

## Five Years After Their Own or Their Husband's Sterilization, Few Women Regret the Decision

Only a small minority of women who are protected by contraceptive sterilization express regret about that method choice, regardless of whether they or their husbands have had the surgery, according to findings from a prospective, multicenter study.<sup>1</sup> Within five years after their husbands' vasectomy, 6% of women indicated that it was not a good choice; essentially the same proportion of sterilized women (7%) expressed regret within five years after undergoing tubal occlusion. Women whose relationship was marked by substantial conflict before they underwent tubal sterilization had an elevated likelihood of regretting the decision; conflict also played a role in women's request that either their own or their husbands' sterilization be reversed.

For an in-depth analysis of the five-year cumulative probability of sterilization regret, investigators studied data on 3,672 women aged 18–44 who underwent sterilization between 1985 and 1987 at medical centers in six cities and 525 women of the same age whose husbands had a vasectomy at centers in five of those cities during the same years. Women were interviewed in person around the time of the surgery; those who completed at least one follow-up phone interview (one, two, three or five years later) and answered a question about sterilization regret were included in the analyses. The researchers calculated life-table estimates of the cumulative probability of regret, of request for reversal and of reversal; they used hazards analysis to assess factors associated with these outcomes.

Women who had undergone tubal occlusion and wives of sterilized men had a number of characteristics in common. Nearly all women in both groups (94–95%) had at least one living child, and more than half (55–59%) said that a year or more had elapsed between their last birth and the sterilization. Nine in 10 cited completion of childbearing as an important reason for sterilization, and two-thirds cited the desire to discontinue other contraceptive use.

In several respects, however, the groups differed significantly. All of the women whose hus-

bands had had vasectomies were married (since this was a criterion for enrollment), compared with 61% of sterilized women. In addition, wives of sterilized men were more likely to be white, were older and better-educated, and were less likely to have had an abortion and to be Medicaid recipients than were women who had undergone tubal occlusion.

Furthermore, whereas nearly three in 10 women in the vasectomy group cited their desire for the procedure as a reason for their husbands' sterilization, in the tubal occlusion group, only half this proportion said that their husbands' desire for the operation was an important factor in the decision. Women in the vasectomy group were less likely than those who had been sterilized to cite financial pressures or other people's opinions about sterilization as reasons for that method choice; they were more likely to believe that a pregnancy would have strained the couple's relationship.

The five-year cumulative probability of regret—i.e., of ever answering no when asked if sterilization was a good choice for the couple or, in the case of tubal occlusion, for the woman herself—was 6% among wives of sterilized men and 7% among sterilized women; the difference was not statistically significant. The probability that the woman requested reversal was the same (2%) in both groups. (One percent of men asked for a vasectomy reversal; the researchers did not ask sterilized women if their husbands or partners had asked them to have the surgery reversed.) Fewer than 1% of sterilized men or women obtained a reversal.

Results of the hazards analysis revealed no significant predictors of regret among women in the vasectomy group. Among sterilized women, however, the analyses identified a number of associations: The likelihood of regret was elevated if the woman had been 30 or younger at the time of the surgery (rate ratio, 2.2), was black (1.6) or reported some or a lot of conflict in the relationship before the sterilization (2.4–3.1); in addition, women who said their husbands or partners had favored sterilization more strongly than they had were more likely to express regret than were those

who reported that both had had similar feelings about the sterilization decision (2.7). Women who had undergone tubal occlusion because they had completed childbearing or had not wanted to use other contraceptives had a reduced likelihood of regretting their decision when compared with women who did not include these among their reasons for choosing sterilization (0.6–0.7).

A second set of hazards analyses showed no significant associations between the reasons women cited for choosing sterilization and requests for or actually obtaining a reversal. However, conflict in the relationship prior to sterilization was an important factor: In the vasectomy group, the likelihood of a woman's requesting that the procedure be reversed was sharply higher among those reporting a lot of conflict than among those reporting none (rate ratio, 25.3). In the tubal occlusion group, women who reported either some or a lot of conflict had an elevated likelihood of wanting a reversal (2.4 and 5.9, respectively); those who reported some conflict also had elevated odds of actually obtaining one (3.9).

