Recent Childbirth or Acquisition of New Partner Boosts Sexually Transmitted Disease Risk in Female Teenagers

Female adolescents who have a sexually transmitted disease (STD) are more likely to have recently acquired a new sex partner than their sexually active peers who do not have an STD, according to a longitudinal study of teenagers receiving care at public health clinics in Connecticut.[1] One in four adolescents acquired a new partner during the 12-month follow-up, and these women had three times as high odds of receiving a new chlamydia or gonorrhea diagnosis as others. Adolescents with a new partner were less likely than those with an established partner to know their partner's history of STDs and of sex with others. A second study by the same team of researchers using the same data indicates that teenagers who have recently given birth are at greater risk for an STD than their peers who have not given birth.[2] The STD infection rate was stable for teenagers who did not give birth during the follow-up period, but increased between six and nine months postpartum among females who gave birth, especially among those who acquired new partners.

Adolescents with New Sex Partners

To examine associations between the acquisition of new sex partners and STD risk in young women, the researchers recruited females between the ages of 14 and 19 from health clinics serving predominantly low-income populations in New Haven, Hartford and Bridgeport, Connecticut. Between 1998 and 2000, adolescents who had had sexual intercourse, had not given birth, were HIV-negative and were receiving gynecologic or obstetric care at one of the 10 participating clinics were invited to participate in face-to-face interviews. The interviews, which lasted 60–90 minutes, were repeated six and 12 months later. At each interview, the researchers asked about sexual history, sexual risk behavior, partnership characteristics and other factors, and collected urine samples to be tested for chlamydia and gonorrhea. To determine if a new partner was acquired, they asked if participants' current partner was the same one as at last interview.

Of the 411 adolescents in the sample, 44% were black and 42% Hispanic. Eighty-three percent were in high school or had graduated. On average, the adolescents were 17.3 years old, had been 14.5 years old at first intercourse and had had 4.1 lifetime partners. The vast majority of young women who were currently sexually active reported having had only a single sex partner in the past 30 days (97%). Of the 363 adolescents who completed interviews at six or 12 months, 24% acquired a new partner during follow-up; 15% of those with STD results from the follow-up period had a new chlamydia or gonorrhea infection diagnosed.

A significantly greater proportion of those with a new partner than of those without a new partner had an STD (27% vs. 12%). New partner acquisition was more common among 14–16-year olds than among older adolescents (31% vs. 19%); more common among those who had been 14 or younger at first intercourse than among those who had been older (34% vs. 16%); and more common among those who had used alcohol or drugs before sex in the past 30 days than among those who had not (42% vs. 20%). A greater proportion of nonpregnant than pregnant adolescents acquired a new partner (31% vs. 17%), and the same was true for adolescents who had not had a pregnancy in the past compared with those who had (28% vs. 18%).

A multivariate analysis showed that adolescents with an STD were significantly more likely than those without an STD to have a new partner (odds ratio, 3.0). Other factors associated with the acquisition of a new partner were younger age (1.8), younger age at first intercourse (2.7) and alcohol or drug use before sex in the past 30 days (2.7).

Twenty-two percent of adolescents in new partnerships said they did not know their partner's STD history, compared with 8% of those in established partnerships. Twenty-three percent of those with new partners said their partner had had sex with someone else in the past six months, and 20% did not know if he had, compared with 10% and 8%, respectively, of those with established partners. Adolescents with new partners were significantly more likely than their peers in established relationships to say they had used alcohol or drugs before sex in the past 30 days (38% vs. 20%) and were less likely to say they had had unprotected intercourse in the past 30 days (35% vs. 48%).

The findings suggest that the acquisition of a new partner is an important predictor of STD, the authors conclude. To help reduce STD infections in adolescents, clinicians "should ascertain if their adolescent patients are in new relationships and, if so, test them and their partners for STDs," they write.

