Abortion, Contraception, and Non-Marital Births: Re-Interpreting the Akerlof-Yellen-Katz Model of Pre-Marital Sex and Shotgun Marriage

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In a well-known paper, Akerlof, Yellen, and Katz proposed a counter-intuitive explanation for the rise of non-marital births in the United States that emphasized how birth control and abortion weakened the responsibility of men to their unmarried partner's pregnancy. The paper is regularly cited by social conservatives to support measures to restrict sex education and access to contraception and abortion. I argue that this use of the paper's findings stems from specific modeling assumptions about "types" of women. I present a reformulation of the model using more reasonable "types" that generates precisely the same results, but with radically different policy implications.

INTRODUCTION

In a famous and widely cited article,[1] Akerlof et al. [1996] proposed a novel explanation of the increase in the proportion of births that were non-marital among US women in the late twentieth century.[2] Most prior research had emphasized economic incentives in the form of overly generous welfare benefits [Murray 1984] and/or the relatively bleak marriage market prospects facing some women, especially those in minority communities [Wilson 1987]; for empirical efforts to assess these arguments, see Duncan and Hoffman [1990], Moffitt [1992], and Lundberg and Plotnick [1995]. Akerlof, Yellen, and Katz (hereafter, AYK) correctly noted the weak explanatory power of these explanations and, instead, emphasized a change in the social norm concerning the responsibility of a single male to the unplanned pregnancy of his unmarried partner. AYK presented a theoretical model of the "negotiation process" between single men and women about pre-marital sex and the man's responsibility in the event of a pregnancy and then showed how those negotiations and the resulting social norm plausibly changed with the introduction of more reliable female-controlled contraceptives (i.e., the pill) in the 1960s and the legalization of abortion in 1973. In the AYK model, contraception and abortion counter-intuitively increased the proportion of births that are non-marital by reducing male commitment via "shotgun marriage" to a pregnant partner.

The policy implications of this model have had a very curious life. AYK are very specific that an "attempt to turn the technology clock backward … would almost surely be both undesirable and counterproductive" (p. 314). But despite this, their paper is regularly cited in conservative policy writing as support for doing exactly that. For example, social conservatives have used the article and its conclusions as evidence in support of Catholic teachings on restricting access to contraceptives, abortion, and sex education; see, for example, Wilcox [2005] and Eberstadt [2014]. The article is also prominently cited by

abstinence-focused advocacy groups; see, for example, testimony by the Executive Director of the Abstinence & Marriage Education Partnership opposing a sex-education bill in the Illinois State Legislation [Phelps March 2013], recent conservative critiques in *The National Review* of the Affordable Care Act for its coverage of FDA-approved contraceptives [Pfundstein 2011; New 2013], and a discussion in the *Washington Post* about the recent sharp decline in the teen birth rate in Colorado [Sullivan 2014]. All of these articles emphasize the conclusion of AYK about the negative role of contraception and abortion, and then argue that the solution is to restore a more traditional social order by restricting access to contraception, comprehensive sex education, or abortion.

The reason that AYK's paper has been able to be used in this way reflects what I argue is a particular and, in retrospect, perhaps unnecessarily narrow modeling assumption. Like any theoretical model, the AYK model simplifies reality in order to identify, isolate, and illuminate critical elements and relationships. In this case, the critical simplification is to classify women into two types, based exclusively on the cost to them of a pregnancy, where the cost is understood as the impact of a pregnancy on a woman's net utility or well-being. I show below that the conservative policy implications follow directly from this assumption.

This particular assumption was, however, only one of several that could have been used to generate the central result about the effect of abortion and contraception on non-marital births. One could just as well — or better, in fact — identify the two groups of women in terms of their monetary and/or psychic costs of utilizing contraception or abortion and/or their effectiveness in doing so. In this paper, I do precisely that, by revising the assumptions of the AYK model. I show that the central results of the revised models are exactly the same as in AYK, but the interpretation and policy implications are completely different. In my reformulation, clear concrete policies other than "rolling back the clock" are indicated as a way to assist single women and thereby potentially reduce the incidence of non-marital births.

I first review the basic AYK model and its implications. Then I present several alternative versions based on differences in the costs of contraception and/or abortion or in the efficacy of use. This provides a clearer and more plausible result that is more descriptive of contemporary pregnancies to single mothers and more appropriate for policy debate and action. As re-interpreted, the AYK model is no longer subject to distortion of its core message, but rather suggests clear, specific policies.

