal/religious and moral stance that characterizes views of fetal moral status earlier in pregnancy, and which made the state’s earlier choice of protection constitutionally fraught. At this later point the fetus is so well developed that a state judgment that protects its life moves beyond the purely moral/religious/personal judgment not shared by all to a more objective basis in physical and neurological development.¹¹⁷ Justice Blackmun was right that a constitutional law could not resolve what so many other experts disagreed about if his well-intended but highly tendentious statement was read as applying to earlier stages of pregnancy.¹¹⁸ But the Constitution might allow the

116 There is a vast literature here. See, e.g., John A. Robertson, *Extreme Prematurity and Parental Rights After Baby Doe*, 34 HASTINGS CTR. REP. 32 (2004) (discussing the Child Abuse Amendments of 1984 and the need for better decision-making with regards to premature babies).

117 Laurence Tribe makes an argument along these lines in Laurence H. Tribe, *Foreword: Toward a Model of Roles in the Due Process of Life and Law*, 87 HARV. L. REV. 1, 10 (1973).

118 *Roe*, 410 US. at 159–60, 162 (“We need not resolve the difficult question of when life begins. When those trained in the respective disciplines of medicine, philosophy, and theology are unable to arrive at any consensus, the judiciary, at this point in the development

state to do so at a later stage of development, say roughly at viability, when the fetus was so well-developed physically that protecting it sounded less like a personal religious/moral view of fetal status and one that was more widely shared based on the physical and neurological development necessary for survival.¹¹⁹ At that point the fetus would be valued not merely for its potential but because of what it already is, and thus might be protected in what it is now more likely to become. A state that took such a view was being less arbitrary and subjective than taking such a view earlier on before the physiological developments coincident with viability had occurred.

Again, the problem was that the Court never stated this reason. It simply asserted the definition of viability without giving reasons why viability, when the fetus is inside the uterus, should matter. But it did strike an intuitive chord with many people, even among abortion liberals. Some version of developmental line, if not exactly viability, exists in almost all countries that recognize abortion—at some point the fetus which at an earlier stage was too undeveloped to be protected as such magically passed over into a new developmental stage. In the United States viability did not mean that the fetus then was a constitutional person whom the state had a duty to protect. Rather it meant that the state could choose to protect it by banning abortion, subject to the life and health needs of the mother. Most states eventually did so. Indeed, some twenty to thirty states have brought within their homicide laws the actions of a person who in non-abortion settings causes the death in utero of a viable fetus.¹²⁰ Texas, Minnesota, and a few other states extend that homicide prohibition to any stage of development after fertilization.¹²¹

of man's knowledge, is not in a position to speculate as to the answer. It should be sufficient to note briefly the wide divergence of thinking on this most sensitive and difficult question . . . [T]he unborn have never been recognized in the law as persons in the whole sense.”)

119 There is still the problem, however, that survivability per se would not necessarily mean “meaningful life” in a more qualitative sense, since many surviving very premature newborns would likely have severe physical and mental impairments.

120 *See, e.g.*, TEXAS PENAL CODE § 1.07(a)(26); 19.01; 19.02(b); 19.06 (West 2011). Usually they do so by changing the common law or previous state definition of individual within state homicide law to cover viable fetuses, or in some cases, embryos and fetuses from fertilization. Such fetal protection statutes do not extend to lawful abortions.

121 They are careful, however, to limit this protection to criminal law settings and not require that it be followed consistently throughout the many other contexts which personhood from fertilization or even viability would require in state law, for example, representation of seats in the legislature, tax and census obligations and the like. *See e.g.*, TEX. PENAL CODE ANN. § 1.07(a)(26) (West 2011); TEX. PENAL CODE ANN. § 19.01(a) (West 1994); TEX. PENAL CODE ANN. § 19.06 (West 2003).

One possible account for why this “biological justification” has had appeal has been the probability that at twenty-four weeks the fetus, in addition to survivability, also has the capability to feel pain. The fetal neurological system seems well-enough developed at that point to be pain-capable, even if that capability is not convincingly established for most experts until twenty-eight weeks or later. The subjective experience of fetal pain is hard to gauge because the fetus cannot speak, PET scans are not available, and the like. But after fetal demise neuroscientists may be able to determine whether the brain structures essential to sentience exist, and at what stages of development they have emerged. Much more research needs to be done, including when pain is experienced, whether consciousness is necessary for pain, when a fetal is conscious, and the like.

If so, Nebraska’s ban on abortion after twenty weeks might seem to have some validity unless sentience must also be coupled with survivability to provide the compelling state interest needed to limit abortions.¹²² If the fetus at twenty weeks can feel pain but otherwise lacks the survivability status to bar termination, its possible sentience requires only that any abortion method occur with painkillers administered first, so that the termination by dilation and extraction or evacuation (whole or piecemeal dismemberment) would occur without pain. Feeling pain itself would not confer rights under the viability standard if fetuses are still not viable in the sense of being able to survive outside of the uterus.¹²³ But it does force us to confront which ground supports the viability line. If the “logical justification” founders under the weight of parental discretion in NICUs, then why should possible sentience count for more if reasonable survival is still not possible and the pain associated with abortion can be quelled with painkillers prior to the procedure?¹²⁴

So technological advances in the survivability of twenty to twenty-four week fetuses will provide no easy technological solution to the outer limits of the abortion right. Instead, they force proponents to confront and develop further the normative and constitutional pre-

122 There is a parallel with a point, which Justice Kennedy used against pro-choice groups in *Gonzales v. Carhart*, 550 U.S. 124 (2007). If partial birth abortion were essential to a woman’s health, her doctors could first inject the fetus with a drug that would kill it in utero, and then extract it by the intact dilation and extraction that was illegal if done on a live fetus. In making that point he ignored the arguments that killing the fetus in utero first had its own medical risks for the woman. *Id.* at 158, 160–63.

123 The fact that non-human animals are sentient and feel pain leads to laws against animal cruelty but does not support bans on animal euthanasia, killing for food, in hunting, or in animal experimentation.

124 See *infra* note 160 and accompanying text.

mises for that line. Why does survivability matter, especially if the parents are not obligated to treat the child or if the child will survive with major anomalies? Why should fetal sentience make any difference if the fetus is still in utero, is not viable, and can be terminated without pain? What is the basis for when the state may value the fetus as such over the woman's interest in ending such a pregnancy? Technology developments will not resolve the normative and legal issues that arise here, but they will clarify or advance doctrinal development as legislatures and courts grapple with their implications.

B. Fetal Pain as a Basis for Banning Abortion

Nebraska's claim that a fetus is "pain-capable" at twenty weeks provides a basis for banning abortions independent of viability understood as survivability. At twenty weeks the fetus may not be able to survive outside the uterus, but may the state nevertheless protect it if it has the neurological apparatus to feel pain?

Nebraska's appeal to fetal pain as an independent ground to ban abortion is based on new knowledge of when the anatomical and neurological apparatus to experience pain first develop in fetuses. This approach grew out of studies in the mid-1980s that showed that premature newborns, who until then had not routinely been given anesthesia during surgical procedures, showed indicators of pain. This led to anesthesia being routinely administered to neonates undergoing surgery. It also led to studies claiming that at some point in the second trimester a fetus has the anatomical and neurological structures to experience pain, express stress hormones, and react behaviorally to adverse stimuli such as injection or dismemberment. Anesthesia during pediatric, neonatal, and prenatal surgery became routine. It was also administered in some late second trimester abortions and led to legislation requiring that women undergoing late second trimester abortions be told that the fetus could feel pain and that they could have an anesthetic administered if they chose.¹²⁵

There is, however, no scientific or medical consensus that a fetus becomes pain-capable before twenty-four to forty-eight weeks at the earliest. K.J.S. Anand thinks that fetuses may experience pain based on subsensory cortical and thalamic structures that develop before twenty weeks, which is earlier than the development at twenty-four weeks or later of the adult cortex thought necessary to experience

¹²⁵ See NEB. REV. STAT. § 23-3e (2010) (requiring notification to the patient of the availability of anesthetic treatment to prevent pain to the fetus); L.B. 1103, 101st Leg., 2d Sess. (Neb. 2010).

pain.¹²⁶ A Commission of Inquiry into Fetal Sentience in the House of Lords in England found that there may be “‘some form of pain sensation or suffering’ when the cortex has begun forming connections with the nerves that transmit pain signals,” which is not until twenty-six weeks or later.¹²⁷ The Royal College of Obstetricians and Gynecologists also determined that “‘a fetus can only feel pain after nerve connections become established between two parts of its brain: the cortex and the thalamus.’” As a result, the group found that “‘little sensory input’ reaches the brain of the developing fetus before 26 weeks[,] ‘[t]herefore reactions to noxious stimuli cannot be interpreted as feeling or perceiving pain.’”¹²⁸ A meta-study of fetal pain studies concluded that a fetus’s neurological pathways that allow for the “conscious perception of pain” do not function until after twenty-eight weeks gestation.¹²⁹ Professor Anand criticized this review on methodological and substantive grounds, including its failure to recognize the role of a subsensory cortex basis for feeling pain.¹³⁰ The uncertainty about adequate cortical and neurological structure is compounded by different interpretations of the meaning of reaction to external stimuli and the effect of hormonal surges. In the end, pain is a subjective experience. Without someone telling us that they are experiencing pain we must rely on surrogate markers, some of which are reliable and others not.