Adolescents in the Postpartum Period

In the second study, the researchers compared data for the 203 adolescents who were pregnant at baseline (whose initial interview took place during the third trimester) and the 208 nonpregnant adolescents. At baseline, significantly greater proportions of pregnant adolescents than of others had dropped out of school (23% vs. 11%), said they had been older than 14 at first intercourse (58% vs. 47%) and had had a previous pregnancy (53% vs. 24%). All previous pregnancies had ended in spontaneous or induced abortion; the study criteria excluded females who had already given birth.

For adolescents in the postpartum period, the proportion with new STD infections increased between the six- and 12-month follow-up visits from 7% to 14%; by contrast, the rate of new infections was stable among their peers who had not given birth (8–9%). In a logistic regression analysis of a subgroup of teenagers with STD test results at baseline, six and 12 months (126 pregnant and 133 not pregnant at baseline), the prevalence of infection was 1.9 times as high in adolescents who were nine months postpartum as in adolescents who had not been pregnant at baseline. STD prevalence did not differ between the groups in the six months preceding the baseline interview; approximately one-third of both pregnant and nonpregnant adolescents had had a diagnosis of chlamydia or gonorrhea, according to a review of medical and of state health department records.

Chi-square testing pointed to two potential

predictors of postpartum STD: the acquisition of a new partner (reported by 45% of postpartum adolescents with STDs vs. 11% of STD-free adolescents) and a history of two or more sex partners per year of sexual activity (77% vs. 52%). Age, race, education and condom use at last sex were not significantly related to the likelihood of a postpartum STD diagnosis in adolescents pregnant at baseline.

Results of multivariate analysis confirmed these findings. Adolescents in the postpartum period who had a new partner were 6.3 times as likely as those without a new partner to have an STD; those with a higher average number of sex partners per year of sexual activity were 3.0 times as likely to have an STD as were those with a lower average number of partners.

The findings suggest that clinicians can target STD prevention messages to high-risk adolescents by focusing on those in new sex partnerships or in the postpartum period, the authors conclude. "Routine prenatal and postpartum care provide unique opportunities to promote condom use and other risk reduction interventions among adolescents," they write. *–T. Tamkins*

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For Second-Trimester Abortion, Women Given Misoprostol Vaginally Report the Greatest Satisfaction

When a fetal anomaly causes a woman to seek a second-trimester abortion, oral administration of misoprostol appears to be the least effective method for terminating the pregnancy, and vaginal misoprostol administration the most acceptable to women.[1] In a randomized controlled trial, the average time from the start of the procedure to delivery of the placenta was 3–13 hours longer for those given misoprostol orally than for those who received it vaginally or who received intra-amniotic prostaglandin. Women in the vaginal misoprostol group were the most likely to say that if they ever needed a second-trimester abortion again, they would choose the same method.

The trial was conducted between January 1998 and February 2001 at two teaching hospitals in Toronto. Women were eligible if they were 15–24 weeks pregnant and the fetus had a malformation or chromosomal abnormality; those with an allergy to prostaglandins, a history of cesarean delivery or hysterotomy, active bleeding, asthma, a deficiency of amniotic fluid or ruptured membranes were excluded. A total of 217 women were randomized to one of three groups: Eighty-one women received an intra-amniotic injection of prostaglandin, followed by insertion into the cervix of a laminaria tent and intravenous administration of oxytocin; 84 received 400 mcg of vaginal misoprostol every four hours for up to 24 hours; and 52 received the same misoprostol dose, on the same schedule, but orally.

On average, women in all three groups were 32–33 years old and were about 20 weeks pregnant; the majority were white, and almost all were married. Nearly half of participants were nulliparous, and about four in 10 had had an abortion. About three in five had undergone amniocentesis or chorionic villus sampling; chromosomal abnormalities were the most common indication for pregnancy termination.

Complete abortion took an average of 18 hours for women in the vaginal misoprostol group, 21 hours for those who received intra-amniotic prostaglandin and 31 hours for those who took oral misoprostol. The differences between the oral misoprostol group and the others were statistically significant.