As the researchers note, the study is limited by the small size of the vasectomy group, the lack of information directly from the men represented by that group and the fairly short follow-up period. Citing a study that demonstrated an increasing probability that women will regret their sterilization decision 7–14 years later, they acknowledge that longer-term follow-up could uncover more regret among wives of men who have undergone vasectomy. Nevertheless, they conclude that “most couples who choose sterilization...are satisfied with their decision and do not experience regret.” They recommend that when providers counsel men and women about sterilization, they discuss the possibility of regret and, especially, that they emphasize “the desirability of the couple reaching a decision that they are both comfortable with and agree upon.”—*D. Hollander*

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## Odds of Perinatal Death Are Elevated When Women Who Have Had a Cesarean Plan to Deliver Vaginally

Women who have had a cesarean delivery and subsequently plan a vaginal delivery have an elevated risk of having an infant who is stillborn or dies within four weeks after birth, according to a retrospective cohort study conducted in Scotland.<sup>1</sup> Among singleton infants born to such women after an uncomplicated term pregnancy, the perinatal death rate is 12.9 per 10,000 births. The odds of perinatal death for this group are more than 11 times those associated with a planned repeat cesarean birth and more than twice those among infants born to other multiparous women who do not plan a cesarean delivery; however, the odds are similar to those among infants of nulliparous women who do not expect to deliver by this method.

Researchers studied outcomes of all births, as well as clinical and demographic characteristics of women who delivered, from January 1992 through December 1997 by analyzing linked data from two national databases. Of the singleton births, 313,238 met the following criteria: They occurred at 37–43 weeks' gestation, the fetus presented head-down, any stillbirth during labor or neonatal death was not due to congenital conditions and delivery was not by planned cesarean section unless there was a history of this birth method. Five percent of the mothers had had at least one prior cesarean delivery but did not plan a surgical delivery for the current pregnancy, 3% had previously had a cesarean section and intended to undergo this procedure again, 48% were multiparous and had no history of cesarean delivery, and 44% were nulliparous.

Among women who had had a cesarean section, those who did not schedule a repeat procedure had an average age of 30 and a median height of 161 cm; those who did so were significantly older (31) and shorter (159 cm). Nulliparous and other multiparous women, by contrast, were significantly younger (26–29) and taller (162–163 cm). There were some differences among the four groups of women in terms of smoking status; level of socioeconomic deprivation; proportion of infants who had low birth weight; and infant's gestational age at birth, median birth weight and five-minute Apgar score. These factors were corrected for in subsequent analyses.

The rate of perinatal death among infants born to women with a history of cesarean sec-

tion who did not schedule a repeat procedure was 12.9 per 10,000 births; for infants born by planned repeat cesarean delivery, the rate was 1.1 per 10,000. Among infants born to women with no history of cesarean delivery, the rates were 5.9 and 9.8 per 10,000 births to multiparous and nulliparous women, respectively. The results were similar in analyses that included only births for which complete records were available and in analyses restricted to births that occurred at or after 40 weeks' gestation (to exclude any women who had planned a cesarean delivery at term but had undergone an emergency procedure before the scheduled date).

Logistic regression analysis revealed that the odds of perinatal death among infants born to women with a history of cesarean section who did not intend to deliver by this method were more than 11 times those among infants born by a scheduled repeat cesarean delivery (odds ratio, 11.6) and more than twice those among infants born to other multiparous women (2.2). However, the odds among infants born to women who had previously undergone a cesarean section but did not schedule a repeat procedure were not significantly different from those among infants of the nulliparous women studied. In analyses that included only births for which complete records were available, adjustment for maternal characteristics, gestational age at birth and birth weight had no effect on the odds ratios.

