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THE BIOLOGICAL CAUSES AND CONSEQUENCES
OF HOMOSEXUAL BEHAVIOR AND THEIR
RELEVANCE FOR FAMILY LAW POLICIES

Lynn D. Wardle*

INTRODUCTION

A number of scholars at this Symposium addressed the issue of whether the choice to engage in homosexual behavior has a biological cause. This highly contested issue is critical in the development of family law policies regarding the relationships of gays and lesbians. This Article begins with a review of the scientific literature on the immutability of homosexual behavior. It shows how little we actually know about the causes of homosexual attraction and behavior. Any significant reliance upon current information about the biological or social causes of homosexual attraction in formulating or reformulating legal policy would be premature. We must await the maturation and development of this knowledge base.

The major focus of this Article is not the biological causes of homosexual attraction, but the biological effects of homosexual behavior on human health. Our understanding of the biological consequences of engaging in homosexual behavior is also incomplete, because social acceptance of homosexual behavior is a relatively recent phenomenon. Nevertheless, in the past three decades, valuable information about the consequences of this behavior has more fully developed. Putting aside past and prevailing stereotypes and myths about the consequences of homosexual behavior, this research into the health risks of engaging in homosexual behavior is relevant to a number of family law and policy issues: the legal recognition of same-sex marriage, domestic violence, adoption and foster care by gay and lesbian

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parents, child custody and visitation rights, and a host of issues relating to the death of loved ones.

This Article must begin with a caveat: I am a law professor, not a social scientist. As a lawyer, I have a healthy skepticism about claims to ultimate truth that are grounded in social science, particularly when those truths happen to conform to contemporary popular movements. I respect and value the men and women who have acquired expertise in the biological and social sciences through years of work and study, and through the rigorous application of the scientific method. I believe that law and legal policy should be informed by all sources of truth, including the natural and social sciences. But our legal policies generally, and those involving family law in particular, must reflect much more than empirical research and theories. Family law must reflect our core constitutional commitments, our deeply rooted social values, our common cultural aspirations, the full measure of our family experiences, and our dedication to protecting the best interests of children and the marital family structures that best nurture them. Family law is far too important to be the sole preserve of any academic field of study, including any one of the biological or social sciences.

II. BACKGROUND

A. What We Do Not Know About the Causes of Homosexual Attraction

The belief that homosexual attraction or orientation is biologically determined and thus immutable is now widespread. Over the past seven or eight years, when I have spoken on the topic of same-sex marriage at law schools around the country, I have routinely asked students whether they believe that homosexual attraction is biologically determined, hard-wired, or immutable. The responses vary from school to school, but I would estimate that at least two-thirds of those students believe that it is immutable; the percentage seems to be increasing each year. Interestingly, that percentage is almost the same as the percentage who say that they favor the legalization of same-sex marriage. As Simon LeVay has noted, it seems that "people who

1. I have made such presentations at a number of law schools: University of Georgia, University of Iowa, Ohio State University, University of Idaho, University of Utah, University of California-Los Angeles, Yale University, Duke University, Brigham Young University, Vanderbilt University, University of Virginia, Washburn University, New York Law School, Florida Coastal School of Law, University of California-Hastings, South Texas College of Law, University of California-Davis, McGeorge Law School, University of Nebraska, University of Arkansas-Little Rock, and Fordham University.
think that gays and lesbians are born that way are also more likely to support gay rights."  

Biological determinism is a frequently invoked argument for the legalization of same-sex marriage and lesbigay parenting today. Advocates of same-sex marriage often assert that legal discrimination on the basis of homosexuality is essentially indistinguishable from legal discrimination on the basis of race or gender. Constitutional scholars have frequently advanced the "Loving analogy," arguing that it is just as impermissible for the government to prohibit homosexual couples from marrying as it is to prohibit interracial couples from marrying. Whether homosexuality is "biologically fated" or "hardwired" is, in the mind of some judges, critical to gender discrimination analysis.

These immutability claims, however, are dubious. They are highly speculative and based on immature and tentative data—and often on very disputable analyses of that data. They provide no sound basis for the development of public policy at this time. Moreover, even if it could be definitively proven that homosexual attraction is immutable, it would not necessarily mean that public policy should accommodate or privilege homosexual behavior by legalizing same-sex marriage or adoption by gay and lesbian couples.  

Attraction and compulsion are not the same thing, and powerful assumptions about the ability of individuals to resist many human urges—or to be held accountable for not doing so—underlie most of our criminal laws.


1. **The Evidence That Homosexual Attraction Is Immutable Is Still Unreliable and Unclear**

Advocates of gay and lesbian rights frequently assert that homosexual behavior is biologically determined. The media regularly publishes enthusiastic reports about scientific studies that purport to support those claims. Upon closer examination, however, the scientific evidence for the immutability of homosexual behavior is questionable. The "nature versus nurture" conflict in the search for the

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causes of homosexual attraction or behavior is far from settled, but it is clear that there is presently no compelling scientific evidence that homosexual orientation or attraction (much less behavior) is biologically fixed or immutable.


> At clinical conferences one often hears discussants commenting that "homosexuality is genetic" and, therefore, that homosexual orientation is fixed and unmodifiable. Neither assertion is true. . . . The assertion that homosexuality is genetic is so reductionistic that it must be dismissed out of hand as a general principle of psychology.¹⁰

Dean Hamer, the author of the "gay gene" study, agrees that there is more to be known: "We knew that genes were only part of the answer. We assumed the environment also played a role in sexual orientation, as it does in most, if not all behaviors . . . ."¹¹ Hamer explains it as follows: "Homosexuality is not purely genetic . . . environmental factors play a role. There is not a single master gene that makes people gay . . . I don’t think we will ever predict who will be gay."¹² Simon LeVay has cautioned that his own research, which reportedly found hypothalamic differences between the brains of homosexual and heterosexual men, is still incomplete:

> It’s important to stress what I didn’t find. I did not prove that homosexuality is genetic, or find a genetic cause for being gay. I didn’t show that gay men are born that way, the most common mistake people make in interpreting my work. Nor did I locate a gay center in the brain. The INAH 3 is less likely to be the sole gay nucleus of the brain than a part of a chain of nuclei engaged in men and women’s sexual behavior . . . . Since I looked at adult brains, we don’t know if the differences I found were there at birth, or if they appeared later.¹³

William Byne and Bruce Parsons have also urged caution:

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9. See, e.g., Byne & Parsons, supra note 8; Friedman & Downey, supra note 8.


Recent studies postulate biologic factors as the primary basis for sexual orientation. However, there is no evidence at present to substantiate a biologic theory, just as there is no compelling evidence to support any singular psychosocial explanation. . . . Critical review shows the evidence favoring a biologic theory to be lacking.\textsuperscript{14}

The view of the etiology of homosexual attraction and orientation that seems to be most widely accepted today is the "interaction theory" endorsed by Byne and Parsons, as well as many others.\textsuperscript{15} For example, Friedman and Downey argue that genetic influences interact with many other factors: "Homosexual orientation results from interaction of many factors, including genetic influences in varying degrees across individuals. Genetic origin of a behavior or other attribute does not necessarily mean that the attribute is fixed and unmodifiable, however."\textsuperscript{16}

There are a number of methodological problems with the scientific studies that have been cited in support of the claim that homosexual behavior is biologically immutable.\textsuperscript{17} The first problem involves the definition of homosexuality. The factors that have to be considered are complex, and thus, "there is still no universally accepted definition of homosexuality among clinicians and behavioral scientists."\textsuperscript{18} Does merely thinking about having sexual relations with a person of the same sex make one homosexual, or is sexual behavior also required? If feeling is definitive, what level of feeling is required? Is a single feeling or thought of curiosity sufficient? Does platonic attraction count as a feeling, or is erotic arousal required? If behavior is necessary, what kind of behavior is deemed defining? Is homosexual hugging or kissing enough, or is more intimate contact required? What frequency is required? How recently must the activity have occurred? Is the most recent behavior definitive, or is it the historically predominant behavior? No scientific study can avoid these definitional issues, but many of the high-profile immutability studies gloss over them.

\textsuperscript{14} Byne & Parsons, supra note 8, at 228.

\textsuperscript{15} Id. (suggesting an interactive model that includes hormonal, heritable, and developmental factors influencing the interaction of familial and social environment, individual temperament and personality traits, but not disputing a biological role in homosexual orientation); see also Erin D. Bigler, Human Sexual Orientation: The Biological Theories Reappraised, 19 AMCAP J. 125, 125 (1993) (reviewing Byne & Parsons's approach and finding it to be middle of the road); A. Dean Byrd, Born That Way? Facts and Fiction About Homosexuality, FAIR, http://www.fairlds.org/pubs/conf/2004ByrD.html (last visited May 24, 2007) [hereinafter Byrd, Born That Way].

\textsuperscript{16} Friedman & Downey, supra note 10, at 39.

\textsuperscript{17} For a capable summary of some of the major flaws of the LeVay and Bailey and Pillard studies, see Halley, supra note 6, at 529–46.