The immediate policy response to these studies has focused on the informed consent process. Laws in several states were passed requiring that women undergoing second trimester abortions be told that fetuses might experience pain and that they could have anesthesia delivered to the fetus before or during the procedure.¹³¹ A bill in-

126 *Pain of the Unborn: Hearing before the Subcomm. on the Constitution of the H. Comm. on the Judiciary*, 109th Cong. 7–13 (2005) [hereinafter *Unborn Pain Hearings*] (statement of Dr. K.J.S. Anand).

127 *Id.* at 26 (statement of Dr. Arthur L. Caplan).

128 *Id.* (citing Professor Maria Fitzgerald of University College London and noting that W.G. Derbyshire concurred in an article in the *BULL. OF THE AM. PAIN SOC’Y*, August, 2003).

129 Susan Lee et al., *Fetal Pain: A Systematic Multipdisciplinary Review of the Evidence*, 294 *J. AM. MED. ASS’N* 947, 952 (2005).

130 *See Unborn Pain Hearings, supra* note 126, at 13 (“[There is a] high likelihood of fetal pain perception before the third trimester of human gestation . . . [based on] thalamo-cortical interactions located in the subplate zone that persist into maturity, thus providing a functional template for subsequent cortical processing. Several lines of evidence indicate that that consciousness depends on a subcortical system, whereas the contents of consciousness are selectively located in cortical areas . . . Fetal development of the thalamus occurs much earlier than the sensory cortex, providing the substrate and mechanisms for conscious pain perception well before the third trimester of human gestation.”).

131 *See, e.g.*, ALA. CODE § 26-23B-2(5) (2011) (finding that a fetus feels pain after twenty weeks and subjecting a fetus to painful stimuli may cause disabilities later in life); ARK. CODE

troduced in Congress would have required that all physicians read a federally written script to patients informing them that at twenty weeks the fetus is pain-capable.¹³²

In April 2010, Nebraska went a step further and enacted a law banning, except for a narrow set of emergency situations, all abortions twenty weeks after fertilization because of fetal capacity to experience pain. It had held one hearing on the bill, with evidence from five physicians who were “experts” in pain management or fetal medicine, but heard from no physicians or scientists with a different view.¹³³ The law made the following findings of fact:

- (1) At least by twenty weeks after fertilization there is substantial evidence that an unborn child has the physical structures necessary to experience pain;
- (2) There is substantial evidence that, by twenty weeks after fertilization, unborn children seek to evade certain stimuli in a manner in which in an infant or an adult would be interpreted as a response to pain;
- (3) Anesthesia is routinely administered to unborn children who have developed twenty weeks or more past fertilization who undergo prenatal surgery;
- (4) Even before twenty weeks after fertilization, unborn children have been observed to exhibit hormonal stress responses to painful stimuli.

ANN. § 20-16-1104 (West 2011) (mandating the physician notify the patient of potential risk of the surgery as well as the availability of anesthetics to reduce the pain of the fetus); IDAHO CODE ANN. § 18-503(5) (West 2011) (finding that anesthesia is used to reduce the pain of the fetus during surgical procedures); MINN. STAT. ANN. § 145.4242 (West 2011) (finding that consent is only determined after, among other requirements, the female is given notice of the availability of anesthetics to reduce the pain of the fetus); MO. ANN. STAT. § 188.027 (West 2004) (requiring the physician to notify the patient of anesthetic’s usefulness is eliminating pain to the fetus during the procedure); NEB. REV. STAT. §§ 28-3,104–05 (LexisNexis Supp. 2009) (finding that an unborn fetus feels pain after twenty weeks, anesthesia will reduce the pain felt during a medical procedure, and a doctor must notify the patient of these facts before performing the procedure); OKLA. STAT. ANN. tit. 63, § 1-738.9 (West 2011) (requiring the physician to notify the patient if anesthetics would reduce the pain of the fetus during the procedure).

¹³² Unborn Child Pain Awareness Act of 2010, H.R. 5276, 111th Cong. § 3302 (2010); *see also* Unborn Child Pain Awareness Act of 2011, S. 314, 112th Cong. § 3402 (2011).

¹³³ *See, e.g., Hearing on LB 1103, supra* note 21 (statement of Dr. Ferdinand Salvacion, a physician practicing exclusively in the area of pain management but with no direct experience with fetuses or developmental research) (testifying that with regard to physical structures, the neurotransmitters in the spinal column that mediate pain transmission appear early in development and all the neural components required for processing perception of pain are present in the fetus by twenty weeks gestational age; that electroencephalograms measuring discrete electrical activity from cortical neurons are present by nineteen to twenty weeks and sustained patterns can be recorded from fetuses of twenty-three weeks gestational age; and that stress responses demonstrated by hormonal output can also be measure as early as sixteen weeks gestational age).

Such responses were reduced when pain medication was administered directly to such unborn children¹³⁴

As noted, the Nebraska law would not be constitutional under viability as survivability precedents, but its main sponsor, right-to-life Senator Flood, claimed a constitutional basis not centered on the issue of viability but in “protecting an unborn child from feeling pain during an abortion.”¹³⁵ He found support for his position in statements in *Casey* and *Gonzales* that the state has leeway to express its interest in the unborn child throughout the pregnancy. He also relied on Justice Kennedy’s dissent in *Carhart v. Stenberg* that “*Casey* is premised on the states having an important constitutional role in defining their interests in the abortion debate,” as the pain-capable law attempts to do.¹³⁶ He also noted that *Gonzales* permitted the states wider discretion in matters of scientific uncertainty, at least when there was a body of medical opinion supporting the state’s stance.¹³⁷

The validity of the Nebraska law will turn on the strength of the medical and scientific consensus about when a fetus feels pain and whether a clear consensus even matters for constitutional purposes. With fetal pain now widely studied, medical and scientific experts agree that the fetus becomes pain-capable at twenty-eight weeks, with some thinking that the point is earlier, say at twenty-six or twenty-four weeks. K.J.S. Anand, who finds a structural basis for pain-capability even earlier than twenty weeks, holds a minority view.¹³⁸ Alone, such a physiologic basis for pain would not seem to be an adequate basis for a public policy that bans all abortions after twenty weeks, and arguably would not even support a mandatory informed consent law about fetal pain-capability.¹³⁹ Still, *Gonzales* was very deferential to Congress’s view of the lack of health need for a partial birth abortion, al-

134 Pain-Capable Unborn Children Protection Act, L.B. 1103, 2010 Leg., 101st Sess. (Neb. 2010).

135 *Hearing on LB 1103*, *supra* note 21, at 18.

136 *Id.* at 15; see also I. Glenn Cohen & Sadath Sayeed, *Fetal Pain, Abortion, Viability, and the Constitution*, 39 J. L. MED. & ETHICS 235, 237 (2011) (noting that viability is arguably not the only compelling reason for restricting abortion).

137 *Id.*

138 See *Unborn Pain Hearings*, *supra* note 126, at 38 (arguing that most physicians do not think a fetus can feel pain before twenty weeks).

139 The question of whether the federal government should address this issue through a federal fetal pain informed consent or leave it to the states is a different question than whether there is enough scientific evidence, despite the absence of consensus, that women undergoing abortion after twenty weeks should be so informed. The existence of some evidence of pain-capable fetuses at twenty weeks makes such an informed consent law arguably non-ideological, for some women who abort might then choose to have a fetal anesthetic administered. Still, the scientific consensus lies somewhere after twenty-four to twenty-eight weeks, not the much earlier minority viewpoint of twenty weeks.

lowing the state to set the standard when there were mixed medical views. Depending on the state of evidence when such a law was litigated, the courts could conceivably find that there was enough evidence of a scientific and medical consensus, though still controverted, to support such a finding.