THE AYK MODEL

In the AYK model, single men and women involved in a romantic relationship engage in strategic bargaining over whether to have pre-marital sex and the man's responsibility to his partner in the event of a pregnancy. Women are assumed to act first by choosing one of three strategies: (1) declining to have sex before marriage; (2) having sex, but only after extracting a (shotgun) marriage promise in the event of a pregnancy; and (3) having sex, but without a marriage promise. Men can accept those terms or they can reject them. If they reject the demand, the relationship ends and each party then searches for another partner in the next time period who will offer or accept terms more to his/her liking.

The bargaining is modeled using game theory to identify the payoffs to each party of any pair of strategies. Equilibrium — a social norm — exists when both men and women are choosing strategies that are optimal, given the optimal choices of the other party, and thus, where, no change in strategy can improve either party's well-being.[3] Intuitively, if most women demand a marriage promise, then men will likely accept it, because the alternative

is to continue searching for a partner in an environment in which most other women also demand a marriage promise. In that case, the value to the men of a future relationship is likely to be no better than the current one and the "reject" strategy is inferior as it involves the loss of the current relationship and bearing search costs. Conversely, if most women do not demand a marriage promise, then men will not accept one if the woman they are involved with makes one, as they are confident that they can find a partner who will not make such a demand. They will, therefore, be better off, even net of search costs, by rejecting the demand. Women, knowing that, will not make a marriage demand, because they understand that they will be unlikely to find a better partner in the next time period.

AYK analyze this model with two types of women in two environments — before and after the introduction of improved contraception and the legalization of abortion. By assumption, Type I women have high-pregnancy costs (i.e., high disutility of pregnancy); perhaps they have promising prospective careers that would be derailed or reputations that would be tarnished by a pregnancy or they are otherwise not ready for single motherhood. Also by assumption, Type II women have negative pregnancy costs (i.e., positive utility); they want to become mothers, preferably married mothers, but mothers in any event. All men are identical; they prefer to have sex with their partners without making a marriage promise, but are willing to do so if that is the price of having sex. In a sense, this is no more than keeping their options open, as they are always free to marry their pregnant girlfriend even without having made a promise in advance. All men also have identical costs of a shotgun marriage and that cost is less than the benefit of a sexual relationship, also assumed to be identical across men. Therefore, the men always prefer to make a marriage promise than to be abstinent.

AYK show that in an environment without access to contraception and abortion, Type I women would refuse to have pre-marital sex without a marriage promise, because the costs for them are too high. Type II women are willing to have sex without a promise because they want to have a child, so a man could refuse to give a marriage promise to a Type I woman, break off the relationship, and attempt to find a Type II woman. But a man's probability of finding such a woman depends on the ratio of Type I women to Type II women. If the ratio is sufficiently high, then the probability will be low; for example, if 80 percent of women are Type I and 20 percent Type II, then the probability of finding a Type II women is just 20 percent. AYK show that if the ratio of Type I to Type II women is high enough, then all women will demand marriage promises — including the Type IIs — and all men will make such a promise. The men do so because they are unlikely to do any better — there are not enough Type II women — and in the meantime, they lose the benefits of the current relationship. The Type II women also demand a marriage promise because they prefer that option and they know that the men will accept it. Note that in this equilibrium the Type II women benefit from the decisions of the numerically dominant Type I women.

In this equilibrium, pre-marital sex with a marriage promise is the norm (or at least the norm among couples who are sexually active pre-maritally), so shotgun marriages may be common and non-marital births uncommon. This was, in fact, a typical pattern though the mid-1960s. Fertility and marital history data from the CPS show that from 1930 through 1964, more than half and as much as 60 percent of all unmarried pregnant women age 15 to 29 married before the birth of their first child [Bachu 1999]. In the 1960s, these pregnancies accounted for one-sixth of all first births to these women and more than one-quarter of first births to teens [Bachu 1999].[4] The proportion of births that were non-marital through the mid-1960s was consistently in the 4–6 percent range.

