

Evaluation of a Testing-Only “Express” Visit Option to Enhance Efficiency in a Busy STI Clinic

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Objective: To evaluate the use of a testing-only “express” visit option to enhance efficiency in a busy STI clinic.

Methods: At the Denver Metro Health Clinic, clients at low risk for sexually transmitted infections (STI) are offered an express visit comprised of a urine test for *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) as well as optional syphilis and human immunodeficiency virus (HIV) testing, but no physical examination. Higher risk clients (STI-related symptoms, contact to STI, men having sex with men, injection drug use, exchange of sex for money or drugs) are offered a comprehensive visit that includes a physical examination. The triage system was evaluated for the period April 2005–July 2006 by comparing rates of CT, GC, syphilis, and HIV between the 2 visit options.

Results: Of 13,447 clients with new visits, 3284 (24.4%) were express visits. When compared with clients with comprehensive visits, express visit clients had lower rates of CT (8.1% vs. 17.2%), GC (0.9% vs. 7.4%), syphilis (0.7% vs. 1.2%), and HIV (0.1% vs. 0.2%). Of 2969 STI cases, only 10.8% were diagnosed among clients with express visits. Express visits resulted in a 39% time saving for men and a 56% for women. With the possible exception of asymptomatic urethritis among men, underdiagnosis of STI beyond CT, GC, syphilis, and HIV among express visit clients appeared to be low.

Conclusion: The triage system at DMHC effectively selects clients at highest risk for STI and increases clinic efficiency.

NUCLEIC ACID AMPLIFICATION TESTING (NAAT) for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* using urine specimens and self-obtained vaginal swabs has created opportunities to test for these pathogens outside of the clinical setting, as these tests do not require a physical examination. A vast body of literature attests to the success of this approach in a variety of nonclinical sites, including schools, detention centers, and community outreach.¹ NAAT testing for chlamydia and gonorrhea is customary practice in many sexually transmitted infections (STI) clinics in the United States and elsewhere, but these tests are usually incorporated in a standard of care that includes a physical examination for all clients regardless of symptoms. However, physical examination among asymptomatic clients may not yield many STI diagnoses beyond those identified by NAAT testing, while adding substantial costs. Thus, some clinics have been applying the advantages of NAAT testing to enhance the efficiency

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of clinic operations by offering such testing [as well as blood tests for syphilis and human immunodeficiency virus (HIV)] without physical examination.

Referred to as “express visits,” the Denver Metro Health Clinic (DMHC) started offering testing without physical examination in 2003 as a no-cost option to offset the negative effects of a clinic copay system that had gone into effect about a year earlier.² In the subsequent year, the inclusion of the express visit option was associated with a modest increase in the overall number of visits (8%) and a more substantial increase among those most affected by the negative impact of the copay: women (18%) and those younger than 20 (32%).³ In April 2005, DMHC modified and expanded the express visit option as part of a triage system to improve clinic efficiency. Currently, clients who are determined to be at low-risk for STI are offered a shorter screening protocol that includes the following: personal history, brief counseling, urine NAAT screening for chlamydia and gonorrhea, and optional syphilis and HIV testing. Clients at higher risk are encouraged to have a comprehensive visit and receive the standard clinic protocol. This study examines the efficiency and effectiveness of the triage system.

Methods

Study Population

DMHC is the largest STI clinic and HIV testing facility in the Rocky Mountain region with nearly 15,500 visits annually. DMHC offers free confidential testing, counseling, and treatment for a comprehensive array of STI for residents in the Denver metro region. This study evaluated all new (either express or comprehensive) visits between April 2005 and July 2006. New visits were defined as visits for which a client presented with a new clinical problem that at a minimum included routine chlamydia and gonorrhea testing.

Clinic System

Clients to DMHC are served on a first-come, first-served, walk-in basis only. After obtaining a number, clients are called from the waiting room individually by the clinic triage nurse (a

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duty performed by clinic nurses on a rotating schedule) and are asked specific questions, including prior visits to the clinic, reason for visit (symptoms, contact to STI, check-up, etc.), and sexual preference. On the basis of this information and data from the client's medical record, the triage nurse determines which services the client should receive and recommends the visit option that best meets the needs of the individual. Clients do not complete any questionnaires or self-triage before being seen by the triage nurse.