No major complications occurred in any group, and rates of many minor complications—nausea, fever, manual removal of the placenta, curettage for undelivered placenta, and vaginal or cervical lacerations—were similar for all three. The frequency of other minor complications, while low, differed by procedure. Women in the intra-amniotic prostaglandin group had significantly more episodes of vomiting requiring treatment than those in the oral misoprostol group (on average, 0.7 vs. 0.2), and the number of episodes of diarrhea requiring treatment was greater among women who took oral misoprostol (0.8) than among those in the other groups (0.1 for each). Additionally, a significantly higher proportion of women in the vaginal misoprostol group, and a marginally higher proportion of those in the oral misoprostol group, than of those in the intra-amniotic prostaglandin group had a live birth (20%, 15% and 5%, respectively). One woman who received vaginal misoprostol and two women in each of the other groups had a failed abortion (i.e., did not go into labor within 48 hours after the start of induction).

During follow-up visits with their physicians three weeks after the abortion, 165 women completed a self-administered questionnaire about the experience. The responses indicated that nausea and vomiting were less of a problem for women given vaginal misoprostol than for others, and that pain from the procedure was least problematic for women who received intra-amniotic prostaglandin and most problematic for those who took oral misoprostol. Notably, 57% of those in the vaginal misoprostol group said that if the need arose again, they would opt for the same procedure to terminate a pregnancy in the second trimester—a significantly larger proportion than gave this answer in the other groups (30–34%). The intensity of pain and the length of time the abortion took were important factors in the decision whether to repeat the procedure.

The researchers note that "investigators have yet to identify the optimal regimens for the use of misoprostol for [second-trimester abortion]." In particular, oral misoprostol procedures require further examination. Meanwhile, they conclude, before choosing a method for second-trimester abortion, women who are carrying a fetus with a malformation or a chromosomal abnormality should be given information about the relative effectiveness and acceptability of available regimens.*–D. Hollander*

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Poor Outcome in First Pregnancy May Predict Stillbirth in Second One

The odds that a second pregnancy will end in stillbirth are twice as high among women whose first pregnancy ends in the term delivery of an infant who is small for gestational age as among those whose first infant is born at term and is not undersized.[1] The differential is even greater (odds ratios, 3.4–5.0) if the undersized infant is also born moderately or very

preterm. In addition, women whose first pregnancy ends in stillbirth have elevated odds of having the same outcome in their second pregnancy (2.5).

To assess relationships between adverse outcomes of a first pregnancy and the likelihood of stillbirth in a second pregnancy, researchers analyzed data from the Swedish Medical Birth Register, which includes virtually all births in the country, for the years 1983–1997. Analyses were restricted to women who delivered first and second consecutive singleton infants. The researchers determined maternal social and demographic characteristics and complications of pregnancies from the birth register and linked databases. Pregnancy outcomes were classified as live births or stillbirths (fetal death at 28 weeks' gestation or later). Live births were further classified as occurring at term (37 or more weeks of completed pregnancy), moderately preterm (32–36 weeks) or very preterm (fewer than 32 weeks). An infant having a birth weight that was more than two standard deviations below average for gestational age was defined as being small for gestational age.

Overall, the 410,021 women included in the analyses had 2.6 stillbirths per 1,000 births in their second pregnancy. The rate was lowest among women whose first pregnancy ended in the term birth of an infant who was not undersized (2.4 per 1,000) and highest among those whose first infant was both small for gestational age and very preterm (19.0 per 1,000). In unadjusted analyses using the former women as the reference group, the odds of stillbirth were significantly elevated for women whose first infant was not undersized but was very preterm, for women whose first infant was small for gestational age, regardless of the duration of pregnancy, and for women whose first infant was stillborn.

Additionally, unadjusted analyses suggested that several complications of pregnancy and maternal characteristics were related to the likelihood of stillbirth. The odds were increased among women who had bleeding or hypertension during their second pregnancy, were overweight or obese (as measured by body mass index), were 35 or older, smoked, had been born in a non-Nordic country, or had had their first two pregnancies within a short interval (three months or less) or spaced very far apart (72 months or more).