\textsuperscript{18} Byne & Parsons, supra note 8, at 228.
LeVay’s celebrated brain structure study is often cited as evidence that there is a biological determinant of homosexual behavior. LeVay studied postmortem brain samples from forty-one subjects.\textsuperscript{19} LeVay reported that the size of a particular part of the brain structure, INAH3, correlated with the deceased male subject’s homosexuality (it was reportedly larger in the brains of heterosexual men than in the brains of homosexual men). His work was heralded in the media,\textsuperscript{20} cited by courts,\textsuperscript{21} and has generally been treated as a watershed work by proponents of homosexual behavior immutability.\textsuperscript{22} LeVay equated homosexuality with sexual orientation, which he defined as “the direction of sexual feelings or behavior toward members of one’s own or the opposite sex.”\textsuperscript{23} But it would certainly be an extremely broad definition of homosexuality if “feelings” alone justify the label “homosexual” for purposes of scientific research; it seems that something more concrete, like behavior, should be required.

Other leading studies of the biological causes of homosexual behavior have definitional issues. For instance, some popular hormonal studies are based on observations that laboratory rats display mounting and lordosis.\textsuperscript{24} But the definition of rodent homosexuality—and the relevance of these animal studies to human behavior—is highly questionable. A male rat will display lordosis “when a handler strokes its back.”\textsuperscript{25} As Byne notes, some studies have made arbitrary assumptions:

[T]he male that mounts another male is considered to be heterosexual, as is the female that displays lordosis when mounted by another

\textsuperscript{19} LeVay, \textit{Hypothalamic Structure}, supra note 6, at 1035.


\textsuperscript{22} Byne, \textit{supra} note 8, at 53 (“LeVay’s study has been widely interpreted as strong evidence that biological factors directly wire the brain for sexual orientation.”). Indeed, LeVay himself has “insisted that his study will be foundational for determining whether nature or nurture causes sexual orientation.” Halley, \textit{supra} note 6, at 534.

\textsuperscript{23} LeVay, \textit{Hypothalamic Structure}, \textit{supra} note 6, at 1034.

\textsuperscript{24} Mounting is the posture assumed by male rats in normal mating with female rats, while lordosis is the bending or arching of the back displayed by females during mating.

\textsuperscript{25} Byne, \textit{supra} note 8, at 52.
female. Applying such logic to humans would imply that of two people of the same sex engaged in intercourse only one is homosexual—and which member of the couple it is, depends on the positions they assume.\(^\text{26}\)

The second problem with studies cited to support the claimed biological determinism of homosexual behavior is diagnostic. Once a valid definition is established, how does the scientist go about gathering the data and applying the definitional criteria to classify the subject? For example, LeVay's study was based on the medical records of the deceased autopsy subjects from whom the brains were taken.\(^\text{27}\) If the subject died of AIDS and the medical record indicated that he was a member of the "homosexual" risk group, LeVay classified him as homosexual.\(^\text{28}\) LeVay did not describe any further verification, validation, or examination of the hospital classification scheme.\(^\text{29}\) LeVay's method of diagnosis appears to have been entirely disconnected from his definition, because he had no way of knowing what definition of "homosexuality" the medical staff used corroborating the reported "sexual feelings or behavior" of the deceased patients.\(^\text{30}\)

Similar problems exist in a frequently cited study that purported to show a correlation between homosexuals and genetic identity.\(^\text{31}\) Professors Michael Bailey and Richard Pillard compared male identical twins, fraternal twins, non-twin brothers, and adopted brothers for sexual orientation. They found that the concordance rate of homosexuality was 52% for monozygotic (MZ) (identical) twins, 22% for dizygotic (DZ) (fraternal) twins, 9% for non-twin biological brothers, and 11% for adoptive brothers. Because the most closely related sib-

\(^{26}\) *Id.*

Moreover, because of the biological differences between animals and humans, the degree to which generalizations between animal sexuality and human sexual behavior is accurate and reliable is highly questionable.

\(^{27}\) *LeVay, Hypothalamic Structure*, supra note 6, at 1035.


\(^{29}\) *LeVay, Hypothalamic Structure*, supra note 6, at 1035. This underscores the significance of the definitional problem that LeVay simply ignored. Even if, fortuitously, the medical record classification LeVay used had been accurate, it leaves open the possibility that a patient who engaged once in his life in a single act of homosexual behavior, and contracted AIDS, would be classified "homosexual" for LeVay's study. For example, two AIDS patients' records indicated that they denied having engaged in homosexual activity; LeVay classified them both as heterosexual even though he did not report that he interviewed the subjects before they died, or their families or friends, or undertook any other investigation to verify or challenge the alleged self-categorization. *See id.* at 1036 n.7.

\(^{30}\) *Id.* at 1035.

\(^{31}\) Bailey & Pillard, *Genetic Study*, supra note 6; *see also* Bailey et al., *Twin Sample*, supra note 6.
lings had the highest concordance rate, they interpreted their results to support their thesis that homosexual behavior has a genetic basis. The Bailey and Pillard study has been widely heralded and has also been cited by courts. It classified probands using a mechanically bi-polar model (homosexual, bisexual, or heterosexual) on the basis of proband self-identification and self-rating on a fantasy-behavior scale. Unverified sibling sexuality-designation was used when a proband was unavailable or uncooperative. The self-designated bisexuals were classified as homosexuals without rigorous scientific justification. The sample was drawn from respondents to advertisements in gay publications. Relying on self-identification, without providing any meaningful standard or definition for the probands to apply, raise serious credibility questions, particularly when the probands are highly interested volunteers solicited through special interest publications.

The third flaw of the scientific studies presented as proof that homosexual behavior is biologically determined is in the failure to adequately control for other influences that might have produced the crucial condition. For example, the work of LeVay depended on the small size of a structure within the brain of homosexual men; yet Bynes noted that, in some mammals, the brain structure analogous to INAH3 in humans shrinks when testosterone is reduced, and that AIDS may shrink the size of some brain structures:


34. The scale they used was the one developed and used in the now-discredited Kinsey sex studies. See JUDITH A. REISMAN, KINSEY: CRIMES AND CONSEQUENCES: THE RED QUEEN AND THE GRAND SCHEME (1998); JUDITH A. REISMAN & EDWARD W. EICHEL, KINSEY, SEX AND FRAUD: THE INDOCTRINATION OF A PEOPLE (J. Gordon Muir & John H. Court eds., 1990).

35. See Halley, supra note 6, at 540.

36. Stanton L. Jones, Homosexuality: The Behavioral Sciences and the Church: Addendum, in HOMOSEXUALITY IN THE CHURCH, supra note 8, at 107, 110; see also Halley, supra note 6, at 546 (“[R]esearchers worry that people who have a personal investment in promoting biological explanations of homosexuality . . . may volunteer for twin studies more often than people who do not.”).

37. One wonders whether the LeVay and Bailey and Pillard studies would have been so readily accepted if the subject they investigated were not of such popular interest, and the results they reached were not so politically correct.
Testosterone levels decrease dramatically as a direct consequence of AIDS itself, and as a consequence of some medications used to treat particular opportunistic infections. . . . The differences in the size of the INAH3 that LeVay attributed to sexual orientation, therefore, may have actually been the result of changes in testosterone levels as a result of AIDS or its treatment.38

Since all of the homosexual men whose brains he examined died of AIDS, one cannot help but ask whether the comparatively shrunken size of their brain structures was caused by AIDS, or by some medication they were receiving as treatment for AIDS, rather than by genetic material.39 Moreover, LeVay did not control for the length of time the subjects had engaged in homosexual activity, their use of medication, or recreational drug use. He also failed to compare the brain-part size of the subjects with that of their parents or siblings, or control for any of a host of environmental factors (including homosexual behavior) that might have influenced the INAH3 size.40

Likewise, the Bailey and Pillard study could be interpreted as demonstrating that homosexuality in twins is environmental and does not follow the pattern of traits known to be heritable. The fact that adoptive brothers, who are genetically unrelated, had a higher homosexuality concordance rate than genetically related non-twin brothers supports the premise that environmental influence is present. Moreover, since non-twin brothers share the same proportion of genes as fraternal (DZ) twins, if homosexuality were genetically induced, the rates of homosexual concordance should be the same for both groups, rather than less-than-half for the non-twin brothers than for the DZ twins reported. Indeed, given the "increased similarity of the trait-relevant environment[al]" influences in the lives of twins,41 for which Bailey and Pillard did not control, one would expect to find, wholly apart from genetics, greater rates of environmentally associated homosexuality concordance in the major dimensions of twins' lives—the

39. LeVay acknowledged this possibility, but discounted it. LeVay, Hypothalamic Structure, supra note 6, at 1036.
40. Thomas A. Schoenfeld, Letter, Biology and Homosexuality, 254 SCIENCE 630, 630 (1991) ("Several decades of empirical work have shown that the brain is a product of early experience, social environment, and genetic instructions. . . . Choice may be a forceful biological process in its own right.").
41. Byne & Parsons, supra note 8, at 229. If genes were the determining cause, the sexual correlation would be 100% between the MZ twins because identical twins have identical genes. If one identical twin has Down's syndrome, for example, the probability is 100% that the other one also will have it.
very thing the study showed. Thus, as one reviewing scientist commented, "perhaps the major finding of these heritability studies is that despite having all of their genes in common and having prenatal and postnatal environments as close to identical as possible, approximately half of the identical twins were nonetheless discordant for orientation."

