Objective: To examine the association between adolescents' perception of clinician communication and adolescents' reported acceptability of the steps involved in chlamydial screening during urgent care visits.

Design: Cross-sectional survey of adolescents after urgent care visits.

Setting: Four pediatric clinics in a health maintenance organization.

Participants: Three hundred sixty-five adolescents aged 13 to 18 years.

Outcome Measures: Participants' ratings of the acceptability of talking about sexual health and providing a urine sample for chlamydial testing in an urgent care visit.

Results: Most adolescents found sexual health discussions and urine collection for chlamydial screening acceptable in the urgent care setting (84% and 80%, respectively). Acceptability of sexual health discussion was significantly associated with adolescents' perception that the clinician explained confidentiality (adjusted odds ratio [AOR], 2.7; 95% confidence interval [CI], 1.3-5.5), knew "how to talk to teens like me" (AOR, 9.0; 95% CI, 3.5-24.2), and "listened carefully as I explained my concerns" (AOR, 14.3; 95% CI, 4.3-54.9). Acceptability of providing a urine sample for chlamydial testing was associated with the adolescents' perception that the clinician knew "how to talk to teens like me" (AOR, 3.7; 95% CI, 1.5-9.3) and "listened carefully as I explained my concerns" (AOR, 3.6; 95% CI, 1.1-11.5).

Conclusions: Sexual history taking and urine collection are 2 key components of chlamydial screening and were reported as acceptable by the great majority of adolescents in the urgent care setting. Aspects of clinician communication appear to be important target areas for pediatric clinician education in supporting expansion of chlamydial screening to adolescents in urgent care visits.
based settings, and by internet request methods28-31—to date, little is known about teenagers’ attitudes toward C. trachomatis screening in the urgent care setting. To screen for C. trachomatis in an urgent care visit, the adolescent must be accepting of the following activities that are required for screening: (1) discussion of sexual health issues (including sexual activity) to determine need for screening, and (2) provision of a urine sample for testing. The aims of this study were to assess the reported adolescent acceptability of sexual health discussion and urine collection for the purpose of C. trachomatis screening during urgent care visits and to examine factors that may influence patient acceptability of these steps involved in C. trachomatis screening. The basic aspects of an urgent care visit that differ from a well-care visit are the time limitation and the problem-focused nature of the visit. Limited time could impact 2 important factors involved in delivering sensitive services to adolescents: patient-clinician communication and confidentiality.22-27 These aspects of communication are potentially modifiable through clinician education28-30 and therefore are an important focus of this study. In addition, the reason for visit (eg, a reproductive-vs nonreproductive-related concern) has been associated with acceptance of C. trachomatis screening in other health care settings.31 Therefore, we hypothesized that sexual health discussion and urine collection for C. trachomatis screening would be more acceptable to adolescent patients if the adolescent expressed satisfaction with clinician communication, if confidentiality was explained, and if the reason for the visit was related to reproductive care. The long-term goal is to use these results to inform the development of interventions to improve C. trachomatis screening for teenagers by including urgent care visits as a venue for C. trachomatis screening.

METHODS

SAMPLE AND SITE

Adolescent patients aged 13 to 18 years who were seen for urgent care visits were recruited from 4 pediatric clinics in a large northern California health maintenance organization. These clinics were part of a larger randomized controlled intervention to increase C. trachomatis screening rates during well-care visits in sexually active adolescents. At the time of this study, C. trachomatis screening was not routinely performed in urgent care visits. Participants were consecutively recruited during surveying periods from August 18, 2004, to September 2, 2005, and asked to complete a confidential self-administered postvisit survey. In these pediatric clinics, an urgent care visit is defined as a 10-minute problem-focused visit, often for a same-day concern.

SURVEY ADMINISTRATION

Research associates administered the survey to adolescents immediately following the adolescent’s urgent care visit. The patient was asked to participate in an anonymous teen health survey. The adolescent’s consent was verbal, as the survey was anonymous and voluntary. If the adolescent agreed to participate, he or she completed the survey in a private room or area of the clinic. After completion of the survey, it was placed in a large envelope and returned to the research associate. Adolescents were thanked with a $2 gift certificate from a local food establishment. Institutional review boards at both participating institutions approved the study protocol.

