

# Are adolescents being screened for sexually transmitted diseases?

A study of low-income African American adolescents in San Francisco, California

**ABSTRACT** ● **Objectives** To determine the proportion of sexually experienced African American adolescents who report having been screened for sexually transmitted diseases and to determine the proportion who report having been screened for these diseases among adolescents who have had a preventive primary health care visit in the past 2 years. ● **Methods** A telephone survey of a population-based sample of African American adolescents aged 12 to 17 years residing in a low-income neighborhood in San Francisco with a high prevalence of sexually transmitted diseases. ● **Results** Of the 302 adolescents surveyed, 118 (39.1%) reported a history of sexual intercourse. Of these, 17 (26.2%) of 65 males and 31 (58.5%) of 53 females had been screened for a sexually transmitted disease in the previous 12 months. Twenty (30.8%) of the males and 32 (60.4%) of the females had been screened for a sexually transmitted disease in the previous 24 months. Of the 93 participants who had had a preventive primary care visit since their first episode of sexual intercourse, 14 (26.4%) of the 53 males and 24 (60.0%) of the 40 females had been screened for a sexually transmitted disease in the previous 24 months. ● **Conclusions** Sexually experienced African American adolescents in San Francisco are being screened for sexually transmitted diseases at rates well below those recommended by current clinical guidelines. A low rate of screening was found even in adolescents who had been seen for a preventive primary care visit since they had first had sex. This suggests that the preventive primary care visit is not being used to its full potential as an opportunity to screen and treat adolescents for sexually transmitted diseases. Capitalizing on this opportunity to screen may increase the number of cases of sexually transmitted diseases diagnosed and, thus, decrease rates of these diseases in this population.

## INTRODUCTION

A cornerstone of prevention and control of sexually transmitted diseases (STDs) is the early diagnosis and treatment of those caused by bacteria. Researchers have shown that testing people for STDs, even in the absence of symptoms, can prevent adverse health outcomes.<sup>1</sup> Accordingly, most current practice guidelines recommend that clinicians test adolescents who have had sexual intercourse for STDs at least annually as part of a primary preventive health visit—that is, during a routine periodic history and physical examination.<sup>2-4</sup> This testing in the absence of symptoms is commonly known as screening. A recent Institute of Medicine report suggests that the integration of STD screening into primary care visits would increase the number of adolescents who are screened for STDs and, thus, would increase the number of adolescents diagnosed as having and being treated for STDs.<sup>5</sup>

Few data are available on how many American adolescents who have had sexual intercourse are screened for STDs. A 1988 US survey showed that 46% of sexually experienced 15- to 19-year-old African American women and 34% of all sexually experienced 15- to 19-year-old women had been tested for STDs in the 12 months before the survey.<sup>6</sup> The researchers found that women were more likely to have been tested for STDs if they had had any of the following: a family planning visit in the 12 months before the survey, a higher number of sexual partners, a recent pregnancy, or a history of an STD. However, because this study did not differentiate between times when women were tested for an STD because of symptoms and times when they were screened in the absence of symptoms, it is difficult to assess the role of primary care in the secondary prevention of STDs. The study also did not include men.

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Another study that examined STD screening practices for adolescents reported on laboratory tests done on patients who were enrolled in 7 health maintenance organizations (HMOs) in Massachusetts in 1992.<sup>7</sup> The investigators estimated that 21% of the 15- to 19-year-old sexually experienced women enrolled in the HMOs were tested for STDs. Interestingly, they arrived at this estimate without knowing how many of the adolescents enrolled in the HMOs had a history of sexual intercourse—that is, the number of women who should have been screened. Rather, they had to use data from another study of high school students from Massachusetts to infer the proportion of female adolescents enrolled in the HMOs likely to have a history of sexual intercourse. This method calls into question the reliability of their estimate, and, like the previous study, this one did not differentiate between whether women had symptomatic testing or asymptomatic screening, did not determine the number of adolescent women who had received preventive primary care, and did not include adolescent men.

The limitations of these 2 studies demonstrate how difficult it is to assess whether adolescents are being appropriately screened for STDs. To answer this question properly requires that a community-based sample of adolescents answer detailed questions about their sexual histories to determine which adolescents are sexually experienced, which have had a preventive primary care visit, and which had STD symptoms at the time of the visit.

The objective of this population-based study of African American adolescents was to determine the proportion of sexually experienced African American adolescents who report having been screened for STDs. In addition, we wanted to determine the proportion of sexually experienced adolescents who had been screened for STDs among those adolescents who had attended a primary preventive health visit in the past 2 years. We focused on African American adolescents because the burden of disease is highest in this population. For example, the 1997 reported rate of chlamydia in American adolescents aged 15 to 19 years was 1,126 per 100,000. The reported rate in African American men was more than 12 times and in African American women was more than 6 times the corresponding rates in age-matched white adolescents.<sup>8</sup>

## METHODS

This analysis was part of a larger study that examined health-seeking behavior by African American adolescents and was used to inform the development of a community-based intervention to reduce the prevalence of STDs in these youths. Target participants were African American adolescents between the ages of 12 and 17 years who lived in a predominantly low-income, African American neighborhood in San Francisco. The prevalence of reportable STDs in the neighborhood is the highest in the city (San

Francisco Department of Public Health, unpublished data, 1999).

