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Original article

Point-of-Care Testing for Sexually Transmitted Infections Increases Awareness and Short-Term Abstinence in Adolescent Women

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Abstract

Purpose: To evaluate the effect of point-of-care (POC) testing for sexually transmitted infections (STIs) on reported awareness of test results and STI risk-reduction behaviors in adolescents.

Methods: Adolescent and young adult women aged 14–21 years were recruited from the Emergency Department or Teen Health Clinic for this longitudinal study and were tested for STIs. Baseline demographics, risk behaviors, treatment, POC tests (wet mount and rapid antigen tests for *Trichomonas vaginalis*), and other STI test results (available 24–48 hours postvisit) were measured. These were compared to subject's report of test results, abstinence, partner discussion, and partner testing during a postvisit telephone contact.

Results: Of 294 subjects, 155 (53%) were contacted: 65 (42%) had a positive STI test result; 28 (43%) were POC positive; and 52 (33.5%) believed their STI results were positive. A positive POC test result increased the proportion of subjects aware of being positive for an STI (89 vs 21%, $p <$ .01). Postvisit, 62% reported abstinence, 82% discussed testing with her partner, and 48% reported partner testing. Predictors of abstinence included a positive POC test result (adjusted odds ratio (AOR) = 4.6, confidence interval (CI) = 1.5–13.6, prior abstinence of >14 days (AOR = 3.9, CI = 1.7–9.0), and black race (AOR = 3.5, CI = 1.2–9.7). Women who believed their STI results were positive were more likely to report partner discussion (odds ratio [OR] = 3.0, CI = 1.0–8.8) and partner testing (OR = 5.1, CI = 2.4–11.2).

Conclusions: Awareness of STI results increases with POC testing. Effective communication of results can increase patient understanding and compliance with risk reduction strategies, which may affect the STI epidemic.

Keywords: Point of care; STI; Adolescents; Abstinence; Trichomoniasis

Point-of-care (POC) tests are an important strategy to address the epidemic of sexually transmitted infections (STIs) among U.S. adolescent women in whom access to care and confidentiality are significant barriers to STI treatment. In the usual STI testing scenario, the patient is tested and provided with presumptive treatment if infection is suspected based on clinical findings. This strategy is popular when follow-up is uncertain, including adolescents evaluated in emergency departments [1]. Although these patients receive treatment at their visits, they may receive inappropriate therapy, and some may remain unaware of their actual STI test results. However, clinicians may have a low threshold for presumptive therapy, because adolescents not treated at the visit face an average delay of 3–14 days between testing and notification [2,3]. Furthermore,

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a substantial proportion of teens may never receive any treatment or follow-up [4]. POC tests would improve the current approach to treating STIs in adolescents by providing the clinician with the opportunity to give test results and appropriate treatment in an immediate and confidential manner. This decreased interval between testing and treatment should reduce disease transmission.

In addition, POC testing allows for a ''teachable moment'' in which, beyond providing the patient with an accurate diagnosis and treatment plan, the physician also counsels the patient regarding high-risk behaviors and partner discussion. The U.S. Centers for Disease Control and Prevention (CDC) recommends the following postdiagnosis behaviors to reduce transmission of STIs such as chlamydia, gonorrhea, and trichomoniasis: abstain from sexual intercourse for a week after single dose therapy, notify all sexual partners within the last 2 months, and abstain until all partners have been treated [5]. With POC testing for these infections, the clinician can provide immediate guidance for eliminating the infection and decreasing the risk of recurrence.

The current published studies report mixed results on the effect of a positive STI result on subsequent risk behaviors in adolescents. In a sample of adolescent and young adult women aged 17–25 years from a military base, Hwang et al [6] showed that, despite accurate diagnosis and treatment, those who tested positive were actually at a higher risk for a repeat STI and demonstrated no decrease in risk behaviors 13 weeks after their initial diagnosis. In contrast, Fortenberry et al found that a positive STI result increased the likelihood of abstinence and condom use measured 1 month after an initial diagnosis in an adolescent population [7]. Abstinence was associated with younger age, female gender, and black race. These researchers also found that the median time to next coitus was 8 days, and the likelihood of postvisit abstinence was increased for those recruited from the adolescent clinic rather than those recruited at a sexually transmitted disease clinic. However, neither of these studies included any POC STI tests.

POC tests are now available for trichomoniasis, the STI caused by *Trichomonas vaginalis* (TV) [8]. These tests offer the opportunity to study the effect of POC testing on knowledge of STI results and sexual behaviors. The overall objective of this study is to evaluate the effect of POC testing on patients' awareness of their STI results and on reported behaviors among adolescent women at least 1 week after a visit that included both standard STI testing and POC STI testing.

Methods

This is a follow-up evaluation of a subset of women who participated in a study of diagnostic methods for TV. Study methods and demographics have been reported for the full sample [8]. In brief, we recruited a convenience sample of adolescent and young adult women from a hospital-based teen clinic and pediatric emergency department between July 2004 and June 2006. All subjects were offered the opportunity to participate in a follow-up phone call 7–14 days after their visit. Subjects were informed that, at this contact, the research team would review STI test results and ask questions related to sexual activity, condom use, treatment, and partner notification. To make this follow-up contact, subjects were asked to provide at least two phone numbers or e-mail addresses.

Baseline visit

At the initial visit, sexually experienced young women were interviewed confidentially, a pelvic examination was performed, STI tests were obtained, and the clinician's findings and treatments were recorded. We used the interval between initial visit and her reported date of last sexual intercourse to determine whether the patient had been abstinent for at least 14 days before the initial visit. Prior condom use was determined by the patient's response to the question ''Did you use condoms at your last sexual intercourse?'' We defined the variable ''treated for cervicitis'' if the provider marked ''cervicitis'' as a diagnosis and the patient received a CDC-recommended antibiotic regimen for cervicitis. We defined the variable ''treated for pelvic inflammatory disease (PID)'' if the provider marked ''PID'' as a diagnosis and gave a CDC-recommended antibiotic regimen for PID. We obtained up to three contact numbers from those who consented to a telephone follow-up interview. The study was approved by the Institutional Review Board. Consent was obtained from all participants and the requirement for parental consent for those younger than age 18 years was waived in May 2005, 3 months after the study began. Because parental consent was required for some of our subjects, we assessed for bias by including the question ''Is your parent/guardian aware that you are sexually active?''

Laboratory testing

All subjects enrolled in this study had POC STI tests, which included office microscopy (wet mount) and a rapid antigen TV test (OSOM TV; Genzyme Diagnostics, Boston, MA) performed on vaginal swabs. If the rapid antigen test was positive ($n = 27$), or the wet mount showed motile trichomonads ($n = 1$), the subject was deemed POC TV positive. Patients were given POC results within 20 minutes, and no one left without receiving her results. Standard STI results included endocervical tests for *Chlamydia trachomatis* via a strand displacement assay (BDProbetek ET; Becton Dickinson, Sparks, MD), and for *Neisseria gonorrhoeae* using either culture or strand displacement assay at the clinician's discretion. An additional vaginal specimen was submitted for TV culture (InPouch TV, Biomed Diagnostics, White City, OR). These standard STI test results were available 1–4 days after the visit. If any endocervical test or TV culture result was positive, the subject was deemed positive for a ''standard STI test.'' Nucleic acid amplification tests for