The express visit option is offered to those deemed at lower risk for STI if they have *none* of the following risk criteria: (a) STI-related symptoms, including (ano-)genital discharge, dysuria, genital rashes, and (for women) lower abdominal pain; (b) a man who has sex with men (MSM); and within the past 4 months: (c) contact to STI; (d) injection drug use; (e) exchange of sex for money or drugs; or (f) other high-risk sexual behaviors, including multiple partners. High-risk individuals, i.e., a person meeting any of the above criteria, are referred for a comprehensive visit. The nurse charged with triage, however, has wide discretion in offering either visit option based on the client's (sexual) history and preferences. In special situations, such as when a symptom is revealed during an express visit or when a person waiting for a comprehensive visit does not have time to wait, the client may be switched from the initial service option. Even if eligible for an express visit, clients may opt to have a comprehensive visit if they so desire. Conversely, a person refusing a physical exam may still receive express visit services. Also, clients receiving express visits are still eligible to receive other services, including emergency contraception and family planning. For purposes of this study, we were not able to determine which clients switched from their initially determined visit option and thus were only able to analyze the data by the visit type the client actually received.

Regardless of visit type, all clients with a new visit are offered urine-based NAAT testing for chlamydia and gonorrhea by the ProbeTec strand displacement assay (Becton Dickinson Diagnostic Systems, Sparks, MD), and a blood draw for rapid plasma reagin (RPR) test for syphilis, followed, if positive, by the fluorescent treponemal antibody absorption test (FTA). Unless they opt out, all clients also receive the Uni-Gold rapid HIV test (Trinity Biotech, Plc, Ireland), followed, if positive by a confirmatory Western blot. In addition, clients undergoing a comprehensive evaluation will have a full STI-oriented physical examination, including a speculum and bimanual examination for women. Additional testing may include gram stains of urethral, cervical, or anal discharge present on examination; wet mounts for yeast, trichomoniasis, and bacterial vaginosis for women; gonorrhea cultures on urethral, cervical, anal, or pharyngeal specimens; dark field examinations and/or rapid RPR testing for persons suspected to have or are contacts to syphilis; KOH mounts on skin scrapings; herpes cultures of suspected lesions; herpes serology, etc.

All clients are given (rapid) HIV results at the end of their visit, and those with a comprehensive visit are also offered treatment for any STIs that are confirmed during the physical exam or by immediately available laboratory tests (i.e., gram stains, wet mounts, etc.). For other STI results such as gonorrhea and chlamydia NAAT and routine RPR tests, clients are asked to call the clinic results line 7 days after their visit. Those who have a positive diagnosis are offered free treatment and follow-up per standard clinic protocol.

All client data including history, clinical findings, laboratory results, diagnosis, and treatment are recorded and stored in an electronic medical record system. The computerized database includes comparable data between express visits and comprehensive visits for demographic information (gender, race/ethnicity, age),

gonorrhea, chlamydia, syphilis, and HIV laboratory results, and treatment.

Measures

The following aspects of the express visits/comprehensive visit triage system were studied: (a) number and proportion of express visits of all new clinic visits during the study interval and over time, (b) demographic differences, (c) differences in STI prevalence; and (d) the overall performance of the triage system in identifying any STI (defined as either gonorrhea, chlamydia, syphilis of any stage, or newly diagnosed HIV). As men who have sex with men were not offered the express visit option (as per triage protocol; see above), they were excluded from the analysis.

To examine the likelihood of missed STI diagnoses among clients receiving the express visit option, we also performed a subanalysis among clients who, according to the electronic medical record, met the criteria for an express visit but still received a comprehensive visit. On the basis of the results of this analysis, we further examined the possibility of missed diagnoses during express visits, especially asymptomatic urethritis among men. Thus, we compared the prevalence of chlamydia and gonorrhea between express and comprehensive visit clients who did not receive treatment for chlamydia or gonorrhea during the visit. The rationale for this analysis was that a substantial number of missed diagnoses of urethritis, cervicitis, and pelvic inflammatory disease would raise the prevalence of chlamydia (and to a lesser extent gonorrhea) among express visit clients compared to clients whose comprehensive visits had not yielded any of these conditions. Finally, we conducted a 3-week time study in the clinic to determine the length of comprehensive and express visits.