Between November 1996 and March 1997, we contacted a sample of households using a list-assisted random-digit set of telephone numbers from 3 different prefixes. More than 98% of households in the neighborhood are estimated to have a telephone service, and 65% of these households are served by the 3 telephone prefixes we used. Potential participants were contacted in the evenings and on weekends. If more than 1 adolescent lived in a household, each was considered eligible to participate. Only adolescents who were identified by their parent or guardian as being African American were enrolled in the study. Verbal informed consent was obtained from both the parent and the adolescent. After the 30-minute telephone interview, adolescents were mailed a check for \$10. The study was conducted with approval of the institutional review board.

In all, we contacted 285 households in which 394 eligible adolescents lived. Participation was declined by 13.7% of parents or guardians. A further 9.6% of adolescents either declined consent or were unavailable for interview. There was no difference in age or sex of participants and nonparticipants. Thus, the sample consisted of 302 participants who lived in 224 households and represented 76.6% of eligible participants.

The wording of survey items was based on results of focus groups and pilot tests. Most questions were worded so that adolescents could respond with “yes” or “no” or with a number to maintain the confidentiality of their responses from family members. Whenever possible, participants were interviewed while they were alone in the room. Less than 10% reported that a parent or guardian or other adult was in the same room at any time during the interview.

Basic demographic data (age, sex, and educational level of parents) were collected from each adolescent. Health insurance data were collected from the parent or guardian. Participants were asked a variety of questions about their general health-seeking behavior, including the names of clinics they had attended. We determined whether participants had had a preventive primary care visit by their response to the question: “When was the last time you had a full physical? By a ‘full physical,’ we mean a visit where they examined your whole body and asked you a lot of questions about your health and things that might affect your health.” Participants were then asked whether they had ever had sexual intercourse. This was defined for them as “‘having sex’ or ‘going all the way,’ like when a boy puts his penis in a girl’s vagina.” Participants who reported a history of sexual intercourse were then asked when they had first had sex and the number of sexual partners they had had in their lifetime. They were then asked if they had ever been checked for an STD when they had symptoms

and when that was. Symptoms were described to them as including times when they had pain or discharge from their penis or vagina that was not urine. Later in the interview, participants were asked if they had ever been checked for an STD when they did not have any symptoms and when that was. In addition, they were asked if they had ever been diagnosed as having, or treated for, any of the following STDs: genital herpes, gonorrhea, chlamydia, pelvic inflammatory disease, and syphilis.

We defined an adolescent as having had a preventive primary care visit if the visit had occurred within the previous 2 years. We determined which participants had a history of sexual intercourse at the time of their primary care visit based on the responses of participants to the questions regarding when they had first had sex and when they last had a preventive primary care visit. To assess the influence of the nonindependence of participants (many of the participants resided in households where another participant resided), we reanalyzed our data including only 1 participant per household. No clinically significant difference between our initial and revised results was found. Thus, we have presented our initial results.

## RESULTS

Of the 302 adolescents surveyed, 118 (39.1%) reported at least 1 episode of sexual intercourse. Selected characteristics of these 118 adolescents are shown in table 1. Seven-

Table 1 Characteristics of sexually experienced male and female African American adolescent participants, San Francisco, 1997 (n = 118)

Characteristics	Women (n = 53), No. (%)	Men* (n = 65), No. (%)
<b>Age, yr</b>		
12-14	12 (22.6)	7 (17.5)
15	9 (17.0)	5 (12.5)
16	11 (20.8)	14 (35.0)
17	21 (39.6)	14 (35.0)
<b>Maternal education†</b>		
Less than high school	8 (15.1)	6 (15.0)
High school	17 (32.1)	20 (50.0)
More than high school	28 (52.8)	14 (35.5)
<b>History of at least 1 STD‡</b>		
Yes	6 (11.3)	7 (17.5)
No	47 (88.7)	33 (82.5)
<b>Lifetime number of sex partners</b>		
1	12 (23.1)	24 (60.0)
2	8 (15.4)	4 (10.0)
3	11 (21.2)	3 (7.5)
≥4	21 (40.4)	9 (22.5)

STD = sexually transmitted disease

\*25 male adolescents did not answer all questions, so the denominator is 40.

†Paternal education was substituted for maternal education for participants who did not live with their mother or a female guardian.

‡Ever diagnosed with or treated for chlamydia, gonorrhea, syphilis, pelvic inflammatory disease, or genital herpes.