Once contraception and abortion are available, however, the equilibrium changes. AYK argue that Type I women will uniformly adopt the contraception or abortion options because of their high-pregnancy costs. They no longer demand a marriage promise before

engaging in pre-marital sex, because they do not need one; they can readily avoid either a pregnancy via contraception or a birth via abortion. In contrast, Type II women will not use contraception or abortion even though it is available, because they are not seeking to avoid a pregnancy. They would prefer to continue asking their partners for a marriage promise, but now the men will no longer accept it, because they can now readily find a Type I woman who will not demand such a promise. This, in turn, changes the decision making of the Type II women. Knowing that the men will not accept a marriage demand, they no longer make one. They engage in pre-marital sex without contraception or a marriage promise. Some will, therefore, become single mothers.

In the process, the equilibrium or social norm has shifted from one with widespread marriage demands, frequent shotgun marriages, and relatively few non-marital births to one with no marriage demands, no shotgun marriages, and far more non-marital births. Men are no longer socially obligated to marry their partners if they become pregnant. As births switch from marital to non-marital, the non-marital birth ratio rises. Note that the Type II women are worse off and the men are better off than before the advent of contraception and abortion.

The CPS data do, in fact, show a dramatic decline in the proportion of pregnant single women who marry before giving birth. By the mid-to-late 1970s, that proportion for first births to women age 15–29 declined from 60 percent to less than one-third. By the early 1990s, it dropped to just 15 percent [Bachu 1999]. The decline is similarly large across all race and ethnicity groups and for teens and women in their 20s. This change is a quantitatively meaningful contributor to the increase in the proportion of all births that are non-marital, which more than tripled between the late 1960s and early 1990s.

Policy implications

AYK were explicit about their view of the policy implications of their model. They write (p. 314) "From a policy perspective, the attempt to turn the technology clock backward by denying women access to contraception is probably not possible, and even if it were possible, it would almost surely be both undesirable and counterproductive. In addition to probably reducing the well-being of women who use the technology, along with that of men, such measures could lead to yet greater poverty. In the new equilibrium in which sexual abstinence is rare and the stigma of out-of-wedlock motherhood is small, denial of access would probably increase the number of children born out-of-wedlock and reared in impoverished single-parent families. On the contrary, efforts should be made to ensure that women can use the new technologies if they choose to do so."

The problem is that these policy implications do not flow naturally from their model. In fact, they do not flow at all from the model; they are quite *ad hoc*. As the model shows that access to contraception and abortion contributed to the rise in non-marital births by undermining the bargaining power of women, it is natural to conclude that the way to restore a more traditional and conservative social order with more marriage and fewer non-marital births is to restrict access to contraception and abortion. The results of AYK are, in fact, regularly cited as evidence of the deleterious effects of the availability of contraception/abortion, as research support for abstinence-only sex education programs and proposals to otherwise restrict sex education, and to critique the expansion of contraceptive coverage through the Affordable Care Act. See, as examples, Wilcox [2008], [Phelps 2013] Pfundstein [2011], and New [2013], all of which specifically cite AYK's results. The paper is also cited in Catholic social science writing as evidence that the church's injunction against contraception and non-marital sex are justified by social science research as critical for maintaining the primacy of the family [Wilcox 2005].

A reformulation

The AYK model is insightful and deservedly famous, but it has, in retrospect, modeling limitations that have made it susceptible to misinterpretation. I do not mean these criticisms as criticisms of the model *per se* nor of the authors, who rank among the most eminent of economists. Social scientists understand well the purposes of assumptions in a model; it is never the verisimilitude of a model that makes it valuable, but rather its insights and predictive value [Friedman 1953]. Still, I think in this case, by populating their model with particular "types" of women, AYK assumed away relevant issues that could just as easily have been used to define these types.

First, and most importantly, AYK assume that pregnancy costs, understood as the net utility or disutility of a non-marital birth to a woman, are the only difference between the two types of women. This assumption ultimately drives all the results in the model. As a consequence, it is hard to have too much sympathy for the single mothers: they want to get pregnant (because they have negative pregnancy costs) and they do, although now they do not end up with a husband, which they would have preferred. Second, AYK assume that both contraception and abortion are uniformly inexpensive and widely available and thus are always chosen and used when it is utility-improving to do so. In outlining the behavior of Type I women, they write that "pregnancies will be terminated by abortion if this option is available *at sufficiently low cost*" (p. 293, emphasis added), which they implicitly assume it is. While they do not say so explicitly, the same argument also applies to contraception. Ignoring prices and demand is unusual in an economics model, but the emphasis of the model lay elsewhere and they were writing in a time when abortion was more widely available and with fewer restrictions than today.