Simple statistical tests were used to evaluate statistical significance, including Student *t* test for continuous and the chi-square test for categorical variables.

Results

During the 16 month study period, there were 13,447 persons who registered for a new problem visit at DMHC and who received a chlamydia or gonorrhea NAAT. Overall, 3284 (24.4%) of these visits were express visits. The proportion of persons receiving express visits increased steadily over the 16-month time period, growing rapidly from 8% in the first month to 23% in the fourth month of the evaluation, stabilizing at nearly 26% of new visits in the last 9 months (data not shown).

Demographic Differences

The 2 visit types had a similar distribution by gender with a lower percent of women (21.7%) completing an express visit (Table 1). Whites (31.9%), and Asians (33.3%) were more likely to receive express visits than blacks (17.6%), Hispanics (20.1%), or Native Americans (19.4%). These differences were particularly pronounced for black women (12.8% express visits) and Hispanic men (19.9% express visits; see Table 1). Female clients receiving express visits were slightly, but significantly younger (25.9 years) than those receiving comprehensive visits (27.2 years); no such difference was seen for men (30.4 years for express visits and 30.6 years for comprehensive visits). Stratification by age did not yield any significant trends.

STI/HIV Diagnosis

Chlamydia rates were 2.4 times higher among men and 1.7 times higher among females when comparing comprehensive to express visits (Table 2). The difference between visit options was

TABLE 1. Demographics of New Visitors by Visit Type

	Express, N (%) [*]	Comprehensive, N (%)	<i>P</i>
Total	3,284 (24.4)	10,163 (75.6)	
Gender			<0.0001
Male	2,110 (26.2)	5,932 (73.8)	
Female	1,174 (21.7)	4,231 (78.3)	
Race/ethnicity, male			<0.0001
Asian	38 (36.5)	66 (63.5)	
Black	417 (20.6)	1,608 (79.4)	
Hispanic	556 (19.9)	2,230 (80.1)	
Native american	8 (26.7)	22 (73.3)	
Other	175 (41.0)	251 (59.0)	
White	916 (34.3)	1,755 (65.7)	
Race/ethnicity, female			<0.0001
Asian	35 (30.4)	80 (69.6)	
Black	164 (12.8)	1,118 (87.2)	
Hispanic	392 (20.4)	1,525 (79.6)	
Native American	6 (14.3)	36 (85.7)	
Other	115 (28.6)	287 (71.4)	
White	462 (28.1)	1,185 (71.9)	
Age [years (mean)]			
Male	30.4	30.6	0.35
Female	25.9	27.2	<0.0001

*Row percentages add to 100%.

even more striking when comparing the percent of gonorrhea diagnoses: 10.2 times higher for men and 4.9 times higher for women. The percent of syphilis cases among men was 1.5 times higher among men in the comprehensive option, but this difference was not significant. Syphilis (all stages) rates among women were similar between the 2 visit options.

During the study period, 8831 HIV tests were performed of which 27 (0.3%) were HIV seropositive. There was a significant difference in accepting HIV testing by type of visit; 70.1% of clients opting for the express visit had an HIV test compared with 64.2% opting for the comprehensive visit ($P < 0.0001$). Of the 27 newly diagnosed HIV infections, only 4 (14.8%)—all men—were detected during an express visit.

System Effectiveness

Across visits there were a combined total of 2969 STI cases that could be compared between express and comprehensive visit clients (2010 chlamydia, 787 gonorrhea, 145 syphilis and 27 HIV).

Of these 2969 cases, 2648 (89.2%) were detected among clients completing a comprehensive visit. The prevalence of any of these STI among persons with a comprehensive visit was 26.0%, and the prevalence among persons with an express visit was 9.8%.