Table 2 African American adolescents who had a primary preventive health visit in past 2 years and were screened for a sexually transmitted disease (STD) according to selected STD risk factors, San Francisco, 1997

Characteristics	Screened, No. (%)	
	Men (n = 53)	Women (n = 40)
<b>Age, yr</b>		
12-14	12 (16.7)	7 (28.6)
15	9 (44.4)	5 (80.0)
16	11 (27.3)	14 (50.0)
17	21 (23.8)	14 (78.6)
<b>History of at least 1 STD*</b>		
Yes	6 (33.3)	7 (71.4)
No	47 (25.5)	33 (57.6)
<b>Lifetime number of sex partners</b>		
1	12 (41.7)	24 (54.2)
2	8 (12.5)	4 (75.0)
3	11 (36.4)	3 (33.3)
≥4	21 (19.1)	9 (77.8)

\*Ever diagnosed with or treated for chlamydia, gonorrhea, syphilis, pelvic inflammatory disease, or genital herpes.

teen of the 65 male participants (26.2%) and 31 of the 53 female participants (58.5%) had been screened for STDs in the previous 12 months. Twenty of the male participants (30.8%) and 32 of the female participants (60.4%) had been screened for STDs in the previous 24 months. To control for the timing of first sexual intercourse, we examined the screening rates among male (n = 41) and female participants (n = 20) who had first engaged in sex 2 or more years before the interview and among male (n = 23) and female participants (n = 32) who had first engaged in sex less than 2 years before the interview. For male participants, there was no difference in the 2-year screening rate between those with less recent and those with more recent first sex (30.4% vs 31.7%;  $P = 0.8$ ). For female participants, however, a difference was noted in the 2-year screening rate between those with less recent and those with more recent first sex (80.0% vs 50.0%;  $P < 0.05$ ).

To answer the question of whether adolescents who are being seen for preventive primary care are also being screened for STDs, we focused on the 53 male participants and 40 female participants who had a preventive primary care visit after they first had sex. As a group, these adolescents reported receiving primary care at several different types of clinics, including both private and publicly funded sites. Among those adolescents who had had a primary preventive care visit, 14 of the male participants (26.4%) and 24 of the female participants (60.0%) had been screened for STDs at some time in the previous 24 months. Table 2 shows the percentage of participants screened according to selected STD risk factors. Eleven of the male participants (20.8%) and 16 of the female participants (40.0%) were screened for STDs during the pri-

mary preventive care visit. The small number of sexually experienced adolescents who had received a preventive primary care visit precluded us from using inferential statistics to test for differences in screening rates according to STD risk factors.

## DISCUSSION

The results of our study indicate that sexually experienced African American adolescents living in a low-income area of San Francisco are being screened for STDs at rates below those recommended by current practice guidelines. Even adolescents who receive primary health care are not being screened at the recommended level. These findings are of particular concern because the adolescents in our study are among the highest risk group for STDs in the United States. They are low-income African American adolescents who live in a neighborhood with a high prevalence of STDs.

The low rates of screening for STDs may be related to any of the potential hurdles that need to be crossed before an STD screen occurs. First, clinicians need to take a sexual history. One study found that about 75% of California physicians report that they routinely take a basic sexual history from adolescents,<sup>9</sup> whereas another found that only 40% report doing so.<sup>10</sup> In some cases, adolescents may be unwilling to disclose the truth, particularly if the physician does not make assurances about protecting confidentiality.<sup>11</sup> Also, even if a physician determines that an adolescent is sexually experienced, the physician may still not do an STD screening examination owing to a lack of awareness of current screening guidelines<sup>12</sup> or to feeling incompetent to perform an STD screen.<sup>13</sup> In some cases, adolescents may refuse to be screened for STDs.

The method of our study has limitations. Adolescents may not have been honest in their responses about their sexual behavior and their STD history because of the sensitivity of the data.<sup>14,15</sup> Because of this concern, our interviewers were careful to reassure adolescents that all responses were confidential. Also, all questions were pilot tested and were worded such that they could be answered with only a "yes" or "no" or with a number to prevent a household member from understanding an adolescent's responses. Despite these efforts, adolescents may have overreported or underreported their sexual behavior and STD history.<sup>14,15</sup>

Also, some male adolescents may have been screened for an STD by leukocyte esterase testing of a urine specimen without being aware of it, thus falsely lowering self-reported rates of STD screening.<sup>16</sup> This scenario is not likely to be true for female adolescents. Because urine-specimen-based screening of women was not routinely available at the time of the survey, an adolescent girl would likely have realized that she had an STD screening test because it required a pelvic examination. But an adoles-

cent girl may have thought she had been tested for STDs when she had not. For example, the clinician may have only collected a cervical smear for a Papanicolaou test, but the adolescent thought that she had had an STD screening test. Thus, female adolescents may have overreported being screened for STDs.

A further limitation of our study is that we surveyed only African American adolescents who live in a small geographic area. Certainly, knowing the proportion of all American adolescents that is being screened for STDs would be ideal. In the absence of data from a nationally representative sample, however, we believe it is informative to collect data from smaller populations of adolescents and, in particular, those who are at highest risk for acquiring an STD.

In summary, African American adolescents are being screened for STDs at a rate below that recommended by current practice guidelines. The preventive primary care visit is not being used to its full potential as a valuable opportunity to screen adolescents for STDs. Capitalizing on this opportunity may increase rates of STD screening and, thus, decrease rates of STDs in adolescents. One hope is that recent technologic advances in the diagnosis of STDs—that is, urine-specimen-based STD testing—may increase both clinicians' willingness to screen and adolescents' willingness to be screened for STDs and, thereby, increase the number of adolescents screened for STDs.

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