Control and classification problems also undermine a 1993 genetic study by Hamer and his colleagues, which purported to find genealogical evidence that male homosexuality may be a maternally transmitted condition. Hamer's study even identified a particular gene sequence in a particular chromosomal region as a potential site of a homosexual gene. The researchers looked at genetic material from forty pairs of homosexual brothers who had no homosexual father or son and no more than one lesbian sister, and found that nearly two-thirds of the sibling pairs had a similar gene sequence in the Xq28 chromosome region. Since genetic rules dictate that only 50% of the pairs have similar genetic material, the authors claimed that their study provided evidence that a form of male homosexuality is inherited from mothers through a gene sequence in the Xq28 chromosome region. But once again, the definition of homosexuality and method of classifying nonparticipating persons as homosexual was far from infallible. Another major flaw was "the lack of an adequate control

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42. As psychologist Richard Williams has written, "Since most of the studies have used twins raised in the same family, it is impossible to separate the genetic from the environmental effects. Protestantism (and Catholicism) also tends to run in families, but no one suggests that the cause is genetic." Richard N. Williams, Heritability and Sexual Preference (1994) (unpublished manuscript, on file with author).

43. Byne, supra note 8, at 54; accord Neil Risch et al., Male Sexual Orientation and Genetic Evidence, 262 Science 2063 (1993) (pointing out that some of the statistical assumptions underlying genetic analysis of Mendelian traits do not apply to male homosexual behavior, which is not a Mendelian trait, and therefore impair the validity of Bailey and Pillard's interpretation); Theodore Lidz, Letter to the Editor, Reply to "A Genetic Study of Male Sexual Orientation," 50 Archives Gen. Psychiatry 240, 240 (1993) (comparing Bailey and Pillard study to twin-and-adoption studies of the genetic causes of schizophrenia "that have caused so much misunderstanding and confusion" because of "the same misapplications of methodology and statistics").

44. The particular genetic sequence was not the same for all of the sixty-six homosexual brothers; only each pair of siblings had the same genetic sequence.

45. Since women have two X chromosomes (thus, two Xq28 regions), the statistical probability of two siblings receiving the same Xq28 from their mothers is 50%. See Byne, supra note 8, at 55. Hamer and his colleagues found a 64% concordance. Hamer et al., Linkage Between DNA & X Chromosome, supra note 6.

46. See Hamer et al., Linkage Between DNA & X Chromosome, supra note 6. This study also relied on homosexual male probands to classify the sexual orientation of their fathers, sons, brothers, uncles, and male cousins, an "undoubtedly overly simplistic" and unreliable classification scheme. Id. at 322.
group."\(^{47}\) For example, male homosexuals with heterosexual parents and heterosexual siblings were not included, making it impossible for their data to seriously test the genetic influence thesis.\(^{48}\)

A fourth common flaw is lack of replication, for unreplicated studies are of minimal probative value. This is a serious problem for LeVay, whose results appear to be difficult to reconcile with those of other scientists who have studied other animal populations (rats and monkeys)\(^ {49}\) as well as the human brain.\(^ {50}\) Hamer's study has also come under scrutiny.\(^ {51}\) Neil Risch, the scientist at the Yale University School of Medicine who created the method of analysis used by Hamer, noted that the results obtained by Hamer were not statistically significant.\(^ {52}\) Another group of scientists attempted to replicate the Hamer study, but could not do so:

It is unclear why our results are so discrepant from Hamer's original study. Because our study was larger than that of Hamer et al., we certainly had adequate power to detect a genetic effect as large as was reported in that study. Nonetheless, our data do not support the presence of a gene of large effect influencing sexual orientation at position Xq28.\(^ {53}\)

Another profound problem with many of the scientific studies cited to support biological-determinism claims is causation. Most of the studies purporting to produce support for the immutability thesis are merely correlational. There is a vast difference between correlation

\(^{47}\) Anne Fausto-Sterling & Evan Balaban, Letter, Genetics and Male Sexual Orientation, 261 SCIENCE 1257, 1257 (1993) (noting a questionable statistical assumption which, if modified, could cause “three of four significant maternal relative correlations . . . [to] lose significance”); accord Byne, supra note 38; Halley, supra note 6, at 532–33; Jones, supra note 36, at 110.

\(^{48}\) Likewise, since the LeVay study was not able to examine an adequate sample of female brains for INAH3, LeVay's claim that size of that structure correlates to male or female sexual orientation was not confirmed. LeVay, Hypothalamic Structure, supra note 6, at 1035.

\(^{49}\) Byne, supra note 8, at 53 (“A final problem with the popular interpretation of LeVay's study is that it is founded on an imprecise analysis of the relevant animal research.”); Friedman & Downey, supra note 8, 147–49 (noting that while lesions in that area of the brain appear to impair heterosexual/copulatory behavior in monkeys, masturbation is not impaired, and no studies involving homosexual partners have been reported).

\(^{50}\) Byne, supra note 8, at 54 (“Steven Demeter, Robert W. Doty and James L. Ringo of the University of Rochester, however, found just the opposite: anterior commissures larger in men than in women.”); Friedman & Downey, supra note 8, at 148 (stating that anterior commissure of women and homosexual men is larger than that of heterosexual men, in Allen and Gorski study).


\(^{52}\) Risch et al., supra note 43, at 2064; see also Byne, supra note 8, at 55 (“[O]ne of the developers of the statistical techniques that Hamer used, has questioned whether Hamer's results are statistically significant, [because they lack information about] the familial clustering of homosexuality . . .”).

and causation. The correlation between a rooster crowing and the rising of the sun does not prove that the crowing caused the sun to rise. Even LeVay admitted that his study, allegedly correlating smaller INAH3 brain structure with male homosexuality, did not reveal whether the smaller INAH3 "is the cause or consequence of that individual’s sexual orientation, or if [both] . . . covary under the influence of some third, unidentified variable." Similarly, hormonal studies, once popular with advocates of biological determinism of homosexual orientation, have fallen into disfavor:

[They have] fallen into disfavor because sensitive hormonal assays have failed to demonstrate a correlation between sexual orientation and adult hormonal constitution. Furthermore, hormonal therapies have failed to influence sexual orientation in adults, and there is also no evidence that sexual orientation has shifted in adults as a consequence of changes [in various hormonal conditions].

Another scientific study involving hormones, which has been hailed as "add[ing] to the mounting evidence that homosexuality has genetic origins," has similar causation problems. Shang-Ding Zhang and Ward Odenwald reported in 1995 that after they used heat to reduce the serotonin in fruit flies, many of the treated male fruit flies formed mating chains with each other. But the treated female fruit flies were not similarly affected, nor were all of the treated males. Moreover, after a two-hour exposure to the mutant male fruit flies, "many if not all, of the nontransformants [non-treated male fruit flies] were observed" engaging in the same-sex chain behavior, and when treated male fruit flies were surrounded by a majority of non-treated males, "little or no" male-mating activity was observed. The latter findings contradict the genetic determinism theory, and suggest that the environment can induce "homosexual" behavior in previously

54. LeVay, Hypothalamic Structure, supra note 6, at 1036; accord Schoenfeld, supra note 40, at 630 (reporting that "[s]everal decades of empirical work have shown that the brain is a product of early experience, social environment and genetic instructions").
55. Byne & Parsons, supra note 8, at 230 (citations omitted).
56. Larry Thompson, Search for a Gay Gene, TIME, June 12, 1995, at 60, 60. While Thompson enthusiastically viewed this experiment as pointing to a "genetic" basis for homosexuality, the focus of the study was on biochemical, not genetic, influences.
58. Id. at 5526–27.
59. Id. at 5528 fig.4. When put in bottles containing the altered male fruit flies, normal male fruit flies resisted the sexual advances of the mutant males for two hours and "displayed repelling signals to advancing suitors—i.e., wing-flicking, face-kicking, and/or running away." Id.
60. Id. at 5528.
nonhomosexual fruit flies.\[61\] Furthermore, when the mutant males were put in jars with females, some of them tried to mate with the females, even though the females resisted—another finding that contradicts the biological determinism theory of homosexuality. As Robert Knight has observed, "a close look at the study reveals that the most reasonable conclusions from the evidence are that male and female sex drives are quite different, and that frenzied males, under certain conditions, will mate with anything, even other males."\[62\]

Hamer's study "begs the question of whether the chromosomes in question actually cause homosexual orientation, are necessary but not sufficient to cause it—or perhaps if they actually discovered markers for temperamental or other variables that simply make homosexuality more likely to occur."\[63\] A different kind of causation problem is also raised by Hamer's study: What is the type and intensity of the genetic influence? Assuming some causal connection between genetic markers and male homosexuality, is all homosexual activity caused by biological causes all the time? In his initial study, Hamer acknowledged that he could "say nothing about the fraction of all instances of male homosexuality that are related or unrelated to the Xq28 candidate locus."\[64\] In a later publication, Hamer speculated that the Xq28 gene marker "plays some role in about 5 to 30 percent of gay men."\[65\] Of course, this raises questions about the cause of homosexual behavior in the remaining 70% to 95% of the persons who engage in homosexual acts. And what does "some role" mean? The studies do not claim to indicate how much influence (mild interest, strong feeling, or irre-

\[61\] The researchers' own statement that "[d]uring peak chaining periods (occurring 2-4 [hours] after heat shock), most, if not all, males participated" may be consistent with the environmental-influence thesis rather than biological-influence thesis as well. \textit{Id.} at 5527. Non-treated males also eventually joined. Zhong & Odenwald, \textit{supra} note 57, at 5528 fig.4.