By making differences in pregnancy costs the sole difference between the two groups of women in their model, AYK assumed away a vast set of differences that could just as readily and more realistically have been used to distinguish the two types of women. I propose here alternative categorizations: "types" defined by the monetary or psychic costs of using contraception or abortion, by differences in access to contraception and abortion, and/or by differences in efficacy of use of contraception and abortion. I show below that each of these yields the exact same result as the AYK model, but with vastly different policy implications.

Consider, then, several modest revisions of the AYK model. Unlike in AYK, let all women have the same non-marital pregnancy costs and let those costs be large enough that in the time period before reliable female-directed contraception and legal abortion, no women will agree to have pre-marital sex without a marriage promise. Men recognize the magnitude of the costs and thus are willing to accept the marriage demands, rather than terminate the relationship. The first-period equilibrium result is exactly the same as in AYK, except for the irrelevant detail that Type II women are not protected by the presence of Type I women. That is an inconsequential difference, because the critical comparison is the difference between the two equilibriums, not the reasoning behind the period one equilibrium with two types of women. Whether shotgun marriages occur because all women demand a marriage promise or just a critical mass is irrelevant.

After the introduction of more reliable, female-directed contraception and the legalization of abortion, let there now be two types of women who differ in terms of their monetary and/or psychic costs of utilizing contraception or abortion and/or their effectiveness in doing so. These differences were irrelevant in the first period when contraception and abortion were not viable options. Thus, for example, Type I women could be women who have no moral objections to contraception and abortion, while Type II women have moral objections. Or Type I women could have access to low-cost contraception and/or abortion

and Type II women could lack this access. Or Type I women could use contraception effectively, while Type II women do not use it effectively because of lack of knowledge or other life style issues.

Consider the first reformulation, in which some women (Type II) have substantial moral objections to the use of contraception or abortion. The Type I women, who have no such objections, utilize contraception and/or abortion and thus no longer demand a marriage promise before engaging in pre-marital sex. The Type II women do not utilize contraception or abortion. They can, however, no longer meaningfully demand a marriage promise, because they are out-numbered by the Type I women and the men will, therefore, reject a marriage demand and terminate the relationship if they make one. Some of these women will have pre-marital sex, become pregnant, and have non-marital births, exactly as in the AYK model.

As a practical matter, this version probably accounts for a relatively small proportion of women. Surveys consistently indicate that most women, including Catholics, utilize some form of contraception. Analysis of the National Survey of Family Growth shows that 68 percent of Catholic women at risk of pregnancy in 2006–2008 used "highly effective" methods and 15 percent used less reliable (e.g., barrier) methods [Jones and Dreweke 2011]. 98 percent of Catholic women have ever used contraception, compared with 99 percent for all women. In data for 2011–2013, only 6.9 percent of women age 15–44 were sexually active, not trying to become pregnant, and not using contraception [Daniels et al. 2014]. Feelings about abortion are stronger and certainly some women would choose not to have an abortion. One nationally representative study found that Catholic women were represented among abortion patients in proportion to their numbers in the overall population (28 percent) [Jones et al. 2010].

In the second reformulation, Type I women have ready access to inexpensive contraception and abortion, but Type II women do not. The differences could, for example, reflect differences in insurance coverage or state-level abortion law and accessibility. The Type II women would use contraception or abortion if they were less expensive or more available, but because of price and/or access issues, they do not. Or they may choose to use less expensive forms of contraception that have higher-failure rates. Again, in the new equilibrium, the Type I women no longer make a marriage demand and, as a consequence, the Type II women are pressured to have sex without a marriage commitment. As they lack access to effective, low-cost birth control, some of them inevitably end up as single mothers. In this version, the women who have non-marital births are those for whom affordability and/or accessibility are particularly important.