In adjusted analyses, all of these characteristics except maternal body mass index, plus several other social and demographic factors, were controlled for; again, women whose first pregnancy ended in the term birth of an infant who was not small for gestational age constituted the reference group. In these calculations, the odds of stillbirth in the second pregnancy were elevated for women whose first pregnancy ended in the preterm birth of an infant who was not undersized (odds ratio, 2.0), but the association was no longer statistically significant after further adjustment for maternal body mass index and height. The odds were raised among women whose first infant was small for gestational age and born at term (2.1), and were sharply elevated for women whose first infant was undersized and either moderately preterm (3.4) or very preterm (5.0). In addition, women whose first infant was stillborn were at increased risk of having their second pregnancy end in a stillbirth (2.5). These associations persisted after further adjustment for maternal body mass index and height.

The researchers speculate that some of the same factors affecting fetal growth in a woman's first pregnancy may affect fetal survival in her second pregnancy, and they note that the findings highlight the "central role of fetal growth restriction" in the etiology of stillbirth. While commenting that many of the odds ratios from their analyses are large, they observe that "the rates and absolute risks of stillbirth during a second pregnancy are still quite low, and the overwhelming majority of women whose first infant was small for gestational age delivered liveborn second infants." They conclude that although some fetuses at increased risk for stillbirth can now be identified, the optimal intervention if such a fetus is identified very preterm remains uncertain.–*S. London*

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Teenagers Given Advance Emergency Contraception Still Use Pill and Condoms

Providing adolescents with advance doses of emergency contraception neither increases their likelihood of having unprotected sex nor negatively affects their use of condoms or hormonal contraceptives, according to a longitudinal study of 15–20-year-old women in Pennsylvania.[1] Moreover, adolescents who have been provided with an advance dose of emergency contraception use it significantly sooner than those who have been educated about the method but must obtain it from a provider after unprotected sex.

The study included 301 sexually active women aged 15–20, who were recruited at a hospital-based adolescent health clinic in urban Pennsylvania in 1997–2001. Participants completed baseline interviews and were randomly assigned to either a control or an intervention group. All participants received instruction on how to obtain and use emergency contraception, and those in the intervention group were given one advance dose and access to two additional doses upon request at any time during the study.

In six monthly follow-up interviews conducted over the telephone, participants were asked about instances of unprotected sex, contraceptive use and method choice during the past month and at last sex. Follow-up interviews also addressed emergency contraceptive use and newly identified pregnancies and sexually transmitted diseases. The researchers used appropriate statistical tests to examine differences between the intervention and control groups at the bivariate level and constructed logistic regression models to identify independent predictors of emergency contraceptive use.

At baseline, the control and intervention groups did not differ significantly with respect to their demographic and reproductive health characteristics. The majority of participants were black (57%), were attending high school (59%) and lived in their family home (72%); nearly half received publicly funded health insurance coverage. The women's mean age was 17 years, and their mean age at first sex was 15. Seventy-five percent of participants reported having used a contraceptive at last sex; 73% had used a condom. Sixty-nine percent had heard of emergency contraception, 20% had ever been pregnant and 30% had had a sexually transmitted disease.

One month after enrollment, adolescents' use of condoms and regular hormonal contraceptives did not vary significantly between the intervention and control groups: In the past month, 28–32% had had unprotected sex, 68–70% had used condoms and 39–42% had used a hormonal contraceptive; at last intercourse, 19–20% reported having used no protection, 78–79% condoms and 39–41% hormonal contraceptives. These proportions remained generally consistent at the six-month follow-up, but condom use in the past month

became significantly more common among women in the intervention group than among controls (77% vs. 62%).