\[62\] Robert H. Knight, \textit{New NIH Study Indicates Homosexuality Is Learned}, \textit{INSIGHT} 1 (1995). Additionally, these are substantial issues regarding definition and designation of "homosexuality" in fruit flies, and the subsequent extrapolation to human sexuality. Since the gene involved, the \((w)\) gene, "is required for pigment production in the light-screening cells of the compound eye" of the fruit fly and its absence (in the mutant flies) "impairs the male's ability to visually track a potential mate," the possibility that male-male coupling results from desperation or convenience might be considered. Zhang & Odenwald, \textit{supra} note 57, at 5525. Summarizing their findings, the authors of the study were very cautious about claiming any genetic influence on homosexuality ("this misexpression of \(w\) leads to a marked change in the sexual behavior of mature adult males," does not even use the term "homosexual"), but they were much more definite in asserting that \textit{environmental} influence on male-male sexual linking had been found ("males who do not ectopically express \(w\) and normally repel homosexual advances will actively participate in homosexual courtship when exposed to a vigorous male-male courtship environment"). \textit{Id.}

\[63\] Jones, \textit{supra} note 36, at 111.

\[64\] Hamer et al., \textit{Linkage Between DNA & X Chromosome, supra} note 6, at 325.

\[65\] \textit{Hamer & Copeland, Science of Desire, supra} note 6, at 146 (emphasis added).
sistible urge) the alleged biological determinants provide. Exactly how the hypothesized genetic influence operates to produce the sexual attraction or behavior is also unclear. The degree of biological control over behavior are relevant to the questions of individual responsibility and social accountability. Thus, causation is a major question mark in the studies claiming biological determinism of homosexual behavior.

These examples illustrate the problems that make claims about the biological immutability of homosexual attraction dubious. Other problems with the research include potential individual bias, as well as social taboos or peer pressures, which might impair the reliability or utility of some of the research and analysis.

Thus, it is not surprising that even as ardent a supporter of gay and lesbian rights as Professor Janet Halley has acknowledged “the failure of the existing science to support [the] empirical claim that homosexual orientation is immutable.” This is not to suggest that biological influences do not exist, or that serious scientific research into the biological dimensions of homosexual behavior is not worthwhile. We know too little of the human condition to abandon research that might be beneficial to general knowledge of human sexuality and to persons unwillingly or uncomfortably attracted to persons of the same gender. Common sense compels us to acknowledge that biological factors are not unrelated to human sexual attraction and behavior.

66. Simon LeVay stated, in a newspaper interview, “I was very emotional about it. I had a lot invested in my work. . . . I have always felt that I was born gay.” Talan, supra note 20 (internal quotation marks omitted); accord Nimmons, supra note 20 (“As a gay man, I had the motivation to do this work.”).

67. For a discussion of the taboo regarding scholarship critical of homosexual behavior, see Wardle, Critical Analysis, supra note 6, at 20–23.

68. The way such taboos and social pressures can distort analysis was illustrated by the worldwide popularity of quasi-scientific “eugenics” theories about the heritability of social behavior a century ago. No less of an intellectual giant than Justice Oliver Wendell Holmes, was swept up in the movement, causing him to make this infamous statement: “It is better for all the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. . . . Three generations of imbeciles are enough.” Buck v. Bell, 274 U.S. 200, 207 (1927).

69. Halley, supra note 6, at 516 (“It is time to think carefully about whether the pro-gay argument from immutability has any justifiable part to play in pro-gay litigation.”). Unfortunately, Professor Halley commits the same error in her article that impairs the immutability studies she discredits—namely, she attempts to predetermine for political purposes what the outcome will be, and then expects science to produce, and legal analysis to tamely accept, whatever evidence happens to be offered to support that outcome.

70. Schoenfeld, supra note 40, at 630 (“[W]e should not treat our ignorance of the nature of biology’s role in psychological functioning as evidence that biology in fact has no role.”).

71. For example, aging (a biological process) plays a significant role in sexuality (e.g., infants have no sexual desire or ability, and the sexual patterns of senior men and post-menopausal women are somewhat different than those of younger adults).
that psychological experiences from early childhood to adulthood, as well as biological and social factors, are all included in the constellation of influences that affect human sexual attraction and behavior.\footnote{72}

In comparison to the overwhelming evidence for biological immutability and determination of individual race and gender, the evidence supporting the claim that homosexual attraction is biologically determined or immutable seems feeble. We are confident that race is an immutable biological characteristic. There is also undeniably an immutable biological (at least chromosomal) element in human gender.\footnote{73} While there are other factors that may influence some aspects of gender self-identification (and, at least arguably, legal classification),\footnote{74} gender, like race, is not generally considered a variable condition. While genetic sexual ambiguity is a real but very rare condition, the rarity of the exception only underscores the pervasiveness of the rule. The genetic makeup of sex and race are fixed even before birth, so those categories are largely understood in society and in the law. Human sexual attractions, on the other hand, do not exhibit such biological constancy or immutability.

B. What We Know About the Mutability of Human Homosexual Attraction

In contrast to the paucity of evidence for the biological determinism of homosexual behavior, there is evidence that some people can learn to control, reduce, and even overcome their homosexual attractions and behaviors.\footnote{75} The significant success rates disclosed in many stud-

\footnote{72. Byne & Parsons, supra note 8, at 236–37 ("While most authors have recognized the possible importance of both biologic and experiential factors, too little attention has been given to the manner in which these factors may interact. We propose an interactional model in which genes or hormones do not specify sexual orientation per se, but instead bias particular personality traits and thereby influence the manner in which an individual and his or her environment interact as sexual orientation and other personality characteristics unfold developmentally." (citations omitted)). Thus, for example, it might be worth investigating whether the human sex drive is largely biological (genetic, hormonal, etc.), whereas the method of expression, satisfaction, or channeling may depend upon environmental, developmental, psychological, and social influences.}

\footnote{73. This is the once exclusive and still predominant legal view of gender; it is determined by chromosomal tests, not psychological or genital markers. See Kantaras v. Kantaras, 884 So. 2d 155 (Fla. Dist. Ct. App. 2004); In re Estate of Gardiner, 42 P.3d 120 (Kan. 2002); Corbett v. Corbett, [1970] 2 W.L.R. 1306; see also Teresa A. Zakaria, Note, By Any Other Name: Defining Male and Female in Marriage Statutes, 3 Ave Maria L. Rev. 349 (2005).}

\footnote{74. See Terry S. Kogan, Transsexuals, Intersexuals, and Same-Sex Marriage, 18 BYU J. Pub. L. 371 (2004).}

\footnote{75. Robert L. Spitzer, Can Some Gay Men and Lesbians Change Their Sexual Orientation? 200 Participants Reporting a Change from Homosexual to Heterosexual Orientation, 32 Archives Sexual Behav. 403 (2003).}
ies of professional treatment of individuals seeking to escape patterns of homosexual behavior seems to refute the claim that homosexuality is an immutable biological condition like race or gender. Indeed, the experience of hundreds of psychologists who continue to successfully treat thousands of patients, helping them to understand "the dynamic forces behind [their] homosexuality and . . . to gain control of them," provides evidence that homosexual attraction or sexual preference is not beyond reasonable human control. The report that homosexual behavior is "considerably less prevalent among the religiously devout" also suggests that homosexual behavior is not immutable and that belief systems may significantly influence sexual behavior. Thus, the existing evidence clearly does not support such absolute biological positions as "hardwiring," immutability, or biological determinism claims.

Against the claim of immutability stand the lives of literally thousands of lesbians and gays who have left the homosexual lifestyle, and the psychologists, psychiatrists, and counselors who have helped them to change their sexual orientation. One of the most significant studies to repudiate the claim of immutability was conducted by Dr. Robert L. Spitzer, the Columbia psychiatrist who led the movement to remove homosexuality as a disorder from the Diagnostic and Statistical Manual in 1973. Over a period of sixteen months, he interviewed 247 individuals who had responded successfully to reorientation ther-


78. NARTH, New Techniques, supra note 76.


apy and, in 2003, he published his findings in the *Archives of Sexual Behavior*. He found that 67% of the men and 44% of the women who had participated in the conversion therapy had "good heterosexual functioning," and that 89% of the men and 95% of the women reported that they no longer felt, or felt only slightly, unwanted homosexual feelings. Moreover, 11% of the men and 37% of the women reported a complete change from homosexual to heterosexual orientation. Spitzer independently concluded that for these ex-gays and ex-lesbians, the changes were not just in external behavior, but in core features of sexual orientation: "Like most psychiatrists . . . I thought that homosexual behavior could be resisted, but sexual orientation could not be changed. I now believe that's untrue—some people can and do change." An independent Guttman scalability analysis found that "Spitzer's study is strong evidence that reparative therapy can assist individuals in changing their homosexual orientation to a heterosexual orientation."