The most common causes of perinatal mortality among infants born to women who had had a cesarean section but expected a vaginal delivery were mechanical factors (uterine rupture, umbilical cord compression or prolapse, birth trauma and asphyxia) and oxygen deprivation during birth: The rate for each was 4.5 deaths per 10,000 births. The odds of neonatal death due to mechanical factors for this group of women were more than eight times those for both multiparous women with no history of cesarean birth and nulliparous women (odds ratios, 8.5 and 8.8, respectively); the odds of neonatal death due to oxygen deprivation were about three times those for the other multiparous women (2.8).

The investigators note that infants born to women by planned repeat cesarean delivery had the lowest risk of perinatal death among the four study groups. However, because only

one such death was identified, multivariate comparisons were “problematic”; the researchers recommend that larger studies be conducted in the future. According to their estimates, at most one in 500 women who have a history of cesarean section and plan a vaginal birth will have an infant who is stillborn or dies soon after birth. The researchers state that their findings “provide essential information for [these] women to make an informed choice,” especially given that obstetricians face “pressure from government and health care insurers to advocate vaginal birth after cesarean delivery as one strategy to reduce the overall rate of cesarean delivery.”—*T. Lane*

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## Mother-Child Transmission Of HIV in South Carolina Halved by Drug Therapy

The rate at which South Carolina women infected with HIV transmitted the disease to their newborns declined dramatically in the three years after the Public Health Service recommended a regimen of zidovudine therapy to reduce perinatal transmission of the virus.<sup>1</sup> In 1993, the year before results of a large-scale clinical trial led the federal government to recommend zidovudine use for infected women during pregnancy and delivery, and for their infants during the perinatal period, 13% of babies born to women with HIV acquired the virus; for the years 1995–1997, the proportion was 6%. Furthermore, the transmission rate was significantly lower if zidovudine had been used at all three recommended times than if it had not.

To study the relationship between zidovudine use and perinatal transmission of HIV, analysts examined data from a statewide registry that includes all reported cases of HIV and AIDS; they supplemented this information by reviewing the medical records of infected women and their infants. The comparison of transmission rates before and after the government recommendations were issued included all mother-child pairs in whom the women were known to be HIV-positive before giving birth, received prenatal and delivery care in South Carolina and had a live birth: a total

of 88 pairs in 1993 and 217 in 1995–1997. Subsequent analyses of the 1995–1997 cohort excluded women whose records lacked data on CD4 counts and illicit drug use during pregnancy (factors that could affect transmission), leaving a sample of 149 women.

In 1993, the rate of perinatal HIV transmission was 13%; for the three-year period 1995–1997, the rate was 6% (3–8% annually), and the difference was statistically significant. During the later period, the rate was significantly lower if the complete zidovudine regimen had been followed for the mother and child (3%) than if it had not (15%).

Between 1995 and 1997, the proportion of mother-child pairs who received all three parts of the recommended regimen increased steadily and significantly from 68% to 93%. Using individual logistic regression models, which did not control for potentially confounding variables, the analysts examined the effects of a wide range of factors on the likelihood of receipt of the complete regimen. According to the results, the likelihood that mother-child pairs had received all three parts of the treatment were significantly reduced if the mother had used illicit drugs or had had a sexually transmitted disease diagnosed during pregnancy (odds ratios, 0.4 and 0.1, respectively).

Other findings, while not achieving statistical significance, suggest additional relationships: The likelihood that women and their infants received the complete recommended treatment appears to be elevated among women with the lowest CD4 counts, residents of rural areas, women who experienced premature rupture of membranes more than four hours before delivery, those who had had adequate prenatal care, those lacking private insurance and those who delivered by cesarean.

In addition, the analysts found that the infant's infection status was significantly associated only with receipt of the complete zidovudine regimen: The odds of infection were reduced by 80% (odds ratio, 0.2) in mother-child pairs who had received zidovudine at all three recommended times. While the remaining findings were not statistically significant, they suggest that the risk of transmission is elevated among women with low CD4 counts, those who engaged in risky behaviors or had a sexually transmitted disease diagnosed during pregnancy, those who had had inadequate prenatal care and those who had received a prescription for zidovudine before becoming pregnant.