However, the women differed in their use of emergency contraception: At one month, a significantly higher proportion of women in the intervention group than of those in the control group had used emergency contraception (15% vs. 8%), although this difference was not significant at the six-month follow-up. Participants who had received an advance dose of emergency contraception reported a significantly shorter interval between unprotected sex and the start of treatment than those who had not received an advance dose (11 hours vs. 21 hours).

The researchers used separate regression models, all of which controlled for study group and contraceptive method, to assess independent predictors of emergency contraceptive use. One model controlled for unprotected sex, one for sexual and reproductive history, and one for awareness of and expected need for emergency contraception. Results of the second model revealed that women who had ever been pregnant had elevated odds of using emergency contraception at some point during the study (odds ratio, 3.5). No other significant predictions of emergency contraceptive use were identified.

The researchers acknowledge several limitations, including the fact that participants who received an advance dose had to return to the study office for additional doses, which may in part explain the similarities in use patterns between the two study groups at six months. They recommend that adolescents be provided with advance doses of emergency contraception, because "doing so increases the likelihood that it will be taken during the most effective time frame without having an adverse effect on sexual or contraceptive risk-taking behavior."–*R. MacLean*

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Postpartum Sexual Problems Are Similar for Depressed And Nondepressed Women, but Prevalence Differs

Within six months after giving birth at a London hospital, nine in 10 women answering survey questions about their sexual and mental health had resumed intercourse, but two-thirds of those who had said that sex was less frequent and four in 10 said that it was less satisfying than it had been before they became pregnant.[1] Twelve percent of women suffered postpartum depression; these women were less likely than others to report having resumed intercourse and were more likely to say that they had started having sex too soon after delivering. The proportions of women reporting sexual problems such as pain during intercourse were elevated three months after delivery; they were lower, but remained above prepregnancy levels, at six months postpartum. This pattern was the same regardless of whether women were depressed, although problems were more common among women with postpartum depression.

Respondents to the mailed survey were first-time mothers who delivered in the second half of 1997. Analyses of the sexual health of women with and without depression were based on data for 468 respondents who answered questions that permitted the investigators to assess their scores on a standard postpartum depression scale.

Overall, 12% of women had postpartum depression. Obstetric records revealed that these women were significantly less likely than others to have been born in the United Kingdom (61% vs. 76%), to be white (58% vs. 75%), to be employed (63% vs. 80%) and to have a permanent residence (81% vs. 93%). In other respects that could be related to postpartum mental and sexual health, women with depression were statistically indistinguishable from those without: In each group, 50–60% were younger than 30 and were married; about half had had an unassisted vaginal delivery, and one-quarter a cesarean. Depressed and nondepressed women were equally likely to have had perineal damage and to be currently breast-feeding.

Eighty-seven percent of women had resumed intercourse by the survey date, and another 2% had attempted to do so; the proportion who had at least attempted to start having sex again was significantly greater among women without depression than among those who were depressed (90% vs. 77%). Among those who had resumed or attempted to resume sexual relations, similar proportions of depressed and nondepressed women said that they were having sex less often than they had before becoming pregnant (68% and 69%, respectively), that their sex life was not as satisfying as it had been (43% and 38%) and that their partner was dissatisfied with the couple's sex life (21–26%). However, those suffering depression were more likely than others to say that their partner had initiated the resumption of intercourse (35% vs. 20%) and that they had resumed having sex too soon (28% vs. 9%).

Regardless of women's depression status, when those who had a partner but had not attempted to resume intercourse were asked the reason, they most frequently cited loss of libido, lack of interest, fatigue, physical problems and feelings of unattractiveness. Those without depression added that they feared conceiving again, they needed contraception, their partner was away or ill, and they were spending time with their child.

Significantly greater proportions of women reported having sexual problems—vaginal dryness, looseness or tightness; pain during intercourse, penetration or orgasm; difficulty achieving orgasm; or bleeding or irritation after intercourse—three months after delivery than before conception. The proportions declined between three and six months postpartum, but not to prepregnancy levels. Although this pattern was the same for nondepressed and depressed women, problems were consistently more common among the latter; the median number of sexual problems six months postpartum was two for depressed women and one for others. Sixty percent of women with a postpartum sexual problem had not discussed it with anyone, 33% had talked to their partner about it and 12% had discussed it with a doctor; these proportions did not differ by women's depression status.