MEASURES

Survey Development

A multidisciplinary research team developed a 1-page survey based on a review of pertinent literature.25,32-39 The survey was pilot tested in a sample of 25 adolescents for readability and comprehension. Survey questions were then reviewed and modified by the research team.

Outcome Variables

A 4-point scale (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree) was used by participants to rate the acceptability statements. Acceptability of sexual health discussion was assessed by the statement “It is okay to talk about sexual health during a visit like this.” Acceptability of urine provision for STI testing was assessed by the statement “It is okay to provide a urine sample to test for sexually transmitted disease at a visit like this.” The ratings were coded as unacceptable (1 and 2) and acceptable (3 and 4) for analysis.

Predictor Variables

This study focused on adolescents’ perception of clinician communication. Clinician communication items were designed to assess the subjects’ perspective on how well the clinician explained (expressive communication), listened (receptive communication), and discussed confidentiality during the urgent care visit. The items were adapted from patient satisfaction and physician communication surveys.30 The statements were rated on the same 4-point scale as explained and were collapsed into a binary variable for analysis: agree (1 and 2) and disagree (3 and 4). Table 1 presents item wording. To assess their reason for visit, the participants were asked “What is the main reason for your visit today?” The participant filled in a blank. The answer was coded as a reproductive- or a nonreproductive-related reason. Other predictor variables of interest were age, ethnicity, and sex, because previous studies had shown an association of these variables with acceptability of STI screening.30,32,33 In addition, history of sexual activity and whether the participant talked alone with the provider or was asked about sexual activity during the preceding visit were also assessed, as they were considered to be potential confounding variables.

STATISTICAL ANALYSIS

All data were double entered and any discrepancies were corrected by consulting the original survey. We used estimated means and proportions along with associated test statistics and logistic regression analysis to assess the associations of predictor variables with the 2 binary outcomes measured in urgent care visits: (1) acceptability of sexual health discussion and (2) acceptability of providing urine sample for STI testing. We first assessed the association of each predictor variable with each outcome using 2-sample tests and χ² tests (Table 1). We then assessed the association of the communication variables with this same set of predictor variables using the same statistical methods (not shown). These analyses indicated that 5 variables (age, sex, talked alone with provider, asked during visit if sexually active, and reason for visit) were associated with an acceptability outcome or communication variable with a P value ≤.1 and were therefore included in the logistic models that assessed the communication-acceptability associations of interest.
Prior to fitting models to control for confounding, we examined whether the magnitudes of communication-acceptability associations varied by the levels of a third variable (statistical interactions). Beliefs and behaviors often vary by age, sex, and sexual activity, so it is possible that these variables interact with the communication variables. Therefore, interactions were assessed by fitting logistic regression models for each outcome and communication variable, which included the 5 potential confounding variables and a term for the interaction of the communication variables and 1 of the 3 potential interacting variables. These logistic models yielded no statistically significant interactions with a communication variable and age, sex, or sexual activity (all $P$ values for interaction terms were > .24). The SAS software package, version 9, was used for all data analysis (SAS Institute Inc, Cary, North Carolina).

RESULTS

SAMPLE DESCRIPTION

Among the 365 adolescent patients who participated in this study, 58% were female. The mean age was 15.6 years (range, 13-18 years). Our response rate was 89% (365 of the 410 adolescents who were approached agreed to participate), with lack of time and acute illness cited as the most common refusal reasons. Ethnicity was reported as 29% white, 27% Latino, 15% Asian, 14% multiethnic, 6% Pacific Islander, 5% African American, and 4% other. Among all subjects surveyed, 33% reported ever being sexually active.