Approximation of Missed STI Diagnoses Among Express Visit Clients

Additional STI diagnoses were assessed among clients who, according to the electronic database, met the criteria for an express visit but received a comprehensive visit nonetheless. This sample comprised 928 clients (497 men and 431 women). The overall prevalence rates of chlamydia (10.8%), gonorrhea (1.6%), syphilis (2.2%), and HIV (0.3%) were higher than among clients with express visits (respectively 8.1%, 0.9%, 1.5%, and 0.2%). Nonetheless, this group of clients had low rates of clinically manifest genital herpes (no cases among men or women), genital warts (3% among men and 1% among women), and, among women, PID (0.2%), trichomoniasis (2.8%) and mucopurulent cervicitis (4.2%). More common were bacterial vaginosis (8.1%) among women and nongonococcal urethritis (NGU, 15.5%) among men. To further elucidate the NGU rate, we conducted a manual chart review of all men in this group who were diagnosed with NGU ($n = 77$). Of these men, chart review indicated that 41 did have criteria for a comprehensive visit (signs or symptoms or contact to gonorrhea or chlamydia) that were captured in written notes, but not in the database.

Under the assumption that men with asymptomatic urethritis have higher rates of chlamydia (and to a lesser extent gonorrhea), considerable underdiagnosis of asymptomatic urethritis among men with express visits would increase the prevalence of chlamydia and gonorrhea in this group compared to men who do not have asymptomatic urethritis. To explore this hypothesis, we compared the prevalence of gonorrhea and chlamydia among clients with express visits to client with comprehensive visits who did not receive (presumptive) treatment for chlamydia or gonorrhea. The results, displayed in Table 3, indicate that while gonorrhea and chlamydia rates were generally lower in the express visit group, chlamydia rates among men were significantly higher in the express visit group (6.7%) than in the comprehensive visit group (4.4%, $P < 0.001$).

In this analysis, we also investigated the proportion of clients with chlamydia and/or gonorrhea who received treatment within 3 months of diagnosis, as well as time until treatment. Treatment completion was higher in the express visit group (varying from 63.6% to 83.2%) than in the comprehensive visit group (varying

TABLE 2. STIs Among New Visitors by Visit Type

	Express	Comprehensive	Prevalence Ratio	<i>P</i>
Chlamydia				
Male	167/2,110 (7.9%)	1,145/5,932 (19.3%)	2.4	<0.0001
Female	98/1,174 (8.3%)	600/4,231 (14.2%)	1.7	<0.0001
Gonorrhea				
Male	18/2,110 (0.9%)	548/5,932 (9.2%)	10.2	<0.0001
Female	12/1,174 (1.0%)	209/4,231 (4.9%)	4.9	<0.0001
Syphilis [*]				
Male	13/1,029 (1.3%)	75/3,917 (1.9%)	1.5	0.16
Female	9/466 (1.9%)	48/2,781 (1.7%)	0.9	0.75
HIV [†]				
Male	4/1,573 (0.3%)	17/3,779 (0.4%)	1.3	0.30
Female	0/731 (0%)	6/2,748 (0.2%)		0.20

*All stages of newly diagnosed syphilis.

†All newly-diagnosed HIV infections.

TABLE 3. Chlamydia and Gonorrhea Prevalence and Treatment Among Clients Not Receiving Treatment at Time of Visit

	Females Type Visit			Males Type Visit		
	Express	Comprehensive	<i>P</i>	Express	Comprehensive	<i>P</i>
Chlamydia						
N	1,162	3,089		2,067	3,155	
% Positive	8.1	9.2	0.27	6.7	4.4	<0.001
% Treated <3 mo	81.9	69.3	<0.05	80.4	67.1	<0.05
Mean (median) time to treatment	19.0 (13)	17.2 (11)	0.39	17.9 (12)	16.2 (9.5)	0.38
Gonorrhea						
N	1,163	3,511		2,090	4,816	
% Positive	0.9	2.1	<0.05	0.9	1.4	0.07
% Treated <3 mo	63.6	66.2	0.86	83.2	59.1	0.05
Mean (median) time to treatment	8.9 (8)	16.1 (10)	<0.05	11.5 (8)	16.6 (11)	0.09

from 59.1% to 69.3%). Among those treated, the median time to treatment was 9.5–11 days. With the exception of women with gonorrhea, there were no significant differences in time to treatment by gender, type of visit or pathogen treated.