The researchers stress that their findings do not indicate a causal relationship between sexual problems after childbirth and postpartum depression. However, they conclude, their study "provides a basis for clinicians to provide information to women, depressed or not, on the problems they are likely to encounter, which of those may resolve, and when to seek further health care."–*D. Hollander*

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For Teenage Women, Having Had Multiple Recent Partners Is Linked to a Cluster of Negative Behaviors

Thirteen percent of sexually experienced female high school students have had two or more sexual partners in the past three months, according to an analysis of data from a nationally representative survey.[1] Having had multiple partners in the previous three months rather than one or none is positively associated with a cluster of negative behaviors including fighting, smoking and binge drinking. Older students have reduced odds of having had multiple partners rather than a single partner in the previous three months.

To examine the factors associated with young women's having multiple sexual partners, researchers used data from the 1999 Youth Risk Behavior Survey, which included a nationally representative sample of private and public high school students from all 50 states and the District of Columbia. The survey asked students about their demographic characteristics, their number of sexual partners in the previous three months, their mental health in the previous 12 months, their violent behaviors in the previous 12 months, their substance use during the last 30 days and their sexual risk-taking behaviors at last intercourse. Using data from the 3,288 female respondents who reported ever having had sexual intercourse, the researchers conducted bivariate logistic regression analyses to determine the factors associated with young women's number of sexual partners in the last three months; all factors found to be significant were included in multivariate analyses.

Overall, 54% of the young women were white, 20% were black, 8% were Hispanic and 18% were of other races or ethnicities. Thirty-one percent were in the 12th grade, 27% the 11th, 24% the 10th and 19% the ninth. Overall, 24% of the young women had not had a sexual partner in the last three months, 63% had had one partner and the remaining 13% had had two or more.

In bivariate analyses, being in 12th grade, binge drinking (i.e., having had five or more drinks in a row) in the last 30 days and nonuse of condoms at last sex were associated with increased odds of having had a single partner during the last three months rather than none (odds ratios, 1.5–2.1); mental health problems were associated with reduced odds of having had one partner (0.6–0.7). Having been in a physical fight, recent substance use, substance use before sex and nonuse of condoms at last sex were related to increased odds of having had multiple partners in the last three months rather than none (1.5–6.6). All of these factors except condom use at last sex were associated with increased odds of having had multiple partners rather than having had one partner (2.0–5.6); in addition, being black (1.7) and having considered or attempted suicide (1.6– 2.0) were related to that outcome. Being in 11th or 12th grade and having carried a weapon were related to reduced odds of having had multiple partners rather than one (0.4–0.5).

Many of the factors found to be significant in the bivariate analyses remained so in the multivariate analyses. Students in the 12th grade and those who had not used condoms at last sex had increased odds of having had a single partner rather than none in the previous three months (odds ratios, 1.7–1.8). Young women who had been in at least one fight in the previous year, had smoked two or more cigarettes in a day in the last 30 days, had recently binged on alcohol or had not used condoms at last sex were more likely than others to have had multiple partners rather than to have had none (1.6–4.5). Finally, blacks, those who had been in two or more fights in the previous year, those who had smoked two or more cigarettes in a day and those who reported a recent episode of binge drinking had elevated odds of having had multiple partners in the last three months rather than one (1.9–3.5); 11th and 12th graders had reduced odds of this outcome (0.5–0.6).

In light of their findings that young women in ninth grade were more likely than those in 11th and 12th grades to have had multiple partners, the authors recommend that "educational efforts...be initiated before or at the start of ninth grade, in hopes of impacting on this behavior." They add that the data "support the notion of a clustering of problem behaviors among certain youth," and suggest that interventions that focus on young women with such behavior clusters may be more effective than others.–*J. Rosenberg*

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