This version captures many relevant features of birth control in practice. Although some forms of birth control, such as condoms, are relatively inexpensive, others are quite costly and, importantly, the more costly ones are far more effective. IUDs cost from US$600 to $800, an injection of Depo-Prevaro costs $75 every 3 months, hormonal implants cost approximately $600, and the patch costs $50 per month (cost estimates from www .Bedsider.com). Contraceptive failure rates also vary substantially: condoms have a 1-year failure rate of 18 percent in actual use, while IUDs and hormonal implants have a failure rate of less than 1 percent. Abortion access also varies widely. As of 2012, 38 percent of women lived in counties with no abortion provider and the proportion has undoubtedly increased following recent legislation in states such as Texas, Oklahoma, North Dakota, and Mississippi. The Guttmacher Institute currently classifies 27 states as hostile to abortion based on legislation, up from 13 in 2000 [Nash et al. 2014]. See Boonstra and Nash [2014] for details on current state policy changes affecting abortion access.

Data from the American Community Survey for 2011 show that the proportion of births that are non-marital declines sharply with age, income, and education, which suggests that

affordability may be an important issue. More than half of births to women with family income under $25,000 were non-marital compared with less than one-fifth to women with family income greater than $100,000. The proportion of births that are non-marital among college graduate women is about one-fifth the proportion among all other women [Shattuck and Kreider 2013].

Finally, in the third reformulation, I assume that women differ in their efficacy of use of contraception. It is well-known that contraceptive failure rates in practice are far higher than under ideal use, especially for modes that require user action or adherence to a daily regime. Thus, Type I women use contraception effectively, while Type II women do not. They may lack knowledge of recommended practices involving the use of contraceptives or have the knowledge, but lack the ability or lifestyle necessary to follow a regime carefully, so that in practice, the contraceptive failure rate is well above its ideal rate. Birth control pills, diaphragms, and condoms are obvious examples of methods that are reasonably inexpensive and have a relatively low-failure rate with ideal use, but a much higher-failure rate in practice; ideal and actual 1-year failure rates are, respectively, 1 and 9 percent for the pill, 6 and 12 percent for a diaphragm, and 2 and 18 percent for the condom [Trussell 2011].[5] Or Type II women may not act on an incident of unprotected sex quickly enough to benefit from a product like Plan B, may not recognize and act on an unwanted pregnancy aggressively enough to secure a timely abortion, or may live in an area where abortions are restricted or distant. Once again, the new equilibrium is the same: Type I women utilize contraception and/or abortion and do not make marriage demands before engaging in pre-marital sex. Some Type II women have non-marital births because they can no longer obtain a marriage promise and do not use contraception or abortion effectively enough to prevent a birth.

It is well-known that the United States has a high rate of unintended pregnancies, where "unintended" refers to pregnancies that are reported as mistimed or unwanted. Approximately half of all pregnancies in the United States are unintended, representing a total of 3.4 million annually. The rate of unintended pregnancy declines sharply with the ratio of family income to the official poverty line. Lack of effective and consistent use of contraceptives is, not surprisingly, very closely related to the proportion of unintended births [Guttmacher 2015]. Among all women at risk of a pregnancy, about two-thirds used contraceptives consistently, 18 percent used it inconsistently, and 14 percent either did not use it or had long gaps in usage. The consistent users had just 5 percent of all unintended pregnancies, while the inconsistent use and non-use groups had 54 and 41 percent of the unintended pregnancies, respectively [Guttmacher 2015].

Similarly, a 2009 study of unmarried men and women age 18–29 revealed very substantial knowledge gaps about the existence of certain contraceptives and their likely side-effects and riskiness [Kaye et al. 2009]. The authors concluded that many of these young adults were in what they called a "fog zone" where their intentions (to avoid a pregnancy) were not matched by their knowledge and behaviors.

Revised policy implications

The appropriate policy responses to these three versions of the AYK model are quite different from each other and especially from the original AYK model itself. To repeat: in the AYK model, Type II women want to get pregnant and they do so, but now without the benefit of the somewhat reluctant husband they would otherwise have had. Other than attempting to change their own view of their pregnancy costs, that is, convert them into Type I women, there is not very much that can be done for them except for the extreme policy of returning contemporary Type I women to the Type I women of decades ago by

restricting their ready access to contraception and abortion. It was, after all, only the presence of the original Type I women in the era before contraception and abortion that helped the Type II women obtain husbands.