Summing up their findings, the researchers

point out that their population-based study not only documents a decline in perinatal HIV transmission but also “demonstrates how quickly a small, southern, rural state responded to the recommendations for the use of zidovudine in HIV-1–infected pregnant women and their children.” If transmission rates are to be reduced further, they conclude, interventions will be needed to address such problems as inadequate prenatal care and pregnant women's use of illicit drugs.—*D. Hollander*

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## Predictors of Overlapping Relationships Are Different For Men and Women

Men are more likely than women to have overlapping sexual relationships, and having concurrent sexual partners is associated with several risk factors for sexually transmitted diseases (STDs).<sup>1</sup> In a survey of sexually active Seattle residents aged 18–39, 27% of men and 18% of women reported that during their most recent sexual relationship, they had had sex with at least one other partner. An increasing lifetime number of partners was significantly associated with an increasing likelihood of having concurrent sexual relationships for both women and men. Women who first had sex before age 16 and those who had an STD diagnosed during their most recent relationship, as well as men who had spent at least one night in jail, also had elevated odds of having concurrent partners.

Having multiple sexual partnerships is one of the most important risk factors for STD infection, and knowledge about concurrent partnerships is particularly crucial to an understanding of the dynamics of STD transmission. Yet such behavior is very difficult to study: Retrospective reporting may be biased by recall problems, and prospective reporting (through diaries, for example) is labor-intensive and may be incomplete. In addition, definitions of multiple partnerships vary, and many studies of sexual behavior have relied on special populations, such as STD clinic clients.

To gain a better understanding of multiple partnerships, researchers analyzed data collected in Seattle in February 1995. English-

speaking Seattle residents aged 18–39 were contacted by telephone through random-digit dialing. Census blocks where blacks represented 40% or more of the population were oversampled, to ensure sufficient black respondents. Individuals who agreed to participate were asked about their demographic characteristics, their sexual history, their partners and the characteristics of those partners, and their STD history. The analyses are based on a sample of 637 sexually active men and women whose most recent partner was of the opposite sex.

Two measures of concurrency are included in the analyses. The first used answers to a straightforward question on how many people the respondent had had sex with while in his or her most recent relationship. Twenty-two percent of respondents reported concurrent recent partners—27% of men and 18% of women. For the second, the investigators combined information about the respondent with information that the respondent provided about his or her partner to assess whether the relationship had been mutually monogamous. Eighteen percent of women and 15% of men believed that their most recent partner had had other sexual partners during their relationship. When these responses were combined with the self-reports of concurrent partners, a total of 28% of respondents (31% of men and 26% of women) were in a relationship that had not been mutually monogamous.\*

Chi-square analyses revealed that a number of personal characteristics were linked with respondents' reports that they had had concurrent partners. For example, a significantly higher proportion of divorced, separated or widowed men than of married men reported having had concurrent partners (37% vs. 15%). Among both men and women, lifetime number of partners was strongly associated with having sex with other partners: The proportion of men reporting recent concurrent partners rose from 13% among those with 1–3 lifetime partners to 52% among those with more than 15; for women, the proportion increased from 7% to 29%.

Reports of concurrent partnerships were far more common among men who had ever had a male partner (60%) than among those who had only ever had female partners (25%). Sig-

\*A third approach asked the starting and ending dates of respondents' two most recent sexual relationships; 21% of men and 12% of women reported overlapping dates, indicating that they had had concurrent partners. However, because of data problems associated with this measure, the investigators excluded it from their analyses.

nificant differences also were found between those who had had an STD at some point preceding their most recent relationship and those without such a history (41% vs. 23%), and between those who had ever spent a night in jail and others (44% vs. 20%). Finally, men who engaged only in vaginal intercourse reported concurrent partners less often than did those who engaged in a broader range of sexual activities (14% vs. 28–53%).