Even if there were a robust medical and scientific consensus about a fetus's pain-capability at twenty weeks, the question would then be the constitutional significance of that fact for a ban on abortion. Nebraska legislation claims that preventing a twenty-week fetus from suffering the pain of an abortion is a compelling state interest. But such pain could be alleviated by having the fetus anesthetized before the abortion.¹⁴⁰ To be valid then the claim of compelling interest would have to rest less on whether the fetus actually felt pain during the abortion and more on what the development of pain-capability itself signified. But this is the issue presented by viability as survivability as an adequate ground for limiting abortion. If the best explanation of that ground is that survivability is a sufficiently objective marker of development that the state may then limit abortions for reasons less purely personal or quasi-religious than are the reasons for valuing fetuses at earlier stages of development, the question is why pain-capability is not an independent marker of a more objective basis for such valuation.

Addressing the independent importance of fetal pain sensation aside from survivability thus requires courts to address directly why a state may value fetuses more than a woman's interest in ending a pregnancy, just as it must do when it unpacks the logical and biological importance of viability as advances in neonatology require. The Nebraska legislators thought that technological evidence of pain-capability would settle the matter *tout court*, just as Senator Lindsey Graham and others think that pushing viability as survivability back earlier will settle the matter. That is not the case. Confronting why neither pain-capability nor viability settles the matter is still a fruitful enterprise in that it unpacks the web of values at stake in the viability

¹⁴⁰ See *infra* notes 194–96 and accompanying text (discussing efforts in *Baze v. Kennedy* to make sure that the executed prisoner do not experience pain from lethal injection); see also Cohen & Sayeed, *supra* note 136, at 239–40 (highlighting the use of analgesics to prevent fetal pain). In any event, vaginal birth will also cause pain to fetuses and newborns when their capability for experiencing pain is even more developed. Although the reward for the pain of vaginal birth is life, abortion at twenty weeks when viability is itself unlikely could occur with anesthesia to prevent the speculative pain of the abortion.

line. The conclusions reached could have implications for restrictions at earlier stages as well.¹⁴¹

VII. NONINVASIVE PRENATAL DIAGNOSIS AND THE REASONS FOR ABORTION

A technology that has even more potential to wreak havoc with understandings of abortion and abortion rights is early noninvasive prenatal diagnosis (“NIPD”). Several medical and scientific groups are now developing techniques for identifying and genotyping cell-free fetal nucleic acids (DNA and RNAs) found in a pregnant woman’s bloodstream, and using that to identify chromosomal abnormalities or genetic mutations in the fetus.¹⁴² If these techniques achieve a high degree of reliability (sensitivity and specificity), they open the door to early, noninvasive prenatal diagnosis in millions of women and a likely great upsurge in the number of early abortions, which can be done chemically up to nine weeks. Such a prospect will lead some states to restrict prenatal testing in various ways, including the conditions tested for, thus drawing into contention the reasons for abortion and the right of women to obtain the information needed to make termination decisions. This opens a new battleground in the abortion wars, with implications for genetic testing, the selection of embryos, and the right of a woman to exercise prebirth control over offspring characteristics.

Noninvasive collection of fetal DNA and RNAs is the latest development in sixty years of medical efforts to assess the fetus and its prospects for a healthy life before birth.¹⁴³ These efforts began with the discovery in 1959 of the chromosomal rearrangement that causes Down syndrome—a third bit of chromosome at Chromosome 21. In

141 The argument from animal welfare laws is not sufficient to settle the matter because such laws protect sentient animals against cruelty and death only in situations in which killing animals is acceptable, including, for example, euthanasia, killing for food, hunting, medical research, and the like. Even in those prohibited situations the animals are viable and clearly capable of suffering, which is not the case with twenty-week post-fertilization fetuses.

142 See CAROLINE WRIGHT, CELL-FREE FETAL NUCLEIC ACIDS FOR NON-INVASIVE PRENATAL DIAGNOSIS: REPORT OF THE UK EXPERT WORKING GROUP (2009), available at http://www.phgfoundation.org/download/ffdna/ffdna_report.pdf (detailing a comprehensive review of methodologies and issues arising from the introduction of noninvasive prenatal diagnosis).

143 See, e.g., PETER A. BENN, *Prenatal Diagnosis of Chromosomal Abnormalities Through Amniocentesis*, in GENETIC DISORDERS OF THE FETUS (A. Milunsky & J. Milunsky eds., 6th ed. 2010) (reviewing the history of these techniques).

the 1960s karyotyping or visualization of chromosomes developed, followed by amniocentesis in the late 1960s. A needle was pushed into the amniotic sac and amniotic fluid withdrawn at fifteen to sixteen weeks in pregnancy. Fetal cells floating in the fluid were cultured and karyotyped and aneuploidies (abnormalities in the number of chromosomes) detected by the eighteenth week.¹⁴⁴ This led to amniocentesis being recommended for women who had a greater risk of having a Down child (1 in 200 for those over 35) than the risk they had of a miscarriage (<1:200) induced by the intrusion into the uterus to withdraw amniotic fluid.¹⁴⁵

In the 1980s the development of chorion villus sampling (“CVS”) pushed the time of prenatal diagnosis back to twelve or fourteen weeks, and lowered the risk of miscarriage. In addition, a combination of protein markers together with a sonogram of the transparency of the fluid behind a fetus’s neck gave enough information to justify a CVS or amniocentesis in women who did not have advanced maternal age or other risk factors. With this screening test, which poses no risk to the pregnancy, a patient and doctor together can determine whether the patient wants the CVS or amniocentesis, which does pose a risk.¹⁴⁶

Another prenatal diagnostic technique—preimplantation genetic diagnosis (“PGD”)—allows the screening of embryos prior to pregnancy.¹⁴⁷ PGD, however, requires in vitro fertilization instead of coital conception. Embryos have a cell clipped and analyzed, and some embryos will be discarded rather than transferred. First developed in 1990 for cystic fibrosis, it is now used for several hundred congenital conditions, most of them quite rare. It has also been extended to adult-onset diseases and risk factors, such as for breast and colon cancer, which appear only in adult years. It can also be used to determine the sex of embryos and other nonmedical traits as the genes de-

144 *Id.*

145 See Ray Fisman, *When Does Amnio Make Sense*, SLATE (Jan. 20, 2011, 12:42 PM), <http://www.slate.com/id/2281570/> (arguing that amniocentesis should be offered to younger women, who despite showing less risk of having a child with Down syndrome—roughly 1:2000—the likelihood that they would be able to conceive again is much higher; medical guidelines call for counseling them about the choice, but only a minority of doctors offer them the choice).

146 See Mark H. Yudin, Tracy L. Prosen & Daniel V. Landers, *Multiple-marker Screening in Human Immunodeficiency Virus-positive Pregnant Women: Screen Positivity Rates with the Triple and Quad Screens*, 189 AM. J. OF OBSTETRICS & GYNECOLOGY 973, 973-76 (2003).

147 Dr. Samuel Marcus, *Preimplantation Genetic Diagnosis (PGD)*, IVF-INFERTILITY.COM, <http://www.ivf-infertility.com/ivf/pgd.php> (last updated June 19, 2011, 10:12 PM).

termining them become known.¹⁴⁸ But PGD is not cheap or easy and will not appeal to most people, except those at risk for offspring with genetic disease and possibly those otherwise going through IVF for infertility.

An ideal prenatal test for all age groups would be one that involved no intrusion into the uterus (and hence no risk of miscarriage) and occurred early enough so that a termination might occur chemically rather than surgically.¹⁴⁹ Techniques for sequencing cell-free fetal DNA and RNA's circulating in a pregnant woman's blood stream now offer that possibility. Researchers have now shown that a simple blood test for mothers could detect Down syndrome in their fetuses and the fetal genotype at thousands of sites.¹⁵⁰ If the technology develops as hoped, it will be possible by a simple blood test at four to five weeks after a missed period to determine 95% of aneuploidies and in the future many other genetic features, including fetal sex, risk factors for a wide variety of diseases throughout life, and potentially even a complete genome sequence.

With 4.6 million births occurring in the United States annually, there will be a huge market demand for such tests, and many factors pushing physicians to make such testing routine, including fear of wrongful birth lawsuits if they fail to offer such tests and a child is born with a condition that the parents would have wished to avoid.¹⁵¹ If this occurs, many more women will receive noninvasive prenatal diagnostic or screening tests, often without their full informed consent, and then be presented with information that will present the option of an early medical or chemical abortion due to fetal risk factors.¹⁵²

There are many problems with this technology, both in establishing its safety and efficacy, and then introducing it to the health care system in a way that will respect informed consent, provide meaning-

148 John A. Robertson, *Extending Preimplantation Genetic Diagnosis: The Ethical Debate*, 18 HUM. REPROD. 465, 465–71 (2003).

149 Insurance coverage of both the test and later actions taken on it would also be important, as would doctors, nurses, and counselors ability to familiarize themselves with the tests and their importance. See Jaime S. King, *And Genetic Testing For All . . . The Coming Revolution in Non-Invasive Prenatal Genetic Testing*, RUTGERS L. REV. (forthcoming 2011–12) (on file with author).