C. Even if Proven, Biological Immutability of Homosexual Attraction Would Not Necessarily Advance the Cause of Same-Sex Marriage

Even if it were scientifically proven, the legal and constitutional significance of the immutability of homosexual attraction is questionable. Homosexual behavior, as distinct from attraction, always involves some measure of choice and free will. The Supreme Court has repeatedly upheld legal classifications on the basis of immutable conditions without subjecting them to strict scrutiny. Nevertheless, this argument might have significant political impact and would undoubtedly influence some courts. See generally Craig M. Bradley, *The Right Not to Endorse Gay Rights: A Reply to Sunstein*, 70 Ind. L.J. 29, 37-38 (1994).

82. Spitzer, supra note 75; see also Byrd, *Born That Way*, supra note 15.
84. Id.
87. City of Cleburne v. Cleburne Living Ctr., Inc., 473 U.S. 432, 442 (1985) (mental retardation is not a suspect classification); Mass. Bd. of Ret. v. Murgia, 427 U.S. 307 (1976) (per curiam) (age is not a suspect classification); see also Bowen v. Gilliard, 483 U.S. 587, 602-03 (1987) (limiting the definition of "household" to only close relatives invokes deferential review); Lyng v. Castillo, 477 U.S. 635, 638 (1986) (close relatives as classification basis held rational); Fron-tiero v. Richardson, 411 U.S. 677, 688 (1973) (suggesting that discrimination on the basis of physical disability and intelligence, two presumably immutable conditions, is not subject to heightened judicial scrutiny).
Sunstein has recognized that "[i]mmutability is neither a necessary nor a sufficient basis for treatment as a 'suspect class.'" 88 If specific conduct may be properly regulated or prohibited by the state (e.g., rape, child molesting, violence, or drunk driving), the fact that some persons may be biologically predisposed or psychologically driven to such behavior does not mean that its regulation or prohibition is impermissible. 89 Since the evidence of sexual orientation immutability is considerably less compelling than the evidence of the immutability of consanguinity and biological age, the case for the impermissibility of marriage laws forbidding same-sex marriage is even weaker than it is for the impermissibility of marriage restrictions based on those classifications. The social significance of immutability is also debatable:

Surely, tolerance granted on such a basis would fall short of genuine social acceptance. Furthermore, history suggests that it is unrealistic to expect any protection to be conferred on the basis of alleged biologic causality. For example, the undisputed innateness of skin color does not appear to have a mitigating influence on racism." 90

Thus, neither as a matter of constitutional doctrine nor as a matter of social acceptance is proof of immutability an advantage for advocates of same-sex marriage. 91

Revising public policy on the basis of the latest studies about the potential causes of homosexual attraction is a very risky proposition because there is still too much that we do not know about the causes of human sexual attraction. To base a significant change in legal policy, such as a redefinition of the meaning of marriage or a profound alteration of the standards of eligibility for adoption, upon the current claims that homosexual attraction is biologically determined would be irresponsible. Our knowledge about the causes of homosexual attraction and behavior is too immature to support such profound changes in legal and social policies on the basis of such inconclusive, inconsistent, and incomplete research.

88. Sunstein, supra note 3, at 9. But cf. Bradley, supra note 86, at 38 ("[I]f homosexuality can be shown to be, at least in part, 'immutable,' the argument for gay rights will enjoy more success in the courts." (citation omitted)).

89. Furthermore, if it were shown that some people are disposed to socially troubling behavior, this would provide a persuasive basis for the enactment of legal rules repudiating such behavior. The enactment and enforcement of laws providing sanctions for those found engaging in the socially repugnant conduct would provide a special barrier for the benefit of those persons with a special disposition to engage in the conduct. Social pressure (in the form of law) to adhere to acceptable limits may compensate for or counterbalance the pressures that otherwise might cause the vulnerable person to engage in dangerous or antisocial behavior.

90. Byne & Parsons, supra note 8, at 236.

91. See Halley, supra note 6, at 519–21 (reviewing ways in which immutability might by used by anti-gays).
III. Policy Should Be Based on What We Know: Gay Sex Is Not Safe Sex

In stark contrast to how little we know about the biological causes of homosexual attraction or behavior, the body of knowledge about the biological consequences of engaging in homosexual behavior is much more reliable. And while this body of knowledge is also growing rapidly, most of the new data corroborates and elucidates in greater detail the findings of past research. Homosexual behavior significantly increases the risk of serious health effects. Homosexual sex is, by definition, risky sex.

A. Sexually Transmitted Diseases and Gay Sex

The first thing we know about the consequences of homosexual behavior is that it is associated with and a significant cause of many serious sexually transmitted infectious diseases. One study gave this grim summary of the situation:

Throughout the 1970s and early 1980s homosexual men were known to be at high risk of acquiring sexually transmitted diseases (STDs). In the 1980 Annual Summary Report from the Centers for Disease Control, over half the reported cases of infectious syphilis occurred in homosexual men. Gonorrhea, hepatitis A and B, cytomegalovirus (CMV) infection, and anorectal warts also occurred more commonly in homosexual men than in heterosexual men or women. Intestinal or rectal infections with *Shigella* species, *Entamoeba histolytica*, *Giardia lamblia*, and other enteric pathogens were hyperendemic among homosexual men in many communities. . . . [Since the discovery of AIDS, the rate] of many of these STDs has declined . . . . Homosexual men are reporting fewer partners and less frequent sexual exposure. Despite these behavioral changes and increased counseling about safer sexual practices, STDs remain a major health problem among homosexual men.92

A recent survey of unsafe sexual practices among homosexuals by Dr. John Diggs noted that anal intercourse puts gay males at a heightened risk for anal cancer, hemorrhoids, anal fissures, and anorectal trauma; parasitic and other intestinal infections are more common among those who practice various forms of oral sex.93 While heterosexual couples may also engage in these various forms of sodomy, "homosexual men engage in these activities to a far greater extent [than hetero-
Due to its very different construction and characteristics, the anus is a dangerous place for sexual intercourse, while the vagina is a much safer receptacle for sexual penetration. Thus, "[t]he list of diseases found with extraordinary frequency among male homosexual practitioners as a result of anal sex is alarming: Anal Cancer, Chlamydia trachomatis, Cryptosporidium, Giardia lamblia, Herpes simplex virus, Human immunodeficiency virus, Human papilloma virus, Isospora belli, Microsporidia, Gonorrhea, Viral hepatitis types B & C, [and] syphilis." One study showed that "85 percent of syphilis cases were among self-identified homosexual practitioners." Furthermore, "syphilis among homosexual men is now at epidemic levels in San Francisco." Likewise, "so many [intestinal] infections [result from gay sex] that a syndrome called 'the gay bowel' is described in the medical literature." Human herpes virus 8 is a disease found exclusively in homosexual men in America, and a form of cancer, Karposi’s sarcoma, is found almost exclusively in gay men. Thus, it is not surprising that the life-spans of male homosexuals and bisexuals have been estimated to be up to twenty years shorter than heterosexuals. Lesbian sex also involves a higher risk of transmission of sexual infections and of other health risks than in heterosexual couples: "Bacterial vaginosis, Hepatitis B, [and] Hepatitis C . . . were present in much higher proportions among female homosexual practitioners . . . . In one study of women who had sex only with women in the prior 12 months, 30 percent had bacterial vaginosis." Both lesbians and gay men exhibit much higher levels of "psychiatric illness, including depression, drug abuse and suicide attempts," as many studies have confirmed.

94. Id. at 3 (citing Robert T. Michael et al., Sex in America: A Definitive Survey 140-41 tbl.11 (1994)).
95. Id. at 3-4.
96. Id. at 3.
97. Id.
98. Id. Gays contract syphilis at about four times the rate of heterosexual men.
100. Id.
101. Id. at 8 (citing Canadian and U.S. studies).
102. Id. at 6. Ironically, lesbians "were 4.5 times [more] likely as exclusively heterosexual controls to have had more than 50 lifetime male sex partners." Id.
103. Id.
104. Diggs, Health Risks, supra note 93, at 6-7; ("[H]eavy cigarette smoking, alcohol abuse, intravenous drug use, and prostitution were present in much higher proportions among female homosexual practitioners.")
B. AIDS and Gay Sex

The risk of AIDS from homosexual relations, especially male homosexual relations, is tremendous. AIDS is a behavior-driven epidemic, and homosexual behavior is still the primary means of transmission in the United States. The U.S. Department of Health and Human Services lists twenty-four different categories of exposure to AIDS (methods of transmission), but the one category that dominates and exceeds all others is male homosexual activity. Overall, 55% of cumulative AIDS cases reported through 2004 (402,722 cases) involved the single mode of exposure of men who have sex with men. If the multiple modes of exposure that include male homosexual behavior are aggregated, male homosexual behavior is the potential cause of more than 70% of all AIDS cases that have been reported in the United States, from the first reported case through 2004. The Centers for Disease Control and Prevention (CDC) data are similar; the CDC reports that, as of 2003, “the largest proportion of HIV/AIDS diagnosis [63% of all cases] were for men who have sex with men (MSM), followed by adults and adolescents infected through heterosexual contact [17%].” Male-to-male sexual contact alone has accounted for 441,380 cases, or nearly half of the total number in the United States, while heterosexual contact accounted for only 159,114 of the cumulative cases. A summary of HIV seroprevalence data from STD clinics revealed that the national median percentage of men who, since 1978, have had sex with other men who were positive for HIV was 25.5%, compared with only 7.1% of male heterosexual drug injectors. Homosexual men are still at greatest risk of contracting and transmitting AIDS in the United States. Men who get AIDS, usually by male-to-male sex or intravenous drug


106. Cases of HIV Infection and AIDS in the United States, 2004, HIV/AIDS SURVEILLANCE REP. (Ctrs. for Disease Control & Prevention, U.S. Dep’t of Health & Human Servs., Atlanta, Ga.), 2004, at 32 tbl.17. The second most common method of transmission was intravenous drug use, which accounted for 21% of the AIDS cases. Id.