Among female respondents, the incidence of concurrent recent partnerships varied notably by age at first sexual experience. Thirty-four percent of women who first had sex before age 16 had been nonmonogamous during their most recent sexual relationship, compared with 11–14% of those who first had sex at later ages. Additionally, the proportion reporting concurrent partners was higher among women who had an STD diagnosed during their most recent relationship than among others (36% vs. 14%).

Overall, the proportion of respondents reporting that either they or their partner had been nonmonogamous was elevated among couples of different races, those who used condoms infrequently, those in which the respondent had had an STD diagnosed during the relationship or in which either partner had ever spent a night in jail, and those who had been together for a year or more. Age and educational differences, marital status and setting in which the couple met were not related to reports of concurrency. For almost all characteristics, the likelihood that either partner had been nonmonogamous rose steadily as the respondent's number of previous partners increased.

The investigators constructed three multivariate models to examine these associations while controlling for the effects of other factors: one each for men's individual characteristics, women's characteristics and partnership characteristics. Results of the first model revealed that the odds that a male respondent had had a concurrent sexual partner rose somewhat for every partner he had had over his lifetime (odds ratio, 1.2). Likewise, men who had spent at least one night in jail had significantly higher odds of having had a concurrent partner than men who had never spent a night in jail (2.0). No other factors were statistically significant among men, although respondents who reported ever having had a same-sex partner had marginally increased odds of having had a concurrent partner (odds ratio, 1.9;  $p=.09$ ).

Lifetime number of sexual partners also significantly increased women's odds of reporting a concurrent sexual partner (odds ratio, 1.1). Other significant factors for women were having had an STD diagnosed while in their most recent relationship and having had first intercourse before age 16 (3.5 and 2.9, respectively).

Finally, relationships in which the respondent had had an STD diagnosed were more likely than others not to have been mutually monogamous (odds ratio, 2.7). Relationships that had lasted for at least six months were significantly more likely than shorter-lived ones to have included a concurrent partnership (2.4). Also, if either partner had spent a night in jail, the odds that their relationship was not mutually monogamous were significantly elevated (2.0). The odds of concurrency increased as the respondent's number of previous partners rose (1.1) and were elevated if the couple were of different races (1.7); married and cohabiting couples had reduced odds of being nonmonogamous (0.6).

The authors observe that "the frequency and correlates of concurrency varied strikingly by sex" and that "these differences may be due to real behavioral differences between men and women or to reporting differences." They speculate that "men may focus more on individual sex acts and thus recall more concurrent partners, whereas women may focus more on a relationship and neglect to report intermittent sexual encounters outside the context of an established relationship." However, they add that differences in men's and women's perceptions of social desirability may also drive variations in responses.

The investigators also note that the research had some important limitations. Notably, the examination of partnerships relied on a respondent's perception of whether his or her partner had had sex outside the relationship. In addition, no data were collected on how respondents characterized their partnerships in terms of commitment and intimacy. In conclusion, the researchers observe that "by increasing the accuracy of measures of both concurrent sex partnerships and the factors correlated with concurrency, we will be better equipped to tease out the role of concurrency in STD transmission dynamics."—*M. Klitsch*

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## Refusal to Try Female Condom Largely Reflects Aversion to Insertion

Women who refuse to try inserting the female condom and women who try but experience difficulties have different profiles, suggesting that different interventions are needed to promote use in these two groups. In a clinic-based study in Alabama, most women who received information about the female condom and instruction in its use were willing to try inserting it; predictors of refusal predominantly reflected an aversion to insertion. In contrast, lack of sexual assertiveness and indifference to the advantages of intravaginal contraceptive methods were key predictors of difficulty with insertion.<sup>1</sup>

Data for the analysis were collected as part of a prospective study of the efficacy of the female condom. Participants were recruited from two public sexually transmitted disease (STD) clinics, one in Birmingham and one in Huntsville. Women were eligible if they were aged 18–35, had not undergone hysterectomy, were not pregnant, were not seeking to become pregnant in the next six months and were not taking antibiotics on a long-term basis. They did not have to agree to use the female condom.