150 Henry T. Greely, *Get Ready for the Flood of Fetal Gene Screening*, 469 NATURE 289, 289 (2011).

151 See King, *supra* note 149, at 15. Some states, however, may bar damages in such situations. See *supra* note 7.

152 Peter A. Benn & Audrey R. Chapman, *Ethical Challenges in Providing Noninvasive Prenatal Diagnosis*, 22 CURRENT OPINION IN OBSTETRICS & GYNECOLOGY, 128, 130–31 (2010); Peter A. Benn & Audrey R. Chapman, *Practical and Ethical Considerations of Noninvasive Prenatal Diagnosis*, 301 J. AM. MED. ASS'N 2154, 2154 (2009).

ful counseling, and expand women's choices in a way that meets their and their families' needs. Advocates of women's rights will be as interested in ensuring safety, efficacy, informed consent, and meaningful counseling as anyone. As King and others have pointed out, there is a strong need for a two-step information and counseling process before any testing is done, and then extensive counseling about test results, a process that will be expensive and beyond current genetic counseling resources.¹⁵³ The FDA should require a high threshold for the clinical validity and utility of such tests before they are introduced into general use.¹⁵⁴

I want to focus instead on the likely reaction of anti-abortion groups to such a great increase in prenatal testing and hence upsurge in the number of first trimester abortions that would occur if such tests are established as safe and effective and meaningful consent and counseling regimens are followed. One reaction would be to ban the tests for certain indications, for example, for sex or other nonmedical conditions, or conditions that were risk factors alone for later disease. This would, however, raise the question of whether states could restrict the reasons for abortion, and thus by implication the tests on which those reasons depend.

Such laws would present a major challenge to *Roe* and *Casey* because the Court, perhaps because it has never been directly faced with such a question, has never indicated the acceptability of restrictions on reasons for why a woman has an abortion. Her decision that the pregnancy is unwanted alone has been enough. Restrictions on early prenatal testing or restrictions on the use of prenatal test results to abort would challenge the right to have an abortion for any reason and would open the door to restricting abortion for reasons beyond sex or other nonmedical trait selection.¹⁵⁵ The outcome of such a challenge would also affect genetic selection and alteration of offspring traits in assisted reproduction and the genetic screening and alteration technologies of the future.

To assess this issue we must first see if states could restrict the grounds for abortion. If they could, presumably they could then restrict tests that would provide that information. If they could not restrict those reasons, there would still be the question of whether they

¹⁵³ See King, *supra* note 149, at 31–32.

¹⁵⁴ Unless the tests are sold as kits, as opposed to tests done in individual laboratories, the FDA may not require such review.

¹⁵⁵ Ultrasounds have been banned in India because of their use in sex selection, but there are other reasons for doing ultrasounds which will also convey information about sex.

could ban tests providing information that would be necessary to make such a choice.

A. *Reasons for Abortion as a Limit*

A right to abort based on the reason for the abortion—for why a woman wants to terminate a pregnancy—would be a new departure. The Supreme Court has never conditioned the abortion right on a particular reason for the woman's choice. Opposition to abortions based on sex and other nonmedical traits, growing out of early prenatal diagnosis, could raise that issue. If the Court allowed a ban on abortion for a particular reason, it would open a new front in the abortion wars with implications for sexual and reproductive behavior, prenatal genetic diagnosis, embryo selection in assisted reproduction, and choice over prebirth selection of children's traits generally.

The staunchest anti-abortion views permit abortion only in the rarest and most exceptional case—where continuing the pregnancy directly threatens the life of the woman. Indeed, many abortion opponents are leery of other claimed justifications, including rape, incest, fetal deformity, or serious impact on the health of the woman.¹⁵⁶ The most extreme response is reflected legally in the South Dakota law, subsequently overturned in a referendum, that would have banned abortion in all cases except to protect the life of the mother.¹⁵⁷

Thus abortion opponents have ample grounds to oppose early NIPD simply because it will increase the number of abortions on grounds that they find unacceptable. Early noninvasive prenatal diagnosis, however, gives them more purchase for scrutiny of the reasons for abortion, for it raises the prospect of early abortions for sex selection and other unappealing reasons. Three states already ban

¹⁵⁶ Anti-abortionists reject an exception for the health of the mother even if limited to serious physical health out of fear that the exception will swallow the rule because "health" includes mental or psychological health and thus operates as no constraint at all. See *United States v. Vuitch*, 402 U.S. 62, 72 (1971) (holding that a statute permitting abortions that preserve the health of the mother included mental health). Indeed, it was this concern with a health exception that drove the enactment of the federal partial birth abortion ban upheld in *Gonzales v. Carhart*, 550 U.S. 124, 163–67 (2007). See *Hearing on LB 1103*, *supra* note 21, at 19–20 (explaining the limited mental health exception of the Nebraska fetal pain bill). The Hyde Amendment would allow federal funding for abortion for rape or incest when promptly reported, as well as where the mother's life was threatened. *Harris v. McCrae*, 448 U.S. 297, 302 (1980).

¹⁵⁷ H.B. 1215, 2006 Legis. Assemb., 81st Sess. (S.D. 2006). The referendum that operated as a veto of the law won by 55% to 44%. *South Dakota Referred Law 6, the Abortion Ban Referendum*, BALLOTPEdia, http://ballotpedia.org/wiki/index.php/South_Dakota_Abortion_Ban_Referendum_%282006%29 (last modified Sept. 23, 2011).

sex as a reason for abortion.¹⁵⁸ Although none has yet been challenged on substantive grounds, the wider and earlier availability of sex selection abortions may present that case directly. The argument for banning abortion for sex selection or other nonmedical traits would be that such abortions pose such great risks to women and society that they provide the compelling state interest needed to justify a ban on abortion, thus opening the door to claims that other reasons for abortion also pose individual or societal risks and could be banned.

Anti-abortion forces find allies here in the disability rights community. Early prenatal diagnosis will undoubtedly lead to an increase in the scope and frequency of fetal anomaly or disability-related grounds for abortion, which women are much more likely to choose than abortion for sex selection alone. Disability rights advocates are often conflicted about aborting fetuses with their condition or that of their colleagues. They view prenatal testing and abortions for such conditions as a form of eugenics, albeit privately chosen, which fosters stigma and discrimination against people with disabilities, reduces their numbers, and makes it difficult to lobby for treatment and research.¹⁵⁹ Many of them will add their guns to pro-life support for a ban on abortion for the conditions presented by early prenatal diagnosis.

The pro-choice side, of course, recognizes any reason for abortion as adequate, at least legally. What matters to them is a woman's choice. Individuals might judge a woman's reasons on moral grounds and choose not to make those same choices, but they fervently object to any legal limit on that choice. The Supreme Court appears to have adopted that position because it has never suggested, perhaps because such issue has never been directly presented, that some reasons are more acceptable than others, except in the case of protecting the mother's life or health in postviability or other prohibited abortions. Indeed, any such requirement would pose enormous administrative and implementation problems to be successful, and produce bans on the tests on which such abortions would be based.

Laws that ban sex selection abortion most directly challenge the claim that a woman may abort a pregnancy for any reason. With

158 Illinois and Pennsylvania have also banned nonmedical sex selection abortion. Illinois Abortion Law of 1975, 720 ILL. COMP. STAT. 510/6(8) (1985); 18 PA. CONS. STAT. ANN. § 3204(c) (West 2000).

159 ERIK PARENS & ADRIENNE ASCH, *THE DISABILITY RIGHTS CRITIQUE OF PRENATAL GENETIC TESTING: REFLECTIONS AND RECOMMENDATIONS S1-S2* (Supp. 1999).

three states now having such a ban, more challenges are likely to arise.¹⁶⁰ If so, the Court would have to consider its apparent position that the reasons for the abortion are for the woman to decide and cannot be mandated or supervised by the state. In such a challenge, the question posed would be whether sex selection abortion for nonmedical reasons presented a compelling ground for limiting pre-viability abortions. India, China, and other nations may have good reason to be against sex selection on public policy grounds, especially if women's interests are directly affected and sex ratio imbalances and other societal disruption occurs, as had been the case in India and China.

But that is not the situation in the United States where women's rights are generally protected and the sex ratio imbalances are not likely even if sex selection abortion is lawful. Also, there are many less restrictive alternatives available, such as permitting nonmedical sex selection for gender variety in the family. If such a challenge arose, my guess is that the Court would be reluctant to open the door to restriction that rested on evaluation of a woman's reasons for abortion. The same answer should be forthcoming with regard to disability-related abortions. As long as the state is not encouraging them, they too should be within the purview of a woman's choice, particularly when disability rights are otherwise so strongly protected.