Time and Motion Study

To evaluate the impact of offering express visits on waiting time and visit duration, we conducted a 3-week time and motion study. Time stamps at different stages during the visit were collected on a total of 751 clients (182 express visits and 569 comprehensive visits). On average, men and women spent about 30 minutes (range 28–35 minutes) waiting until they were triaged, regardless of gender or visit type. The median triage time was 2 (range 1–22) minutes regardless of the ultimate visit type. The median visit duration after triage for express visits compared to comprehensive visits was 56% shorter for women (105 vs. 46 minutes) and 39% shorter for men (85 vs. 52 minutes).

Discussion

Historically, triage refers to a brief clinical assessment to determine the order in which clients will be seen. While triage was first used by armies in the 1800s, it has been adapted and used widely in emergency departments and disaster relief efforts. More recently, triage has been employed in STI and genitourinary medicine clinics in Australia and the United Kingdom to confront an increasing prevalence of STI, requirements to target those in need, and scarce resources.^{4,5} As triage has been applied in these settings, a brief clinical history taking provides the basis for prioritization of clients who need to be seen urgently versus clients who can be attended to at a later time or date.⁶ However, in these types of triage systems, the kind of offered services remains the same; only the timing changes as a result of the triage. A triage system resulting in different clinical protocols for STI clinic clients as described in our article is relatively new, dependent as it is on testing services (like chlamydia and gonorrhea NAAT) that have only recently become widely available. A system similar to ours was recently described by Heijman et al. with comparable findings.⁷ Reporting from the Amsterdam STI clinic where an express visit-type service was implemented in 2004, the authors found that this service for low-risk clinic clients comprised 36% of all new visits allowing an increase of clinic volume of close to 17%. As in our study, rates of chlamydia, gonorrhea, syphilis, and HIV were significantly higher among persons who were triaged to the standard clinical assessment. The prevalence of STI (chlamydia, gonorrhea, syphilis, HIV) was 7.6% in the low-risk group and 18.1%

in the high-risk group, compared to respectively 9.8% and 26% in our study.

In the United States, Wong et al. have also offered fast-track STI/HIV screening services without a clinical examination to low-risk clients. In a study of 1602 clients, only 3.4% were identified as low risk. Among high-risk visits the STI rate was 38.1% compared to 13.0% among low-risk clients.⁸

A recognized disadvantage of the triage system is that STIs may be missed that would only be revealed by physical examination. Since this was not a comparative trial, we do not know the extent of this potential problem. As a proxy measure, we ascertained STIs (beyond those tested for in the express visit option) among those who underwent a comprehensive visit, but might have been eligible for an express visit. However, as witnessed by the higher level of chlamydia, gonorrhea, syphilis and HIV diagnoses in this group compared to those receiving an express visit, the comparison was imperfect. Apparently, certain risk factors that prompted the triage nurse to refer the client for a comprehensive rather than an express visit were insufficiently captured by the electronic medical record. Still, the low levels of diagnosed genital warts, clinically apparent genital herpes and PID indicate that the potential for underdiagnosis of these conditions among express visits is likely to be small. Nonetheless, the level of NGU among heterosexual men in this group was relatively high. Even though manual chart review of NGU cases indicated that a majority of these men would not have qualified for an express visit, the higher prevalence of chlamydia among men with express visits compared to men with comprehensive visits who did not receive presumptive treatment for chlamydia, suggests that a number of men with asymptomatic urethritis may be missed when receiving express visits services and hence the opportunity to be treated at the day of visit. However, the large majority (>80%) of men diagnosed with gonorrhea or chlamydia at an express visit returned to the clinic for treatment after a median of 8 to 12 days. Nonetheless, adding a leucocyte esterase urine test as part of the male express visit testing repertoire may help identify men with asymptomatic urethritis and should be considered.