**VISIT DESCRIPTION**

All 365 adolescents were surveyed following their 10-minute pediatric urgent care visit. Family or friends accompanied 86% of teens to their visit. Seven percent of the visits were categorized as reproductive related and 93% were categorized as nonreproductive related. Teenagers reported having time alone with their clinician in 44% of the visits. A minority of teenagers (27%) reported being asked during the visit if they were sexually active. The participants noted that the following preventive health topics (circled from a list) were ad-

<table>
<thead>
<tr>
<th>Patient and Visit Characteristic</th>
<th>Sexual Health Discussion</th>
<th>Urine Sample Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Acceptable (n = 300)</td>
<td>Unacceptable (n = 58)</td>
</tr>
<tr>
<td>Age, mean (SD), y</td>
<td>15.6 (1.2)</td>
<td>15.3 (1.1)</td>
</tr>
<tr>
<td>Sex</td>
<td>164 (57)</td>
<td>35 (61)</td>
</tr>
<tr>
<td>Race/ethnicity</td>
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<td></td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>64 (22)</td>
<td>13 (22)</td>
</tr>
<tr>
<td>Latino</td>
<td>82 (27)</td>
<td>14 (24)</td>
</tr>
<tr>
<td>White</td>
<td>82 (27)</td>
<td>22 (38)</td>
</tr>
<tr>
<td>African American</td>
<td>18 (6)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>Multiethnic/other</td>
<td>54 (18)</td>
<td>8 (14)</td>
</tr>
<tr>
<td>Reason for visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonreproductive</td>
<td>269 (92)</td>
<td>56 (98)</td>
</tr>
<tr>
<td>Reproductive related</td>
<td>25 (8)</td>
<td>1 (2)</td>
</tr>
<tr>
<td>History of sexual activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>208 (71)</td>
<td>53 (91)</td>
</tr>
<tr>
<td>Yes</td>
<td>86 (29)</td>
<td>5 (9)</td>
</tr>
<tr>
<td>Confidentiality was explained:</td>
<td>“Doctor explained that we</td>
<td>“Doctor explained</td>
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<tr>
<td></td>
<td>talked about alone would</td>
<td>what we talked</td>
</tr>
<tr>
<td></td>
<td>be confidential.”</td>
<td>about alone would</td>
</tr>
<tr>
<td></td>
<td>Disagreed</td>
<td>be confidential.”</td>
</tr>
<tr>
<td></td>
<td>51 (18)</td>
<td>17 (33)</td>
</tr>
<tr>
<td></td>
<td>Agreed</td>
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<td>42 (74)</td>
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<td></td>
<td></td>
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<td>272 (97)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>61 (91)</td>
</tr>
</tbody>
</table>

*a*Values are number (percentage) unless otherwise indicated.
dressed by the clinician during their visit: nutrition or exercise in 35% of visits, school in 26%, sexual health topics (STIs, condoms, birth control, or sexual activity) in 23%, substance use (smoking, alcohol, or drugs) in 12%, and depression in 5% of visits.

**ACCEPTABILITY OF SEXUAL HEALTH DISCUSSION AND URINE STI TESTING**

Overall, 84% of the adolescents surveyed reported that sexual health discussion was acceptable in an urgent care visit. In addition, 80% reported the provision of a urine sample for STI testing to be acceptable in an urgent care visit. There was no statistically significant association between reason for visit (reproductive vs nonreproductive) and acceptability of sexual health discussion or acceptability of providing urine for STI testing. As seen in Table 1, being asked in the preceding urgent care visit about sexual activity was associated with increased reported acceptability of sexual health discussion and providing a urine sample for STI testing. Additionally, talking alone with the provider was associated with increased reported acceptability of providing urine for STI testing. After adjusting for possible confounding variables, adolescent perceptions of clinicians’ expressive and receptive communication, along with explanation of confidentiality, were significantly associated with reported acceptability of sexual health discussion (Table 2). In addition, adolescent perceptions of clinicians’ expressive and receptive communication were significantly associated with reported acceptability of providing urine for STI testing (Table 2).