If this analysis is correct, then a woman could abort for reasons or factors revealed in prenatal tests that some persons would find trivial or frivolous, such as hair or eye color, athletic or musical prowess, a higher adult risk for cancer, or any of the risk factors that a full-throated genomics will reveal. But that should not be surprising because women can abort now for many reasons that some would find trivial, negligent, or irresponsible, e.g., a failure to use birth control, an unwillingness to postpone a trip or some other event. Different women value prenatal life differently, and will do so at different stages of pregnancy. The power of *Roe* and *Casey* is that the Constitution appears to allow the woman to make this choice without scrutiny of her reasons for doing so. It should continue to do so despite the greater likelihood of abortion for genetic indications as a result of early noninvasive prenatal diagnosis.

¹⁶⁰ ARIZ. REV. STAT. ANN. § 13-3603.02 (2011) (West); 18 PA. CONS. STAT. ANN. § 3204 (West 2000). A challenge to a 2010 Oklahoma ban on sex selection abortions was struck down because it violated a state constitutional provision against bills involving more than a single subject, not on substantive grounds of limits on the reasons for abortion. *Davis v. Edmondson*, No. CJ-2009-9154, 2010 WL 1734636 (D. Okla. Mar. 2, 2010).

B. Prenatal Tests

Regardless of whether abortion can be restricted for particular reasons, anti-abortion groups are likely to attempt to restrict access to the prenatal tests providing the information on which the expected upsurge of abortion depend. Rather than restrict abortion directly, they might focus their efforts on limiting earlier testing, particularly for sex and other nonmedical traits, or for risk factors other than aneuploidy.¹⁶¹

Such bans would appear to impose an undue burden on the right to abortion because depriving women of such tests would by “purpose or effect . . . plac[e] a substantial obstacle in the path of a woman seeking an abortion of a nonviable fetus.”¹⁶² The obstacle arises from denying women the information they need to decide whether to continue a pregnancy. At first blush the logic of this position is obvious: women want the information so they can decide whether to continue the pregnancy. If they have the information, they may then decide not to do so. Prenatal test results would directly affect whether a woman continues or terminates a pregnancy.

But one can foresee obstacles to recognition of such a position. First, women might find the prenatal diagnosis relevant to their decision only after they have the information in hand. They may not be able to decide beforehand what they want; indeed, most of them will not know what information might be relevant or how they might act on it until they are tested, learn the results, and understand its significance.

Second, the Court might draw a line between banning an abortion for a particular reason and banning the information on which that decision depends. An early First Amendment case involving abortion, *Bigelow v. Virginia*, suggests the contrary.¹⁶³ There the Court struck down on commercial speech grounds a law that banned advertising information about where abortion services might be obtained.¹⁶⁴ Although commercial speech is not directly at issue in the early prenatal testing context, *Bigelow* does illustrate the point that information prior to a decision is protected because of its relationship to the decision, which it facilitates.¹⁶⁵

¹⁶¹ Indeed, a ban on tests is likely to be much more successful in stopping such abortions than in banning abortions for particular reasons, even if it is constitutional to do so, because the tests will be necessary to decide whether to keep or end a pregnancy.

¹⁶² *Planned Parenthood of Se. Pa. v. Casey*, 505 U.S. 833, 877 (1992).

¹⁶³ 421 U.S. 809 (1975).

¹⁶⁴ *Id.* at 829.

¹⁶⁵ *Id.* at 822. A similar point could be made with regard to laws restricting advertisement or sale of guns and ammunition or banning shooting ranges. If there is a Second Amend-

Stanley v. Georgia, on the other hand, shows that the Court is capable of distinguishing between a right to do something and a right to obtain the object or service needed to exercise the right to engage in that activity.¹⁶⁶ *Stanley* had found a First Amendment right to possess obscene material in the home.¹⁶⁷ But later cases, e.g., *Paris Adult Theatre I v. Slaton*, held that there was no right to buy obscenity in the public square because of effects on the community of open commercial sale of obscenity.¹⁶⁸ *United States v. Reidel* carried this one step forward by banning use of the mails to obtain the materials in the home.¹⁶⁹ So the acts and conduct necessary to exercise the right to read obscenity in the home protected in *Stanley* could be banned, even if once the obscene materials arrived there they were protected.¹⁷⁰

Of course restrictions on early, noninvasive prenatal tests are justified when needed to ensure the safety and efficacy of the tests and to ensure that women are fully informed and properly counseled before the options they will face if tested. But once those method restrictions are in place, further restrictions based on what traits the test reveal (medical vs. nonmedical, risk factors vs. higher certainty) should not be upheld. They are attempts to restrict abortion on for conditions revealed by the tests, and are very likely to have that effect, at least in the case of women who want the tests generally so they can learn more about the fetus before they decide to continue or end the pregnancy.

This is true even if the tests reveal information that some persons might regard as weak, trivial, or unimportant reasons for terminating

ment right to possess handguns for self-defense, there is an implied right to purchase guns and ammunition. See *District of Columbia v. Heller*, 554 U.S. 570 (2008) (holding that a D.C. ban on handgun possession in the home violates the Second Amendment because they are a popular weapon of choice for self-defense). While the Court did recognize that commercial restrictions on gun sales would still be constitutional, it is unlikely that a ban on advertising gun prices or sales would withstand constitutional scrutiny. *Id.* at 626–27.

166 394 U.S. 557 (1969).

167 *Id.* at 568.

168 413 U.S. 49, 57–58, 68–69 (1973).

169 402 U.S. 351, 352 (1971).

170 Ireland, which has a very restrictive abortion policy, has struggled with a mirror question of whether its ban on abortion can also justify a ban on providing information about how abortions might be obtained outside of Ireland, a requirement imposed by the European Court of Justice. See generally Allison M. Clifford, Comment, *Abortion in International Waters Off the Coast of Ireland: Avoiding a Collision Between Irish Moral Sovereignty and the European Community*, 14 PACE INT'L L. REV. 385, 399–404, 416 (2002) (discussing the Irish and European Community rulings on the right to provide information on obtaining abortions outside of Ireland).

a pregnancy, such as hair or eye color, a gene disposed to musical or athletic ability, or some other trait that some find appealing or others find unappealing or offensive. After all, if abortion of a fetus for those reasons could not be stopped, then tests that would accurately provide that information should not be stopped either. It is no different than finding that a law banning gun sales or advertisements about where guns might be purchased violates the Second and Fourteenth Amendment rights to have and bear arms for self-defense.

The question of a right to prenatal genetic testing has great importance both for abortion and other reproductive technologies. For abortion it opens a backdoor into regulating reasons for abortion by decoupling the tests on which the abortion depends from the abortion itself. If this is allowed, it becomes a way of indirectly restricting abortions while appearing to recognize no state right to do so.

Beyond abortion, it raises the more general question of whether reproductive liberty includes the right to choose the genes or traits of offspring.¹⁷¹ This question has enormous importance for assisted reproduction and the genetic screening, selection, and alteration technologies of the future. Most immediately, it would affect the development and use of preimplantation genetic tests and other assisted reproductive techniques for choosing which embryos to discard or transfer to the uterus. True, those decisions do not involve abortion directly because they occur before pregnancy, but they determine whether a pregnancy will occur. More generally, they are key to the larger question of whether procreative liberty—the liberty to have or not have offspring—also involves a liberty right to know the genetic or chromosomal makeup of one's potential offspring and to make decisions about going forward with reproduction on that basis.

C. No Duty to Act on Results or to Be Tested

The analysis so far in this Part has focused on an expansion of a woman's right to control her reproductive life by obtaining access to early prenatal testing and to act on the results. It recognizes that safety and efficacy is essential and that informed consent and counseling that promotes her autonomy be respected. It respects her right to have tests for any medical or nonmedical information that is available or that she finds relevant, to know the results, and then to make a decision about pregnancy accordingly. As noted, this position

¹⁷¹ See John A. Robertson, *Procreative Liberty in the Era of Genomics*, 29 AM. J.L. & MED. 439, 440 (2003) (discussing the implications of new technologies that reveal genomic information of prospective offspring).

has important implications for genetic screening and selection of embryos and for the genetic technologies of the future.