107. Id.


109. Id.

110. Results Through 1992, NAT’L HIV SEROSURVEILLANCE SUMMARY (Nat’l Ctr. for Infectious Diseases, Ctrs. for Disease Control & Prevention, Atlanta, Ga.), 1994, at 27 tbl.5.

111. Id.
use, and engage in heterosexual sex may also transmit AIDS to their female sex partners; the incidence of this is increasing.\textsuperscript{112}

The HIV infection rates among homosexuals are rising. The CDC recently reported that between 2003 and 2004, there was a statistically significant 8% increase of HIV infection/AIDS diagnosis among men who have sex with men.\textsuperscript{113} They also warned that among men, from fifteen to twenty-nine who engage in sodomy, up to 77% are unaware of their HIV positive status, further increasing the risk of transmission.\textsuperscript{114} Thus, the CDC reported in November 2003 that AIDS infections among gays had risen in twenty-nine states.\textsuperscript{115}

The authors of a survey conducted by the British Columbia Centre for Excellence in HIV/AIDS noted that the data from their major Canadian HIV/AIDS facility showed that "life expectancy at age twenty years for gay and bisexual men is eight to twenty years less than for all men." They further noted that were that pattern to continue, "nearly half of the gay and bisexual men currently aged twenty [would] not reach their sixty-fifth birthday."\textsuperscript{116}

HIV/AIDS threatens more than just the gay community and that threat is growing. In 2004, while male-to-male sexual contact remained the largest single category of AIDS transmission accounting for 17,691 AIDS cases—less than 38%,\textsuperscript{117} heterosexual transmission accounted for 13,128 cases—nearly 75% of the gay sex number of transmissions, or about twice the ratio of heterosexual-to-gay sex AIDS transmissions as reflected in the historic data.\textsuperscript{118} The World Health Organization reported in December 2005 that the number of persons living with HIV/AIDS in 2005 was approximately 40.3 million persons (36.7 to 45.3 million), including 38 million adults (20.5 million men and 17.5 million women) and 2.3 million children age fourteen and younger.\textsuperscript{119} The number of persons newly infected with HIV in

\textsuperscript{112} See infra notes 117, 138 and accompanying text.


\textsuperscript{114} Id. at 1153; see also Terry Vanderheyden, Homosexuality Triggering HIV Escalation, LifeSite News, Nov. 18, 2005, available at http://www.lifesite.net/ldn/2005/nov/05111812.html.


\textsuperscript{117} Id. It was the sole or one of two transmission factors in nearly half of the existing AIDS cases; male-to-male sex accompanied by intravenous drug use accounted for another 1920 cases.

\textsuperscript{118} Id.

2005 was 4.9 million persons (4.3 to 6.6 million). This amounts to about 14,000 new infections each day. More than 95% of these new infections occurred in developing countries, and nearly 50% were among females. In 2005, approximately 2000 children under the age of fifteen years, and 6000 young people aged fifteen to twenty-four years were infected with HIV every day. The number of estimated deaths from AIDS in 2005 was 3.1 million persons (2.8 to 3.6 million), including 570,000 children less than fifteen years of age. While the HIV infection rates are no longer increasing at the astronomical rates observed earlier in the pandemic, they are still rising consistently. AIDS is estimated to have killed over 25 million people worldwide, "making it one of the most destructive epidemics in recorded history." It has fulfilled the ominous prediction made in 1987 by Secretary of Health and Human Services Otis Bowen that "tens of millions" of people worldwide could die from AIDS, and that the disease could make earlier epidemics, such as bubonic plague in Europe, smallpox, and typhoid, "pale in comparison." By 2001, there were 13 million AIDS orphans in the three poorest continents, and it is estimated that that number will nearly double, to 25 million, by 2010.

At the end of 2003, it was estimated that well over one million Americans (between 1,039,000 and 1,185,000) had HIV/AIDS, with approximately one-quarter of those persons undiagnosed and unaware. Since the time AIDS statistics have been recorded until 2004, an estimated 944,305 Americans have contracted AIDS. Adult and adolescent AIDS cases totaled 934,862 (756,399 males and 178,463 females); an estimated 9443 AIDS cases involved in children under age

UNAIDS & WHO 2005]; see also World Health Org., Weekly Epidemiological Record No. 26, July 1, 1994, at 191, 192.
120. UNAIDS & WHO 2005, supra note 119.
122. UNAIDS & WHO 2005, supra note 119, at 1; see also UNAIDS & WHO, AIDS EPIDEMIC UPDATE: DECEMBER 2003, at 3 [hereinafter UNAIDS & WHO 2003] (stating that in 2003, HIV/AIDS-associated illnesses caused the deaths of approximately three million people worldwide, including an estimated 500,000 children younger than fifteen).
123. UNAIDS & WHO 2005, supra note 119.
124. Id.
The number of newly reported AIDS cases in the United States remained relatively steady from 2000-2001, but has increased annually since then, with 40,267 cases reported in 2002, 41,831 cases reported in 2003, and 42,514 cases reported in 2004. Experts at the CDC estimated that in 2004, adults and adolescents with AIDS totaled 42,466 (31,024 males and 11,442 females), and children twelve years old and younger accounted for 48 AIDS cases. The number of cumulative deaths from AIDS in the United States through 2004 totaled 529,113 including 523,598 adults and adolescents, and 5515 children under age thirteen. Even since the introduction of retroviral therapy in the late 1990s, the annual death rate for AIDS, in the United States, has remained between 17,500-18,500 persons per year since 2000. In 2004, an estimated 15,798 deaths in the United States were caused by AIDS, including 15,737 adults and adolescents, and 61 children under age thirteen.

Increasingly, the AIDS epidemic is threatening young people. Adolescents and young adults age thirteen to twenty-four account for 50% of new HIV infections in the United States, or nearly 20,000 new infections annually. The age at onset of HIV has declined significantly during the past decade, from an average age of over thirty in the early 1980s to an average age of twenty-five in the 1990s. HIV infection was the leading cause of death among adults twenty-five to forty-four in 1994 and 1995, accounting for 19% of all deaths in this age group from all causes, and the fifth leading cause of death in 2000. From 2001 to 2004, the number of overall AIDS cases increased for youth and young adults between the ages of fifteen to twenty-four. Women, too, are increasingly becoming victims.

128. Id.
129. Id.
130. Id.
131. Id.
133. See Ctrs. for Disease Control & Prevention, supra note 127.
Young women between the ages of sixteen and twenty-one have a 50% higher HIV prevalence rate than males of the same age.139

C. Child Molestation and Homosexual Behavior

Homosexual behavior has other negative effects on society. One area of concern is the large and disproportionate number of homosexual men and women who report having been sexually molested as children or adolescents. Premature or traumatic sexualization is known to have profound effects on the young victims. Thus, it is of grave significance that Diane Shrier and Robert Johnson found that homosexually assaulted males later identified themselves as homosexual seven times more often as the non-assaulted males.140 They also found that the mean age of male sexual molestation victims was ten years old, with the range from four years to sixteen years of age.141 Similarly, research with 942 nonclinical adults found that 46% of the gay men reported homosexual molestation, compared to only 7% of the nonhomosexual population; 22% of the lesbians reported homosexual molestation, compared to 1% of heterosexual women.142

We know that physical abuse can be transmitted from perpetrator to victim; those who were victims of abuse as children seem to be at increased risk of engaging in that behavior when they become adults:143 "Child maltreatment in its various forms seriously disrupts the development of these psychological stages; when abuse and neglect occur during a stage, that building block is likely to be derailed."144 Thus, it is estimated that the rate of transmission of abuse across generations is about 40%.145 In one study of children who were sexual abusers, "[86%] of their sample had been sexually maltreated, 43% had been physically maltreated, and 33% had been emotionally maltreated."146

141. Id. at 1191 tbl.4.
142. Marie E. Tomeo et al., Comparative Data of Childhood and Adolescence Molestation in Heterosexual and Homosexual Persons, 30 ARCHIVES SEXUAL BEHAV. 535, 539 tbl.3 (2001).
144. Mitnick, supra note 143, at 1077–78.
145. Id. at 1078.
146. Id. at 1079.
Discussion of sexual molestation and abuse of and by homosexuals is a very delicate subject. It provokes strong reactions that can exaggerate negative stereotypes on one hand, or provoke individuals to close their eyes to very serious risk factors on the other. Thus, this area of study must be approached with great care and caution. Nevertheless, serious study is needed because the sexual abuse of children is a serious problem, the incidence of which does not seem to be waning.

IV. THE RELEVANCE OF BIOLOGICAL CONSEQUENCES TO FAMILY LAW AND POLICY

The biological health consequences of homosexual sex are relevant to many important family law policy issues, such as the legal recognition of same-sex marriage or quasi-marital status, adoption, foster care, child custody, and visitation rights. As the model unit of sexual responsibility, the heterosexual union is far more promising than the homosexual union. From the perspective of health and safe sex, heterosexual relations should be preferred, while homosexual unions have a substantial burden to justify public recognition or benefits comparable to marriage.