Table 2. Associations Between Adolescent-Reported Acceptability of Sexual Health Discussion/Urine Sample Provision and Adolescents’ Perception of Clinician Communication*

<table>
<thead>
<tr>
<th>Adolescent Perception of Provider Communication</th>
<th>Adjusted Odds Ratio (95% Confidence Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreement with expressive communication statement: “The doctor knows how to talk to teens like me.”</td>
<td>9.00 (3.49-24.22) 3.72 (1.48-9.32)</td>
</tr>
<tr>
<td>Agreement with receptive communication statement: “The doctor listened carefully as I explained my concerns.”</td>
<td>14.34 (4.30-54.85) 3.57 (1.07-11.49)</td>
</tr>
<tr>
<td>Agreement with the confidentiality explained statement: “The doctor explained that what we talked about alone would be confidential (that is, kept between us).”</td>
<td>2.69 (1.29-5.50) 1.62 (0.77-3.28)</td>
</tr>
</tbody>
</table>

Abbreviation: STI, sexually transmitted infection.

*Logistic regression model adjusted for age, sex, reason for visit, whether patient talked alone with the provider, and whether patient was asked during visit if he or she was sexually active.

Sexual history taking and the collection of urine samples are 2 key components necessary to implement *C. trachomatis* screening. In this study, both components of *C. trachomatis* screening were reported to be acceptable by a majority of adolescents in an urgent care setting. We hypothesized that sexual health discussion and urine collection for STI screening would be more acceptable to adolescent patients if (1) the adolescent expressed greater satisfaction with clinician communication, (2) confidentiality was explained, and/or (3) the reason for the visit was related to reproductive care. Because only 7% of visits were related to reproductive health, it was not possible to evaluate the association between visit type and acceptability with adequate power, and no significant association was found.

Our finding that 84% of the adolescents surveyed reported that sexual health discussion was acceptable in an urgent care visit is interesting in light of a recent study of clinicians, which showed that a greater perceived patient comfort with discussing sexual issues was significantly associated with increased clinician *C. trachomatis* screening. Our study provides some evidence to reassure clinicians that the majority of adolescents find discussion of sexual issues acceptable, even in the context of an urgent care visit. In this study, adolescents who reported that their clinician asked them about sexual activity, explained confidentially, and were good at talking to and listening to teenagers rated discussion of sexual activity during an urgent care visit as significantly more acceptable than teenagers who did not share these positive perceptions of the clinicians’ communication.

Our results showing that 80% of adolescents reported that provision of a urine sample for STI testing was acceptable in an urgent care visit are similar to previous findings of adolescent acceptability rates for urine *C. trachomatis* screening in EDs and primary and specialty care settings. However, differences between prior research and our current urgent care study are noteworthy. Two studies (1 in the United States and 1 in the United Kingdom) looking at acceptability of *C. trachomatis* screening for adolescents and young adults in EDs showed urine screening for STIs was acceptable to a majority (71%-77%) of patients. In the US ED study, 3 research assistants offered 14- to 20-year-old patients (males and females) urine *C. trachomatis* screening and assured all participants of confidentiality of test results. Sexual activity status was not assessed. Acceptability varied with age, race/ethnicity, and insurance status, and 1 of 3 research assistants had significantly lower acceptance rates. In the United Kingdom ED study, sexually active males and females aged 16 to 35 years were invited to give a urine sample for *C. trachomatis* screening during times the investigator was in attendance. Confidentiality was addressed in the written information sheet given to all participants. This study did not assess associations between demographic and behavioral patient characteristics, and acceptance of screening. A third study, also in the United Kingdom, investigated the acceptability of *C. trachomatis* screening for patients younger than 25 years in a range of primary and specialty health care settings and found the overall accep-
tance rate to be 76% and 84% in 2 locations. A higher acceptance of testing was associated with older age. Acceptance varied widely between health care settings and was also related to reason for visit. In contrast, the current study focused on a younger adolescent age group in a different health care context: urgent care visits within a primary care office. The urgent care visit setting is similar to EDs in that visits are usually problem-focused in nature and patients are often presenting with an acute illness. However, the urgent care context differs from the ED setting in that the patient is being seen in his or her usual pediatric primary care clinic setting, the visit is a 10-minute encounter with minimal wait time, and the acuity of the concerns is generally less than cases seen in EDs. Our methodology differed in that we collected information on previous sexual activity, visit characteristics, and the patient’s perception of the explanation of confidentiality and other aspects of clinician communication. We used a measure of reported acceptability of urine sample provision for C. trachomatis screening to assess adolescent attitudes. There were no significant associations between age, ethnicity, and reason for visit, and reported acceptability of providing a urine sample for C. trachomatis screening. However, greater adolescent acceptability of urine sample provision for C. trachomatis screening was associated with adolescents who had time alone with the clinician, who had been asked in the preceding visit about sexual activity, and who perceived their clinician to be good at talking with and listening to teenagers.