The flip side of the right to obtain and act on prenatal information is that persons also have a right not to have or act on that information. If the state cannot prevent testing and use of test results, even if it leads to many more early abortions for a wider range of indications, it also follows that women are protected from having to abort on those grounds, and possibly even being tested, or if tested, being presented with test results. The premises of *Roe* and *Casey* thus authorize a private eugenics, but at the same time they bring the gate down on a public eugenics based on such testing. This is a necessary implication of a liberal regime of rights; reproductive rights are negative rights against the state to do or not do something concerning a decision to reproduce. They are a sword against state action that would limit such choice, and a shield against state action that would demand it. Private insurers and employers, however, may impose such duties unless there is legislation against them, as Congress has done in banning discrimination in health insurance and employment based on genetic tests.¹⁷²

The right to refuse genetic-based action is clearest in the case of a state policy that mandates abortion based on the characteristics of the pregnant woman or the fetus that she is carrying. Although unlikely in the present political situation, a state-mandated policy that prevents some women from reproducing once pregnant would run afoul of *Roe* and *Casey*, just as would a law that prevented women from not reproducing in those circumstances.¹⁷³ A state eugenics policy—either pro or con—cannot survive if it mandates, rather than accommodates, choice. Although *Buck v. Bell*'s imprimatur on a state eugenics program aimed at the mentally unfit and feeble-minded has never been directly reversed, later cases strongly suggest that such a law is unlikely to be upheld today.¹⁷⁴

172 See Genetic Information Nondiscrimination Act of 2008, Pub. L. No. 110-233, 122 Stat. 881 (to be codified in scattered sections of 26, 29, and 42 U.S.C.) (forbidding discrimination in healthcare and employment based on genetic information).

173 Justice Goldberg noticed this point in his concurrence in *Griswold v. Connecticut*, 381 U.S. 479, 496–97 (1965) (Goldberg, J., concurring). If the state could prevent women from using birth control, it could also require them to do so. This point has been lost in the anti-abortion and birth control debate.

174 See *Planned Parenthood of Se. Pa. v. Casey*, 505 U.S. 833 (1992) (protecting personal decisions about procreation, contraception, and family relations); *Eisenstadt v. Baird*, 405 U.S. 438 (1972) (holding that the right to privacy includes right to bear or beget children); *Skinner v. Oklahoma, ex rel. Williamson*, 316 U.S. 535 (1942) (holding that mandatory sterilization of a habitual thief violates a basic civil right). See generally *Buck v. Bell*, 274 U.S. 200, 207 (1927). Mandatory sterilization, abortion, or birth control when it can

The main threat to women uninterested in genetic testing, however, might come not from state-mandated eugenic programs, but from the actions of employers, insurers, drug companies, and medical researchers. In a system of universal coverage insurers and employers may not be able to refuse to hire or not provide coverage to women who knowingly carry to term pregnancies they know will result in babies with very high medical costs due to disability. Nor is the state likely explicitly to ban such choices or bar treatment of them.¹⁷⁵ Social stigma, however, may result against parents who reproduce despite knowing that there is a high risk that their child will have severe disability and impose high costs on the medical system. Also, researchers and drug companies will shift their agendas away from disabilities that can easily be prevented with early abortions so that there are few specialized treatments available and little demand to develop them, because so many fewer children are being born with those conditions.

A closer question, however, which could arise only in a very different political climate, would be the legitimacy of government mandating that women be presented with information about their fetus so that they could make the decision themselves. There would be fewer problems here if the state mandated only that women be informed of the existence and availability of such tests, including that the state would fund them for particular indications, and provided meaningful informed consent and counseling about the risks and benefits to the woman of the test. Such a state policy would survive attack unless it in fact represented a veiled way to mandate the test itself. States with large Medicaid rolls might find it in their interest to encourage testing by informing women that such tests are available and then paying for them.¹⁷⁶ Such actions might be acceptable if the notification occurred in a manner and setting that did not question the woman's decisional autonomy and did not become a form of ideological browbeating, as mandatory viewing of fetal sonograms arguably is.

be shown to be in the best interest of an incompetent person (a different set of interests than state welfare or eugenic interests) is a different matter. See *In re Guardianship of Hayes*, 608 P.2d 635, 640 (Wash. 1980) (holding that sterilization of a mentally disabled minor must be shown to be in her best interest).

¹⁷⁵ See discussion of treatment discretion over severely handicapped children, *supra* note 115; *In re Baby "K,"* 16 F.3d 590, 598 (4th Cir. 1994) (holding that federal law requires treatment of babies with anencephaly).

¹⁷⁶ States like California that have high Medicaid expenses might encourage such testing and fund abortions based on test results, especially if they otherwise provide public funding of elective abortion.

The harder question would arise in a changed political environment where a state that wanted to cut down on the birth of children with serious anomalies or other costly conditions might mandate early noninvasive prenatal testing for everyone or at least put the burden on women to opt out of such testing. Mandatory prenatal testing of women now exists for HIV and other conditions that fit within a public health rationale of protecting offspring and women's health. In those cases there are treatments to prevent vertical or horizontal transmission. In the case of abortion, however, the "treatment" prevents the birth of the child who is to be protected. In a tort system based on person-affecting theories of harm, it is difficult to sustain a wrongful life claim on behalf of children whose claim is that they never would have been born at all, though there are healthcare and other costs that would likely be borne by others.¹⁷⁷ Most of the conditions for which early prenatal testing would be informative would not come close to meeting the severity of outcome needed for a wrongful or diminished life claim. The case for such hypothetical policy would have to rest on grounds of preventing higher costs to the medical care system and ensuring fully informed consent of persons before reproduction, not just the chance to obtain that information through early testing.

Saving money and making sure that women are fully informed is a rational basis for state action. The question is whether such laws interfere with reproductive choice or some other right to such an extent that a standard higher than rational basis must be met, as arguably requiring viewing or description of fetal sonograms do. The intrusion on bodily integrity is a blood draw, which might be happening anyway. There is a very low risk of harm or adverse reaction, much lower than with the risk of immunizations. Indeed, if blood can be drawn against a person's will to test blood alcohol levels while driving, it might also be constitutionally acceptable to require that a pregnant woman give a blood sample for early fetal testing.¹⁷⁸ The

177 See John A. Robertson, *Procreative Liberty and Harm to Offspring in Assisted Reproduction*, 30 AM. J.L. & MED. 7 (2004) (exploring the implications of assisted reproduction for offspring and others); I. Glenn Cohen, *Well, What About the Children? Best Interests Reasoning, the New Eugenics, and the Regulation of Reproduction*, GRUTER INST. SQUAW VALLEY CONF 2010: LAW, INSTITUTIONS & HUMAN BEHAVIOR, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1608330 (last updated Oct. 13, 2010) (discussing state policy and intervention in reproduction).

178 See *Winston v. Lee*, 470 U.S. 753, 760 (1985) (holding that surgical removal of a bullet to prove a connection with crime may be done without consent if it is reasonable when comparing the individual's rights and society's interests); *Schmerber v. California*, 384 U.S. 757, 771-72 (1966) (holding that a blood test to prove intoxication was constitution-

same result could be reached without an additional blood draw if ten milliliters of blood were withdrawn at the same time that other blood tests are done. Of course, there would have to be staunch protection for the privacy of those samples and the information derived from them.¹⁷⁹

Nor would a mandatory blood draw interfere with reproductive choice. This is clearest if the blood were withdrawn and tests run, but the results not communicated to the woman unless she asks for them (and the samples then discarded and robust protection of their privacy is put in place), for no decision based on them would occur. Unlike forced viewing/hearing of sonograms, she would not be forced to learn the results, much less be obligated to act on them. If she were nevertheless informed of the results, she should still retain her right not to act on them. In my view forcing her to confront prenatal test results would cross the line just as forced viewing of a sonogram would. If the forced sonogram is deemed too onerous for the woman, too much piling on of information and material with an emotional impact but not affect the outcome in most cases, then being told the results of early prenatal testing should not be mandated either.

In the end, there is a symmetry here in state policy for sonograms and early noninvasive prenatal testing. The state can inform of each, and maybe can force that a sonogram occur. But it cannot force a woman to view the sonogram, hear a real-time detailed description, or act on information revealed by it.¹⁸⁰

Similarly, a state can mandate that women be informed about early prenatal testing. In a hypothetical future, states may even be able to require that all women have blood drawn for that purpose, or that such tests be done in addition to other mandatory prenatal blood tests, but it cannot force women to hear the results or to act on them.

al because there was probable cause and the intrusion was minimal); *Breithaupt v. Abram*, 352 U.S. 432, 435–37 (1957) (finding that the withdrawal of blood from an unconscious person by a trained hospital employee did not shock the conscience and thus did not violate the Constitution).

179 The Supreme Court has not yet recognized a right of informational privacy. See *NASA v. Nelson*, 131 S. Ct. 746, 763–64 (2011) (holding that the government could investigate employees because any constitutionally recognized privacy interests were protected by the Privacy Act of 1974).

180 I am arguing that the state should not be able to mandate hearing an anatomical description of the fetal sonogram or hear the heartbeat, even though it is possible that courts would find doing so acceptable under *Casey*, 505 U.S. 833 (1992).