In the first reformulation with moral objections to abortion and contraception, little can be done other than trying to change the preferences of Type II women, which is probably inappropriate, as well as difficult. In the second reformulation with price and/or access differences, the obvious policy response to the non-marital births is to address price and access issues. These women have sufficiently high-pregnancy costs that they would prefer not to have a birth if they had access at a price they could afford. There is no need to turn back the clock. Indeed, the Affordable Care Act (ACA) includes provisions that address this issue by requiring all FDA-approved contraceptives to be covered by insurance without co-pay. This provision was weakened by the initial Supreme Court decision supporting the ACA, which invalidated the mandatory Medicaid expansion for families with incomes between 100 and 133 percent of the Federal Poverty Level. As a result, women in 20 states, including Texas and Florida, are ineligible for coverage either through Medicaid or through the subsidies available on the insurance exchanges. Later, in Burwell v. Hobby Lobby, the Court created another exemption by allowing closely held family corporations to avoid providing coverage for religious reasons.

In the third reformulation, the obvious policy response is to provide information and education on the effective use of contraceptives and/or provide enhanced access to highly effective contraceptive modes that are less demanding of the user, for example, long-acting reversible contraceptives (LARCs). Effective sex education that emphasizes the correct use of contraceptives is an obvious policy intervention; see Jaccard [2010] for a thorough discussion of the issues involved. The ACA provision noted above is another critical policy, as it includes coverage for all FDA-approved contraceptives, including LARCs, with no co-pay to the user (but with the exemptions noted above). Results from the Contraceptive Choice project in St Louis show that women using LARCs had unintended pregnancy rates that were 1/20th the rates of women using the pill, patch, and ring, which are themselves among the more effective contraceptives [Peipert et al. 2012]. This version of the model interacts with the second version, as the contraceptives that are most effective and require the least action by the user are also the most expensive.

SUMMARY AND DISCUSSION

Akerlof, Yellen, and Katz's model of bargaining between the sexes about pre-marital sexual relations and men's responsibilities in the event of an unplanned pregnancy is widely cited and justifiably so. The model shows how the dual technological changes of improved female-controlled contraception (i.e., the pill) and the legalization of abortion plausibly contributed to an erosion of the traditional system in which men acknowledged responsibility for their unmarried pregnant partner. "The sexual revolution," they wrote, "by making the birth of a child the *physical* choice of the mother, makes marriage and child support a *social* choice of the father" (p. 281, emphasis in original). Their formal analysis is predicated on the classification of women into two types, one of which affirmatively welcomes a pregnancy and ends up as a single mother when the social norm changes following these technological changes.

Despite the authors' own explicit policy suggestions, the article and its findings have been cited with regularity by social conservatives and by some sympathetic social scientists as evidence that contraception and abortion unleashed social forces that ultimately undermined marriage and increased non-marital births. In doing so, they are

taking advantage of the modeling assumptions of the paper, especially the division of women into two types based on the costs to them of a birth and the implicit assumption that contraception and abortion are widely available, affordable, reliable, and effectively used. The AYK model does, in fact, place the responsibility for the breakdown of the traditional order on the contraception and abortion revolutions, so reversing it is a natural policy implication.

I show that modifying the original AYK model modestly to define "types" in terms of differences in monetary and/or psychic costs of utilizing contraception and abortion or differences in the efficacy of utilizing them yields exactly the same results, but with completely different policy implications. This "typing" makes considerable real-world sense: access to reliable affordable contraception and to abortion varies widely, as does the efficacy of less and more expensive contraceptives. The policy prescriptions that flow naturally from my reformulation involve ameliorating differences in price, access, and efficacy, rather than turning back the clock.

Notes

1. A Google search for references to "Akerlof, Yellen, and Katz non-marital" yields 19,200 results (search conducted September 17, 2014).
2. In the two decades preceding publication, the non-marital birth ratio had risen from about 10 percent to nearly one-third. The ratio continued to rise through the 1990s and early 2000s at a slower rate. Since 2008 the rate has stabilized at about 40 percent. A substantial portion of non-marital births now are to cohabiting couples.
3. Technically, this describes a Nash equilibrium.
4. The data come from 1980 and 1995 supplements to the CPS. The proportion of such first births to women age 15–29 varied somewhat by race. From 1930 through 1964, the proportions ranged from 56 to 67 percent for white women, compared with 30–40 percent for black women [Bachu 1999].
5. These are 1-year failure rates. Aisch and Marsh [2014] present failure rates through 10 years. Even with ideal use, the 5-year failure rate for the diaphragm is 27 percent. Five-year failure rates in actual use are 63 percent for condoms, 47 percent for the diaphragm, and 28 percent for the pill.

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