All of the women completed an interview, watched a 10-minute video about the female condom and attended a 30–45-minute individual skills-based training session with a nurse that included practice inserting the condom in an anatomic model. The women were then offered an opportunity to try inserting the condom in themselves and have the nurse check its placement. If a woman did not insert the condom correctly on the first attempt, she was given additional instruction and was offered further opportunity to practice.

The researchers used bivariate analysis to identify predictors of two outcomes: refusal to attempt insertion and difficulty (incorrect insertion) on the first attempt. Factors that showed associations with the outcomes in bivariate analysis underwent further assessment in multivariate analysis.

Study participants were predominantly unmarried (87%) and black (84%); their median age was 23, and half had had at least 12 years of education. The majority of women (82%) reported recent sexual activity; only 4% reported current use of an intravaginal barrier method (i.e., spermicides or the diaphragm, sponge or female condom). A total of 1,144 women were included in the analysis.

When offered the chance to practice inserting the female condom in themselves, only 5% of women refused, citing lack of interest in the method. Refusal was largely associated with factors that the researchers characterize as reflecting aversion to insertion. Specifically, the odds of refusal were roughly doubled among women who had never had a Pap test (odds ratio, 2.4), did not use tampons (2.2), or had never used an inserted method of STD prevention or birth control (2.2); they were elevated by nearly half among those who disliked inserting intravaginal barrier products (1.4).

Other factors associated with increased odds of refusal were increasing age at first sex, not being employed, never having had unwanted sex, worrying about pregnancy risk and, for women with only nonregular partners, believing that condom use implies a lack of fidelity or trust and considering oneself to be at high risk of acquiring an STD (1.3–3.3). Women who had not heard of the female condom had reduced odds of refusing to try it (0.3).

Among women willing to attempt insertion, 25% were not able to place the female condom correctly on the first try. Failure to push the inner ring high enough into the vagina was the most common cause of incorrect insertion. Women experiencing difficulty on the first attempt at inserting the device were usually able to master insertion within two or three attempts. Only 3% were not able to place the condom correctly after repeated instruction and attempts.

Eight factors were associated with difficulty with insertion, and two of these related to a woman's lack of sexual assertiveness: Women had an increased likelihood of difficulty if they did not express their sexual likes to their partner (odds ratio, 1.7) and, among those with regular a partner, if they did not put male condoms on him (1.3). The odds of difficulty increased as a woman's number of pregnancies and live births declined (1.2) and were sharply elevated for those with a nonregular partner only (7.0). Women with long fingernails, those who were indifferent to the advantages of intravaginal contraceptive methods and those with a high perceived STD risk also had an increased likelihood of having difficulty inserting the device (1.3–1.5), and those with no experience in using an inserted method had reduced odds (0.7).

The researchers observe that refusal and initial difficulty collectively affect a large proportion of women. They note that although

women experiencing initial difficulty might be inclined to simply give up, most would be able to master this task with supervised practice. Furthermore, the researchers conclude that women who refuse to insert the female condom and those who initially have difficulty with insertion "have different programmatic needs." Interventions for women in the first group might include desensitization, teaching partners to insert the female condom or emphasizing use of the male condom instead, they note. Interventions for women in the second group might include supervised insertion practice and added instruction as needed, as well as efforts geared toward building women's sexual assertiveness.—S. London

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## Physician Attitudes May Hamper Assessments Of Patients' Risk Status

Nine in 10 primary care physicians surveyed in Pennsylvania in 1998 said that they are comfortable discussing issues related to sex with their patients, but fewer than one-third believed that their counseling helps reduce risky behavior among their patients.<sup>1</sup> Furthermore, although virtually all respondents thought that physicians should routinely counsel teenage patients about sexually transmitted disease (STD) prevention, only about three in five considered themselves responsible for ensuring that their young female patients receive proper STD prevention services. Female doctors, those working in clinics and physicians who felt adequately trained in STD care had more positive STD-related attitudes than others.