A. Policy Relevance of Health-Risky Homosexual Sex for Marriage Laws

From the perspective of the public interest in safe sexual activity in marriage, the public health data shows that heterosexual unions are substantially less risky to physical health than homosexual unions."147 Safe sex has long been a concern of marriage policy and laws.148 The

147. See supra notes 91–103 and accompanying text; see also Thomas E. Schmidt, Straight and Narrow: Compassion and Clarity in the Homosexuality Debate 118–22 (1995) (citing numerous sexually transmitted diseases commonly found in the gay community due to unsafe sexual practices, including bacterial infections such as amebiasis, giardiasis, gonorrhea, shigellosis, chlamydia, syphilis, ectoparasites, and viral infections including condylomata, herpes, hepatitis B, and hepatitis A); George A. Rekers, An Empirically-Supported Rational Basis for Prohibiting Adoption, Foster Parenting, and Contested Child Custody by Any Person Residing in a Household That Includes a Homosexually-Behaving Member, 18 St. Thomas L. Rev. 325, 330–40 (2005) (citing studies of large probability samples of the adult population that have repeatedly found that homosexually behaving individuals were more likely than heterosexually behaving individuals to exhibit significantly and “substantially higher prevalence of psychiatric disorders and substance abuse”).

148. Joseph W. Hovermill, A Conflict of Laws and Morals: The Choice of Law Implications of Hawaii’s Recognition of Same-Sex Marriages, 53 Mo. L. Rev. 450, 472 n.153 (1994) (“The connection between marriage and sexual activity has been consistently recognized by state courts in determining whether certain marriages are against that state’s public policy.”). Even assuming that the constitutional protection of the right to marry may not rest upon procreation or regulation of sexual conduct, the general connection between marital status and sexual activity is difficult to separate. I have briefly reviewed the public health interest in safe sex and procreation in
prohibition of marriage by persons with venereal disease in a communicable stage, infected with pulmonary tuberculosis, or with "loathsome disease[s]," have all been statutorily recognized, even in recent years.\footnote{149} Marriage license regulations often require persons desiring to marry to complete health questionnaires, obtain physical exams, and submit to blood tests. Likewise, the creation and protection of a safe haven free of the strife and competition for sexual favors, and the protection of vulnerable dependents from the emotional traumas associated with sexual exploitation, are among the major justifications for marriage regulations (including incest and consanguinity proscriptions). These extensive marital regulations reflect the profound public interest in the safety of sexual relations within marriage.\footnote{150}

The profound public interest in "safe sex" makes information about the biological consequences of homosexual behavior very relevant in the debate over same-sex marriage. As the status and benefits of marriage provide and are intended to reinforce strong social incentives to marry, legalizing same-sex marriage would provide significant public incentives for entering into those relations. This is the so-called conservative argument for same-sex marriage promoted by Jonathan Rauch and Andrew Sullivan.\footnote{151} If same-sex marriage is legalized, the status and benefits of marriage can be expected to entice gays and lesbians to enter into those relations where the many risks of the unsafe sexual practices abound.\footnote{152} To some extent, the creation of some quasi-marital legal status with benefits comparable to marriage for same-sex couples would involve the same incentives to enter dangerous homosexual liaisons.

Concern for the physical health of the partners in same-sex unions must be grave. Given the promiscuous, multi-partner sexuality of gay and lesbian lifestyles,\footnote{153} concern for the spread of infectious and con-
tagious sexually transmitted diseases must also be a major public health concern in jurisdictions where same-sex marriages or "domestic partnerships" are allowed. Indeed, one study from the Netherlands, the first nation to legalize same-sex marriage and arguably the most gay-friendly nation on earth, suggests that gay men in committed relationships have, on average, eight casual sex partners per year, and engage in more "risky" sexual practices than gays not in such relationships.\textsuperscript{154} Perhaps those public health concerns underlie the fact that, historically, no state or nation ever authorized or recognized marriage between persons of the same sex until the Netherlands legalized same-sex marriage six years ago. Since then, Belgium, Spain, and Canada have also legalized same-sex marriages,\textsuperscript{155} and South Africa passed a same-sex civil union law giving those unions the same legal incidents of marriage.\textsuperscript{156} Also, a few internal, semiautonomous political jurisdictions, such as the Commonwealth of Massachusetts, have also legalized same-sex marriage.\textsuperscript{157} Approximately twenty nations have legalized some form of domestic partnership for same-sex couples. Nearly a dozen nations give preferred legal status with nearly all of the same legal rights and benefits of marriage to same-sex couples who register for a domestic partnership.\textsuperscript{158} Four American states have enacted similar quasi-marital regimes for same-sex couples.\textsuperscript{159} Additionally, about six nations and one U.S. state (Ha-
have extended some domestic relationship status, essentially equal to the limited economic protections afforded heterosexual nonmarital couples to same-sex couples. These relationships are clearly distinct from marriage, with less robust legal consequences, and the term "marriage" used herein does not include the relationships created or recognized by these regimes. In most nations that allow same-sex couples to register as pactes civile or domestic partnerships, however, the benefits extended are not the same full benefits as marriage but are limited to some specific economic, welfare, or property interest benefits.

Given the intense campaign to legalize same-sex marriage, it is notable that only four or five nations have actually legalized it. More impressive is the fact that 32 of the 191 sovereign nations recognized by the United Nations have now adopted constitutional provisions that clearly reject same-sex marriage and clearly define marriage as the union of a man and a woman, and the number is rising. At least 137 national constitutions contain provisions addressing protection for marriage or families, either in substantive language or in structural provisions allocating power to protect families or family relations. Some constitutional provisions are eloquent, others merely procedural. These provisions demonstrate that protection of marriage as a basic human right in the fundamental charter or constitution of a state is not unusual.

At least eighty-two national constitutions—nearly 60% of the national constitutions that refer to families or marriage, governing more than 40% of the sovereign nations of the world—contain explicit, substantive provisions defining marriage, providing protection for marriage, or identifying marriage as a fundamental and protected relationship. Provisions in the national constitutions of at least thirty-two nations are similar to provisions in the Defense of Marriage Act § 26:8A-1 (West 2004); An Act to Promote the Financial Security of Maine's Families and Children, 2004 Me. Legis. Serv. 672 (West) (H.P. 1152) (L.D. 1579); Connecticut Civil Union Act, Public Act No. 05-10 (approved Apr. 20, 2005); see also Elrod & Spector, supra note 155, at 905-08.

160. See Elrod & Spector, supra note 155, at 905-08.
161. See Kukura, supra note 155, at 17-18.
164. See id.
Act, because they explicitly define marriage as the union of man and woman (20 nations) or very strongly indicate that marriage is the union of a man and a woman (11 nations). Thus, nearly one-sixth of the sovereign nations of the world have already adopted marriage provisions similar to those proposed in the Federal Marriage Protection Amendment.

The national constitutions of over 15% of the nations of the world define marriage as the union of man and woman. For example, the Constitution of Cambodia provides that “Marriage shall be . . . based on the principle of mutual consent between one husband and one wife.” Likewise, the Constitution of Colombia declares that the family “is formed . . . by the free decision of a man and woman to contract matrimony.” Japan declares that “[m]arriage shall be based only on the mutual consent of both sexes.” The Constitution of Lithuania declares that “[m]arriage shall be entered into upon the free consent of man and woman.” The Constitution of Mongolia declares, “Men and women enjoy equal rights in . . . marriage. Marriage is based on the equality and mutual consent of the spouses who have reached the age determined by law.” Poland declares that “[m]arriage, being a union of a man and a woman . . . shall be placed under the protection and care of the Republic of Poland.” The Constitution of Ukraine also explicitly declares that “[m]arriage is based on the free consent of a woman and a man.” These are just a few examples of the many clear provisions in national constitutions that unequivocally define marriage constitutionally as the union of a man and a woman. It may be that these provisions reflect, inter alia,
an awareness of and concern about the biological consequences of homosexual relations.

The United States has not yet decided to provide constitutional protection for the institution of conjugal marriage; it is lagging behind in this global evolution of constitutional protection for basic human rights. However, since 1998, twenty-six states have adopted state marriage amendments (SMAs) to protect the institution of conjugal marriage from redefinition by runaway courts of politicians. In 2004 alone, following the Massachusetts Supreme Court decision in Goodridge v. Department of Public Health, voters in thirteen states approved SMAs. In 2005, Kansas and Texas joined the state marriage amendment bandwagon; in 2006, voters in seven other states also approved marriage amendments. Overall, the SMAs have been approved with overwhelming public support. In every state in which a SMA proposal has been on the ballot, it has passed by votes ranging from 57% to 84% and, nationally, the overall approval vote for SMAs has been nearly 70%. Thus, more than 50% of the American states have already adopted constitutional protection for conjugal marriage and explicit constitutional rejections of same-sex marriage (most within the past three years). It is likely that even more American states will adopt such constitutional provisions in the future. Again, it is not unlikely that some awareness of the undesirable biological consequences of homosexual sexual relations has influenced the adoption of such strong legal policies rejecting same-sex marriage.