Rights analysis aside, there are many other good policy reasons for not enacting such laws, as the mere discussion of them suggests.¹⁸¹

VIII. COURTS, LEGISLATURES, AND TECHNOLOGICAL CHANGE

The Court's abortion jurisprudence rests on acceptance of an interpretive role for the judiciary in finding substantive due process and equality protection for reproductive liberty. If the Court has no such role, then no constitutional issues of procreative liberty arise. On the other hand, if there are substantive due process and equality rights, then the question of rights about marriage, family, association, reproduction, and children necessarily arise. And once having started down that path, then the question of contraception and by implication abortion follow.¹⁸² Removing the *Roe v. Wade* decision rule of trimesters and replacing it with an undue burden test does not escape that dilemma, nor does anchoring reproductive rights in concepts of equality and equal citizenship. An equality approach may free the analysis from due process doctrine, but many of the same value and normative judgments remain.

The technological changes discussed here raise those interpretive issues and once again force grappling with their implications. Forced viewing of sonograms, earlier viability, fetal pain and early prenatal

181 A similar analysis would apply to expanded carrier screening for Mendelian defects in the general population, which can be done with a cheek swab. Doctors may have a legal duty to offer safe and effective carrier testing to all patients of reproductive age, but whether patients could be required to have carrier tests and then act on the results, either by not conceiving with another carrier or then undergoing prenatal diagnosis and aborting if the fetus has a serious disease, raises issues similar to those just discussed about mandated NIPD. For a description of the technology and its potential implications, see Callum J. Bell et al., *Carrier Testing for Severe Childhood Recessive Diseases by Next-Generation Sequencing*, SCI. TRANSLATIONAL MED., Jan. 2011, at 1 (describing the vast number of diseases that can now be screened for preconception using new sequencing technology); Laird Jackson & Reed E. Peyritz, *Molecular Technologies Open New Clinical Vistas*, SCI. TRANSLATIONAL MED., Jan. 2011, at 1 (discussing the ethical, legal, and social implications of preconception and prenatal genetic testing and diagnoses); Balaji S. Srinivasan et al., *A Universal Carrier Test for the Long Tail of Mendelian Disease*, 21 REPROD. BIOMED. ONLINE 537 (2010) (detailing a simple assay capable of screening large populations and identifying carriers of genetic diseases prior to conception).

182 A standard critique of substantive due process is that there is nothing there: [B]ecause Substantive Due Process is such a wonderfully malleable concept, *see, e.g., Lawrence v. Texas*, 539 U.S. 558, 562 (2003) (referring to "liberty of the person both in its spatial and in its more transcendent dimensions"), even a firm commitment to apply it would be a firm commitment to nothing in particular. . . . The great attraction of Substantive Due Process as a substitute for more specific constitutional guarantees is that it *never* means never—because it never means anything precise.

Stop the Beach Renourishment, Inc. v. Fla. Dep't of Envtl. Prot., 130 S. Ct. 2592, 2608 (2010) (Scalia, J.).

diagnosis move the Court and society into further engagement with the meaning of its previous holdings. It may be that courts should be loath to enter into this enterprise at all—four members of the current Court resist doing so. But legislatures and society will have to do so as they confront the choices that pregnant women and doctors will inevitably face with the march of technology.

Some perspective on the effect of technological change on abortion doctrine may be gained by looking at how changes in other areas of technology affect constitutional law. In some ways the challenges of technology for abortion jurisprudence are no different than the challenges the Court has to face in confronting technology that affects other areas of constitutional law, most notably search and seizure, national security, copyright, data mining, the internet, and much else.¹⁸³ The Fourth Amendment protection of persons, papers, homes and effects from unreasonable searches and seizures is commonly cited as an instance in which the meaning of the Fourth Amendment must change and take account of new surveillance technologies. The Court rejected that amendment's application to wiretapping in 1928 when the surveillance involved intruding on outside lines but held that there was a physical trespass when a spike mike touched the baseboard of a house.¹⁸⁴ *Katz v. United States* changed the importance of physical trespass in 1967 when it recognized that electronic surveillance not involving a trespass could be protected on the ground that the Fourth Amendment protected "reasonable expectations of privacy" that were independent of physical intrusion.¹⁸⁵ Here protection against the spread of electronic surveillance appeared to find a haven in a technologically expanded understanding of the Fourth Amendment.

183 As Justice Kennedy noted in *Sorrell v. IMS Health, Inc.*, "[t]he capacity of technology to find and publish personal information, including records required by the government, presents serious and unresolved issues with respect to personal privacy and the dignity it seeks to secure." 131 S. Ct. 2653, 2672 (2011).

184 Compare *Olmstead v. United States*, 277 U.S. 438, 465 (1928) ("The language of the [Fourth] Amendment can not be extended and expanded to include telephone wires reaching to the whole world from the defendant's house or office. The intervening wires are not part of his house or office any more than are the highways along which they are stretched."), with *Silverman v. United States*, 365 U.S. 505, 509 (1961) ("For a fair reading of the record in this case shows that the eavesdropping was accomplished by means of an unauthorized physical penetration into the premises occupied by the petitioners.").

185 389 U.S. 347, 361 (1967) (Harlan, J., concurring) (suggesting that both a subjective and an objective expectation of privacy are required for constitutional protection). *But see* *Kyllo v. United States*, 533 U.S. 27, 34 (2001) (concluding that the use of non-trespassory thermal imaging technology to determine heat levels in a home is a search).

But as Christopher Slobgin has shown, *Katz*'s potential to broaden protection has in fact meant little additional haven from a snooping government because of Court decisions narrowing searches to physical intrusion and to doctrines of knowing exposure, general public use, contraband specific, and assumption of the risk. Together these doctrines "have the effect of enabling the government to conduct most technologically-aided, virtual searches without having to worry about the Fourth Amendment."¹⁸⁶ Other constitutional areas will reflect new technologies in different ways, either broadening or restricting them in light of precedent, historical understandings and much else, as several scholars are now exploring.¹⁸⁷

Lethal injection, a technology adopted to make capital punishment more humane, shows another set of problems facing courts as they reconcile new technology with old understandings, in this case the Eighth Amendment's ban on cruel and unusual punishment. A three-drug combination now used in almost all capital punishment states aimed to be a more humane method of execution than electrocution, hanging, firing squad, or gas chamber. *Baze v. Kentucky* dealt with a challenge to whether that technology was indeed more humane.¹⁸⁸ The Court held that the injection procedures did not create a substantial risk of unnecessary suffering during execution due to the chance of erroneous or negligent application, and thus were constitutional.

The Court's handling of the challenge to new technology in *Baze* provides a useful contrast to issues raised by technological change for abortion doctrine. At issue in *Baze* was the relationship between the drugs used in the three stage protocol for lethal injection. Three grams of sodium thiopental, a barbiturate which induces unconsciousness, are followed by pancuronium bromide, a muscle paralytic agent, and then potassium chloride, which induces cardiac arrest. If these injection procedures were performed properly, death would be

186 CHRISTOPHER SLOGOBIN, BROOKINGS INST., IS THE FOURTH AMENDMENT RELEVANT IN A TECHNOLOGICAL AGE? 3 (2010), available at http://www.brookings.edu/papers/2010/1208_4th_amendment_slobogin.aspx (suggesting that Fourth Amendment jurisprudence has not kept pace with technological developments).

187 Jeffrey Rosen & Benjamin Wittes, *The Future of the Constitution Series*, BROOKINGS INST., <http://www.brookings.edu/governance/Future-of-the-Constitution.aspx> (last visited Sept. 24, 2011) (illustrating many of the diverse areas in which emerging technology challenges established constitutional principles).

188 See 553 U.S. 35, 41 (2008) ("Petitioners . . . contend that the lethal injection protocol is unconstitutional under the Eighth Amendment's ban on 'cruel and unusual punishments,' because of the risk that the protocol's terms might not be properly followed, resulting in significant pain.").

painless and swift and thus “humane and constitutional.”¹⁸⁹ The petitioners claimed that there was a significant risk that the sodium thiopental would not be properly administered so that the prisoner might still be conscious and experience painful suffocation from the pancuronium bromide and severe burning from the potassium chloride in violation of the ban on cruel and unusual punishment.

The Court by a 7-2 vote rejected the claim. It found that the petitioners had not carried their burden of showing a “substantial risk an objectively intolerable risk” that the protocol would produce “needless suffering.”¹⁹⁰ The current system was not “objectively intolerable” because it was the consensus method adopted by states and the federal government. Kentucky also had several safeguards in place to minimize the risk of administering an inadequate dose of sodium thiopental (including the use of trained personnel, a waiting period, and supervision). Nor had the petitioners’ proposed alternative been shown to be feasible, readily implemented, and so likely to have significantly reduced a substantial risk of severe pain that failure to adopt it could be viewed as cruel and unusual. Although the drug is banned in veterinary euthanasia and will cause suffering if the prisoner is not fully sedated by the barbiturate, the state had good reason for using it because it prevented involuntary seizures or convulsions during unconsciousness, thereby preserving the procedure’s dignity and hastening death. This drug combination was also part of the Netherlands’ protocol for assisted suicide and euthanasia.¹⁹¹

189 *Id.* at 49.