The survey was mailed to a randomly selected sample of 1,054 primary care physicians, of whom 541 returned the questionnaire. Roughly half (53%) of respondents were male; most were older than 40 (67%) and white (87%). Thirty-four percent were obstetrician-gynecologists, 28% family practitioners, 24% pediatricians and 14% internists. The majority (62%) were in group practices; the rest were solo practitioners (24%) or worked in clinics (13%).

When asked if their medical education had adequately prepared them to offer STD care, only 52% of participants replied that it had.

The proportion was higher (71%) when the question referred to postgraduate training, but it varied considerably by specialty—from 47% among pediatricians to 90% among obstetrician-gynecologists. Higher proportions of doctors younger than 40 than of older physicians considered their STD training adequate.

Respondents were asked to rate the extent to which they agreed with nine statements reflecting attitudes toward providing STD services; possible responses ranged from one (strongly disagree) to five (strongly agree). When the researchers dichotomized the responses (agree vs. disagree), they found that 89% of physicians felt comfortable discussing sex-related issues with their patients. Nonetheless, only 45–46% enjoyed seeing patients with concerns about STDs or were confident that they diagnosed most female patients' STDs; only 30% thought that their counseling had a positive influence on patients' behavior.

Ninety-four percent of physicians agreed that counseling adolescents about STD prevention should be a routine practice, but only 57% considered themselves responsible for ensuring that their young female patients received STD prevention services. A substantial minority (29%) thought that chlamydia was too uncommon among their patients to warrant screening of sexually active teenage women. Nearly half of respondents indicated that time pressures were a barrier to providing effective STD prevention services and counseling; one-quarter said that financial reimbursement difficulties impeded service provision.

Significantly higher proportions of female than of male respondents reported agreement with five of the nine attitudinal items (comfort in discussing sex-related issues, confidence in detecting female patients' STDs, effectiveness of counseling, physicians' responsibility for routine counseling and personal responsibility for female patients). Moreover, when the researchers calculated summary attitude scores and used multivariate analysis to examine their relationships with physician characteristics, they found several significant associations. Scores were elevated (indicating more positive attitudes) among female doctors, physicians employed by clinics and respondents who considered their medical school or postgraduate training in STD care adequate. Compared with family practitioners, obstetrician-gynecologists had higher scores, and pediatricians had lower scores.

Finally, the investigators examined physicians' counseling and risk assessment prac-

tices, and how these practices related to attitudes regarding STDs. Questionnaire responses revealed that the large majority of physicians (74–88%) usually counseled 15–25-year-old patients about STD transmission and prevention, and asked them about their sexual activity, condom use and STD history. Fewer than half (42–47%) typically asked these patients about their lifetime number of sexual partners or sexual orientation. Respondents who reported these practices had significantly higher summary attitude scores than those who did not.

While acknowledging their study's limitations—particularly its limited generalizability—the researchers point to a number of important findings. Medical education and training, they comment, should give increased emphasis to STD care, “to influence future attitudes and behaviors.” More generally, they conclude that “interventions to improve physicians' confidence and sense of responsibility for STD prevention could lead to improved STD-related practices.”—*D. Hollander*

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## Neonatal Death Risk: Effect Of Prenatal Care Is Most Evident After Term Birth

Women in the United States who do not receive prenatal care have an increased risk of experiencing a neonatal death, especially if they deliver at or after 36 weeks' gestation, according to findings from a large population-based cohort study.<sup>1</sup> Lack of prenatal care is associated with a 40% increase in the risk of neonatal death overall and a doubling of the risk among women delivering at or after 36 weeks' gestation. Black women are more than three times as likely as white women not to receive prenatal care, and regardless of their prenatal care status, their infants are significantly more likely to die within their first 27 days of life than are infants born to white women.