The unique contributions of this study are 2-fold. First, it provides information about the adolescent acceptability of the steps involved in C. trachomatis screening in a setting that has not been investigated previously. Second, this study provides the first examination of important aspects of communication between adolescents and clinicians as potential factors associated with acceptability of C. trachomatis screening in general and, more specifically, C. trachomatis screening for adolescents seen for urgent care visits. The findings suggest that an important and modifiable aspect influencing adolescent acceptance of C. trachomatis screening is the quality of the communication interaction with the clinician, specifically the adolescents’ perception of the clinicians’ skill at both talking and listening to them as well as explanations of and opportunities for confidential discussions between adolescents and clinicians.

One limitation of this study is its evaluation of hypothetical acceptability, which may differ from actual acceptance of sexual health discussion and provision of urine samples. However, previous studies that determined actual acceptance of C. trachomatis urine screening in other settings showed similar acceptability rates. There is also evidence showing that positive adolescent attitudes toward providers who talk about sexual issues are associated with actual patient acceptance of discussion of sexual health and actual STI testing during a visit. In addition, the widely studied theory of reasoned action and planned behavior postulates that behavioral attitudes and intentions are proximal predictors of actual behavior. Another limitation of this study is that these findings may not be generalizable to adolescents seen in settings beyond this type of urgent care visit within a health maintenance organization pediatric clinic. For instance, the pediatric clinics in this study had already participated in a systems-level intervention to increase C. trachomatis screening by clinicians in well-care visits. Owing to the previous intervention, this group of pediatricians may be more comfortable discussing sexual health topics than pediatricians in general, which may make our overall reported acceptability in the adolescent patients higher than it would be elsewhere. In addition, this health maintenance organization has implemented confidential billing for sensitive services for adolescents, which could also potentially increase the reported acceptability of sensitive services in our sample. Another limitation of our study is that while we focused on clinician communication and its association with adolescent acceptability of C. trachomatis screening, there are many other potential barriers to C. trachomatis screening in the urgent care setting that this study did not examine that are related to the system, provider, parent, and patient.

Managing the high rate of C. trachomatis infection in adolescents will require an expansion of current screening efforts beyond traditional boundaries. Because many adolescents use only urgent care visits in a given year, these visits represent an important opportunity for screening in youth. Chlamydia trachomatis screening is a preventive care issue well suited to the urgent care screening in that it involves a brief screening history, a noninvasive screening test, and easy treatment. In this study, multiple preventive health topics were found to be already covered in urgent care visits. A focus on preventive health efforts that have significant morbidity and can be addressed in a brief visit has the potential to be an efficient and effective use of urgent care visit time. Our findings provide evidence that using urgent care visits as a venue for C. trachomatis screening can be a “teen-acceptable” way to increase annual screening of eligible teenagers in health maintenance organizations. The results also identify provider communication, including explanations of confidentiality, as an important area to target for pediatric provider education in supporting attempts to expand screening for C. trachomatis to the urgent care setting. Future research exploring the thought process of teenagers who find sexual health discussion and urine sample provision unacceptable in this setting would be valuable to future interventions. Future efforts could also include development of systems-level interventions to help streamline the C. trachomatis screening process in urgent care visits and development of effective clinician education programs for increasing physician comfort and skill when offering C. trachomatis screening to adolescents in this setting.

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Author Contributions: Dr Miller had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. Study concept and design: Miller, Tebb, and Shafer. Acquisition of data: Miller, Williams, and Shafer. Analysis and Interpretation of data: Miller, Tebb, and Shafer. Drafting of the manu-

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