190 *Id.* at 50 (citations omitted) (internal quotation marks omitted).

191 Obtaining an adequate supply of sodium thiopental, however, may be more of a problem. The sole American manufacturer is no longer producing the drug at its plant in Italy because Italian authorities will not permit export of the drug that might be used in capital punishment. Scarcity of the drug has led to delays in scheduled executions in California and Oklahoma, and is likely to disrupt execution schedules in other states. States are eventually expected to follow the lead of Oklahoma and substitute pentobarbital, a more easily available anesthetic now widely used in veterinary medicine and authorized for assisted suicide, in a similar three-drug sequence. But developing new protocols will take time and will generate challenges. Erik Eckholm & Katie Zezima, *Drug Used in Executions Dropped by U.S. Supplier*, N.Y. TIMES, Jan. 22, 2011, at A11 (describing the consequences stemming from a reduction in sodium thiopental supply); Andrew Welsh-Huggins, *Ohio to Use Assisted Suicide Drug in Executions*, STATESMAN.COM (Jan. 26, 2011), http://www.statesman.com/news/nation/ohio-to-use-assisted-suicide-drug-for-executions-1209969.html?cxtype=rss_news. Those challenges, however, have not stopped Texas and Oklahoma from proceeding with executions using pentobarbital. See Brandi Grissom, *Execution Challenge Is First for Texas Appeals Office*, TEX. TRIB., May 3, 2011, <http://www.texastribune.org/texas-dept-criminal-justice/death-penalty/execution-challenge-first-for-texas-appeals-office/> (noting that this execution would be the first in Texas using pentobarbital as part of a three-drug cocktail); Kevin Hayes, *John David Duty Execution: Animal Sedative Used in Okla. Inmate’s Execution*, CBSNEWS.COM (Dec. 17, 2010),

What insight does *Baze* offer for courts in reacting to changes in abortion technology? The Court's close attention to the efficacy of the three-drug combination in producing a humane death recalls Justice Kennedy's detailed account of partial birth abortion in *Gonzales v. Carhart* and his comparison of piecemeal dismemberment (which is allowed) with partial removal of the fetus to a designated landmark before demise (which is not).¹⁹² He also described how if a physician preferred intact dilation and evacuation, she could do so if she gave a lethal injection to the fetus prior to intact evacuation, which would then be legal because the fetus was already dead. Such a detailed discussion of pain is likely to occur with the question of whether a twenty-week old fetus is pain-capable.

Baze's close grappling with whether the petitioners' proposed execution alternative is marginally safer casts light on the judiciary's role in evaluating new technologies generally. There is always the risk, well illustrated in *Baze*, that doing so would embroil the courts in resolving on-going scientific controversies beyond their expertise and would intrude on the role of state legislatures in implementing execution and other procedures. This might often occur on the basis of unclear, spotty, and haphazard information. Indeed, the controversy over whether the lethal injection protocol was effective arose from one widely criticized article in the *Lancet* reporting that post-execution toxicology showed an insufficient amount of sodium thiopental to induce the full unconsciousness that is essential if the paralytic and cardiac arrest drugs are not to cause severe pain and suffering.¹⁹³

As Chief Justice Roberts noted,

[p]ermitting an Eighth Amendment violation to be established on such a showing would threaten to transform courts into boards of inquiry charged with determining "best practices" for executions, with each ruling supplanted by another round of litigation touting a new and im-

http://www.cbsnews.com/8301-504083_162-20025984-504083.html (detailing Oklahoma's use of pentobarbital in executions).

192 The state interest served in banning partial birth abortions was preserving the dignity of the fetus and the medical profession at the margins of life. See 550 U.S. 124, 157–58 (2007) (bolstering the congressional argument that it has a legitimate interest in banning partial birth abortions).

193 Leonidas Koniaris et al., *Inadequate Anaesthesia in Lethal Injection for Execution*, 365 LANCET 1412, 1412–13 (2005) (suggesting that administration of this particular drug cocktail did not sufficiently numb patients to pain). *Contra* Jonathan Groner, *Inadequate Anaesthesia in Lethal Injection for Execution*, 366 LANCET 1073, 1073–74 (2005) ("Although Koniaris and colleagues' conclusion that lethal injection has 'led to the unnecessary suffering of at least some of those executed' is probably true, it is not supported by the data presented.").

proved methodology. Such an approach . . . would embroil the courts in ongoing scientific controversies beyond their expertise, and would substantially intrude on the role of state legislatures in implementing their execution procedures—a role that by all accounts the States have fulfilled with an earnest desire to provide for a progressively more humane manner of death.¹⁹⁴

Justice Thomas puts the point in comparative institutional terms that arguably apply to judicial evaluation of new abortion technologies as well: “There is simply no reason to believe that ‘unelected’ judges without scientific, medical, or penological training are any better suited to resolve the delicate issues surrounding the administration of the death penalty than are state administrative personnel specifically charged with the task”¹⁹⁵

In contrast to *Baze*, I would argue that the importance of the technological changes in abortion examined in this Article is less about institutional competence in assessing the certainty of new techniques than in grappling with their constitutional significance. Chief Justice Roberts and Justices Scalia and Alito may agree with Justice Thomas that the Court has no role in how abortion is administered because it has no role in that area at all. But if one follows *Roe*, *Casey*, and other precedents that give the Court a role in interpreting substantive due process and equal protection, one may then ask whether grappling with technological change in abortion is different than the science arbiter role it was cast into in *Baze*. In fact it is. In almost all the areas of technological change in abortion examined, the Court was not faced with a dispute about what the science was, akin to *Baze*.¹⁹⁶ Instead, once changes in abortion technology are established, they confront the Court with the meaning of previously understood constitutional doctrine in light of those technologies.¹⁹⁷

¹⁹⁴ *Baze*, 553 U.S. at 51.

¹⁹⁵ *Id.* at 106. Justice Thomas also stated:

Under the competing risk standards advanced by the plurality opinion and the dissent, for example, the difference between a lethal injection procedure that satisfies the Eighth Amendment and one that does not may well come down to one’s judgment with respect to something as hairsplitting as whether an eyelash stroke is necessary to ensure that the inmate is unconscious, or whether instead other measures have already provided sufficient assurance of unconsciousness.

Id. at 105.

¹⁹⁶ A similar demand for the Court to assess the science did occur in *Gonzalez v. Carhart*, where the health advantages for women of partial birth abortion were in dispute. 550 U.S. at 161–67. It would also arise if laws banning abortion because of fetal pain capability at eighteen weeks ever reached the Court.

¹⁹⁷ This is true even with fetal pain at twenty weeks, the most scientifically contested of the technological advances examined. Even if the fetus experienced pain at that stage, the question of its constitutional significance would remain. See *supra* notes 138–40 and accompanying text.

The inquiry is less about the certainty of the technology and more about the underlying meaning and values that, in light of those new technologies, give that right its shape. Because abortion rights are themselves a question of substantive due process, they inevitably remain so even as further technological change pushes the scope and meaning of the right.

Some of the technologies considered here require a stronger role for courts as assessors of technology than others. With forced viewing of sonograms, the question is not the state of the technology but its effect and meaning. Similarly, when viability defined as survivability moves earlier, the question is less about what the technology can do, than about the different grounds for whether and why earlier survivability should matter. Whether there is a sufficient medical and scientific consensus to find that fetuses are pain-capable at twenty weeks might pull courts into more technology assessment than they do when they assess the impact of forced viewing of sonograms or of early survival of premature newborns in NICUs. But even if there is agreement on when pain-capability arises, the key question will be the constitutional meaning of those facts. Finally, only after the FDA blesses early prenatal diagnosis as safe and effective and its use enters routine obstetrical practice will the constitutional question of limiting abortion for nonmedical or other reasons arise.

IX. CONCLUSION

Legal disputes arising from fetal sonograms, viability, fetal pain, and early prenatal diagnosis are less about the state of the science than they are about the meaning of that science within an existing structure of constitutional doctrine. Technological change will remain a dream when conceived as a way to lessen the controversy over abortion rights that has roiled the country since 1973. But it will force reengagement with the meaning and scope of existing doctrines, and may show ways in which change and evolution within those doctrines may occur. As long as one does not invest science and technology with too much power, technological change can clarify abortion rights, in some cases extending them and in others cutting them back from how they were previously understood. In the end constitutional values, not technology, matter.