To examine the association between prenatal care and neonatal deaths (those occurring within the first 27 days of life), researchers analyzed perinatal mortality data for 1995–1997 collected by the National Center for Health Statistics. During that time, there were nearly 12 million pregnancies in the United

States. The researchers restricted their sample to live singleton births that occurred at 24 weeks' gestation or later. They excluded births of infants who had congenital or chromosomal abnormalities, or who weighed less than 500 g at delivery, and births with missing data on gestational age or mother's receipt of prenatal care (defined as at least one visit during pregnancy). After the exclusions, the sample consisted of 10.5 million births, among which there were 18,339 neonatal deaths and 118,721 mothers who had not received prenatal care.

The researchers used multivariate logistic regression analysis to determine the association between prenatal care and neonatal death. The analyses were adjusted for maternal age, education and parity; smoking and alcohol use during pregnancy; gestational age; birth weight; and prenatal high-risk conditions (maternal anemia, intrapartum fever, preterm premature rupture of the membranes, excess amniotic fluid, diabetes, chronic hypertension, pregnancy-induced hypertension, renal disease, premature detachment of the placenta, placenta previa, bleeding of unknown cause, fetal growth restriction, Rh sensitization, postterm pregnancy and history of delivering a preterm or small-for-gestational-age infant).

About 1% of all women had received no prenatal care; the overall neonatal death rate was 1.7 per 1,000 births. In analyses by race, black mothers were more than three times as likely as white mothers not to have received prenatal care (2.7% vs. 0.8%). In addition, neonatal death rates were higher among black infants than among white infants, regardless of prenatal care status (2.7 vs. 1.5 per 1,000 births for infants whose mothers had prenatal care; 10.7 vs. 7.9 per 1,000 births for those whose mothers had none).

In multivariate analyses, women who did not have prenatal care were 40% more likely than those who did to experience a neonatal death (relative risk, 1.4). The risk of neonatal death among infants born to women with and without prenatal care was affected by gestational age: Infants born at 24–35 weeks' gestation to mothers without prenatal care were 20% more likely than those born to mothers with care to die within their first 27 days of life; among infants born at or after 36 weeks' gestation, the relative risk of neonatal death was 2.1 among those born to mothers without care. Lack of prenatal care increased the relative risk of neonatal death 40% among infants born to black women and 50% among those born to white women. For black and white women

combined, not having prenatal care was significantly associated with an increased risk of neonatal death by preterm premature rupture of the membranes, placenta previa and fetal growth restriction (1.3–1.9).

In light of their findings that among infants born to women without prenatal care, those born at or after term had a greater risk of neonatal death than those born preterm, the researchers propose that the “phenomenon is possibly related to the fact that prematurity per se is the major determinant of neonatal deaths for infants born earlier than 36 weeks of gestation, thus making the benefits of prenatal care...more evident at term.” They also suggest that overestimation of gestational age may have been a factor.

The researchers comment that lack of prenatal care, unlike most factors associated with perinatal death, is “theoretically preventable.” They suggest that more work needs to be done to determine why the association between perinatal death and lack of prenatal care occurs. Furthermore, the researchers note that the disparity in neonatal deaths between blacks and whites persisted even among those with prenatal care. They conclude that “more comprehensive strategies” than just prenatal care are needed to reach equity.—*J. Rosenberg*

#### REFERENCE

1. Vintzileos AM et al., The impact of prenatal care on neonatal deaths in the presence and absence of antenatal high-risk conditions, *American Journal of Obstetrics and Gynecology*, 2002, 186(5):1011–1016.

#### CORRECTION

In “Sexual Assertiveness and Adolescents' Sexual Rights,” by Patricia East and Joyce Adams [2002, 34(4):212–213], the denominator for the percentages in the second sentence of the third paragraph on page 213 should have been school districts with a policy regarding sexuality education.