The biological dimension is reflected in the national and state constitutional provisions, and in the forty-five state marriage laws that define marriage as the union of a man and a woman. These provisions and laws reflect an endorsement of the belief in the importance of the biological differences between men and women. As men and women are different, the union of a man and a woman creates a different kind of union than the union of two men or two women. These laws endorse the belief in marriage as a gender-integrating union—a unique and valuable complementary union of male and female that is much

174. Wardle, supra note 163, app. 3 at 448 (listing state marriage amendments as of 2005).
176. See generally Rekers, supra note 147 (discussing numerous empirical studies showing the correlation of negative effects on behavior, psychological well-being, and mental health in homosexually behaving individuals and in children that were adopted by homosexually behaving individuals).
greater than the mere sum of its parts. They reflect a belief in the critical importance of such conjugal unions and in their social superiority to other kinds of unions, including same-sex unions. Conjugal marriage is more stable than other adult intimate relationships. As all relationships are not equal, and all sexual relations do not make equal contributions to society, conjugal marriage—the matrimonial union of a man and a woman—is unique and uniquely beneficial to society. This unique biological union of conjugal marriage promotes safe sex, responsible procreation, optimal childrearing, public virtue, gender equality, human maturation, and generative connection.

B. Parenting Concerns in Adoption, Custody, Visitation, and Guardianship

The health consequences of homosexual behavior are also of great relevance to family laws regulating parenting. These factors weigh heavily in the debate over legalizing lesbigay adoptions and foster parenting by same-sex couples because of the influence that ongoing homosexual practices by an adult may have upon custody and visitation orders.

As one scholar noted, "Thirty years of longitudinal studies at the University of Minnesota have demonstrated that Erik Erikson was correct. . . . Parents with histories of deprivation, abuse, and poor parenting are generally inadequately prepared to care for their own children." Apart from abuse, 30% of parents who were abused as children "have deficits in the absence of abuse, especially an inability to provide the secure foundation for self-esteem that every child needs." This is very germane to concerns in adoption, foster parenting, custody, and visitation: "If the child resides in difficult cir-

177. Id. at 342 ("Homosexual partner relationships are significantly and substantially less stable and more short-lived on the average compared to a marriage of a man and a woman." (emphasis omitted) (citing Edward O. Laumann et al., The Social Organization of Sexuality: Sexual Practices in the United States xxxi (1994))); see also Walter R. Schumm, Empirical and Theoretical Perspectives from Social Science on Gay Marriage and Child Custody Issues, 18 St. Thomas L. Rev. 425 (2005) (reporting the statistical problems with studies that report there was no substantial difference between children raised by homosexually behaving adults and children raised by heterosexually behaving adults).


179. Mitnick, supra note 143, at 1077.

180. Id. at 1078.
cumstances, perhaps chaotic, perhaps with psychologically unavailable caregivers, perhaps violent, perhaps lacking social supports, perhaps with parents with mental health problems, the child will be raised without the internal template for healthy relationships and with external modeling for problematic interactions.”

Moreover, “[a]bused boys were more likely to engage in harmful sexual behavior if they had witnessed or experienced domestic violence.”

Given that there may be a heightened risk of domestic violence in gay and lesbian relationships, children raised by gay and lesbian couples could be at an increased risk of witnessing or experiencing abuse than children raised in heterosexual homes, particularly those with married parents.

Putting aside the demonizing stereotypes about people who engage in homosexual relations, the dominant question is whether some aspects of the homosexual lifestyle are truly consistent with the best interests of children in need of adoption and foster care or involved in custody and visitation disputes. The data reviewed above concerning the biological consequences of homosexual behavior raise serious concerns for persons interested in providing for the best interests of children. These objections include physical safety of children living in an environment in which the transmission of sexually transmitted diseases occurs, concern for the emotional bonding of children with persons in a disabling or dying stage of a terminal disease, concern about the sexual safety of children being raised in an environment in which transitory sexual partners are allowed to stay, and concern for the well-being of children being raised by persons with drug and alcohol abuse problems. This is not to say that all gay and lesbian couples present these factors, but the risk that they could is clearly higher than in conjugal marital homes. When these risk factors appear, the courts and state agencies cannot disregard them.

As of July 1, 2005, twenty states and the District of Columbia had addressed the issue of lesbian or gay adoption in either specific legislation or a currently valid state appellate court ruling. Twelve states and the District of Columbia allow lesbigay adoption; eight reject it. Four states have legislation explicitly allowing lesbigay adoption and four states have legislation explicitly barring or restricting lesbigay

181. Id.
182. Id. at 1079.
185. Id.
adoption. No European nation allows lesbigay adoption as liberally as the dozen American states, nor is it as widely practiced anywhere in Europe, not even in the Netherlands. While Europe is generally more liberal than the United States about regulating adult relationships, all European nations are much more paternalistic (or maternalistic) about regulating parent-child relations. Thus, a 2003 Gallup poll in Europe revealed that there was majority support for adoptions by gays and lesbians in only two of the twenty-five nations surveyed, and opposition to lesbigay adoption was over 50% in most nations, and as high as 83% in some of the nations of Eastern Europe.

Concern over the biological consequences of homosexual relations may have influence on the dominant European position and the minority position in the American states regarding lesbigay adoption. Certainly such policies reflect other biological influences such as the belief that children develop most fully when raised in a dual-gender parental environment. There is much social science data to support those beliefs. Concern for the stress of the environment in which children are raised would also make some of the biological consequences of homosexual relations of grave significance in some parenting cases.

Public policies must recognize and reflect appropriately the biological realities of the consequences of adult homosexual practices when those practices may constitute part of the parenting environment in which a child may be placed by a state agency or court. Biological realities must be faced; we must recognize that the meaning of parenting is not the same for children raised by adults of only one gender as it is for children raised by a mother and a father. The biological connection between parent and child is another factor that has heavily influenced parenting decisions since common-law times (in the form of presumptions about parenting and about preference or priority in child custody disputes). Dislocation or ambiguation of such “bright-line” social concepts and family relationships is not to be

186. Id.
187. Id.; see also Paul Vlaardingerbroek, Trends on (Inter-country) Adoption by Gay and Lesbian Couples in Western Europe, 18 ST. THOMAS. L. REV. 495 (2006).
188. See Lynn D. Wardle, Adult Sexuality, the Best Interests of Children, and Placement Liability of Foster-Care and Adoption Agencies, 6 J.L. & FAM. STUD. 59, 62 (2004).
taken lightly.\textsuperscript{191} The abandonment of what anthropologists call "root paradigms" in society, such as the paradigm of responsible, dual-gender parenting, is not without profound consequences.\textsuperscript{192} Biology is not irrelevant for parenting.

V. Conclusion

The biological causes of homosexual behavior and attraction are relevant to family law policies. But the knowledge base regarding the etiology of homosexuality—especially claims of biological immutability—is too immature and unsettled to reliably inform public policy. Additional investigation into the causes of homosexual attraction should be encouraged.

The biological consequences of engaging in homosexual behavior are also relevant to the formation and proposed reform of a number of family law and policy issues. Issues relating to legal recognition of same-sex marriage or domestic partnerships, adoption, foster care, child custody, and visitation are strongly implicated. The health and welfare of individuals who engage in homosexual relations have direct effects upon the lives of spouses, children, and society in general. Those considerations must influence the decision about offering legal status, benefits, and protections to persons engaged in this lifestyle. Positive legal status and benefits create incentives for and publicly encourage the practices and relationships so endowed, while negative status and burdens create disincentives for and provide social stigma to discourage these relations and practices. Refusing to extend preferred status and benefits is a mechanism to discourage problematic relationships that produce biological consequences that are contrary


\textsuperscript{192} See generally Lynn D. Wardle, Parenthood, supra note 189 (discussing the importance of "root paradigms").
to the public interest. This nonpreferential treatment is gentler and more moderate than criminal proscription or punishment.

When certain practices are politically and socially popular, it is tempting for lawmakers and judges to not carefully examine them to assess potential risk and harm. A former President of the American Psychological Association wrote that "psychology, psychiatry, and social work have been captured by an ultra-liberal agenda," and "[n]ow, misguided political correctness tethers our intellect." This certainly could constrain, and arguably is constraining, scientific and legal consideration of the biological consequences of homosexual behaviors.

When social institutions as basic and important as marriage and the family are involved, and when lives as vulnerable and as important to the future of society as those of children are at stake, we cannot take the easy road of ignoring inconvenient or uncomfortable truths, even if that would be the popular thing to do. We owe it to our families, our children, and our future to insist that lawmakers and judges carefully and honestly consider the biological consequences of homosexual relations in setting family law policies and in deciding family law cases.

193. See Destructive Trends in Mental Health: The Well-Intentioned Path to Harm (Rogers H. Wright & Nicholas A. Cummings eds., 2005); Warren Throckmorton, Is Psychology Losing Its Way (Dec. 21, 2005), http://www.drthrockmorton.com/article.asp?id=176 ("Drs. Wright and Cummings cannot be dismissed as disgruntled conservatives. Their deeds validate their claim to be 'lifelong liberal activists.' For instance, while president of the American Psychological Association, Dr. Cummings supported the development of the first task force championing the mental health needs of gays, lesbians and bisexuals.").