Women were overall less likely to have used the express visit option, and the low rate of potentially missed STIs and STI syndromes suggests that the triage system is quite sensitive. Furthermore, many clinics do not screen asymptomatic women for BV or trichomoniasis, such that our estimates of “missed” BV and trichomoniasis among women using the express visit option may be high. Moreover, the treatment of asymptomatic BV is controversial and the 2006 CDC treatment guidelines only state that “all women who have symptomatic disease require treatment.”⁹ A

recently published study from Australia, showed that among asymptomatic women visiting an STI clinic in Melbourne, a diagnosis of STI (beyond chlamydia, gonorrhea, syphilis, and HIV), or other abnormalities were only found in 6.7% of women and thus sufficiently low as to be able to forego vaginal examinations.¹⁰ Still it could be argued that by omitting the comprehensive examination, the opportunity is missed to offer other tests, particularly PAP smears, and services, including emergency contraception and other family planning services. However, the express visit option is not mandatory for low-risk clients in our clinic, and women can opt for the comprehensive visit if they meet PAP smear criteria and do not have a regular source of health care where they would otherwise be able to obtain PAP testing. Emergency contraception and other family planning services are available regardless of visit type.

Men who have sex with men were excluded from this analysis as the express visit is not routinely offered to them. Rates of rectal and oral gonorrhea are relatively high in this population and require anal and pharyngeal swabbing for culture. It is conceivable to use self-obtained swabs for this purpose, but that is not the standard of practice in our clinic. Furthermore, the continued high rates of primary and secondary syphilis among MSM involve careful examination of the skin and ano-genital region, thus requiring a comprehensive physical examination.

A potential draw back of the triage system is that as clients are becoming familiar with the express visit option and its eligibility criteria, they may try to “game” the system by withholding information that would render them ineligible for the express visit option, such as symptoms or being an STI contact. We have dealt with this issue by educating clients during triage about the negative effects withholding information may have on their health and the health of others.

A limitation of the study is that we were not able to conduct meaningful before-after comparisons to evaluate the effects of the triage system on overall client volume, wait times, and number of clients turned away. The main reason for this was that express visits had been offered a considerable time before a newly implemented electronic medical record system allowed us to conduct a comparative analysis. Furthermore, spontaneous fluctuations in client volume over time make it difficult to interpret temporal data. Still, we feel that as a result of the triage system, the efficiency of our clinic has improved considerably. Data from our time and motion study indicate that express visits resulted in an approximate 40% time saving for men and a 55% time saving for women. Furthermore, express visits are conducted by nonnursing support

personnel in our clinic, thus leading to a more efficient use of the nursing staff who can be directed to focus on comprehensive visits. Still there is room for improvement. For example, wait time to triage is not affected by the visit option. Conceivably, this time could be shortened by having clients fill out brief questionnaires using paper- or computer-based methods that assess their symptoms and risks, thus facilitating the triage process. Also, factors currently not factored into the triage process such as age and other demographic factors may assist in further determining those at higher risk that should be referred to a comprehensive visit.

In summary, the triage system at DMHC appears to effectively select clients at highest risk for STI and increase clinic efficiency. Still, the relatively high rates of STIs among express visit clients (close to 10% in our study) suggest that this group is at considerable risk for STI, thus warranting continued STI screening.

References

1. Ford CA, Viadro CI, Miller WC. Testing for chlamydial and gonorrheal infections outside of clinic settings: A summary of the literature. *Sex Transm Dis* Jan 2004; 31:38–51.
2. Rietmeijer CA, Alfonsi GA, Douglas JM, et al. Trends in clinic visits and diagnosed *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infections after the introduction of a copayment in a sexually transmitted infection clinic. *Sex Transm Dis* Apr 2005; 32:243–246.
3. Denver Public Health Department. City and County of Denver Sexually Transmitted Infections Surveillance Report, 2004. <http://www.denverstdclinic.org/stdsurveillancereport2004.pdf>.
4. Cassell JA, Brook MG, Mercer CH, et al. Maintaining patient access to GUM clinics: Is it compatible with appointments? *Sex Transm Infect* 2003; 79:11–15.
5. Knight VC, McNulty A. Triage in a public outpatient sexual health clinic. *Sex Health* 2006; 3:87–90.
6. Gaffikin L, Ahmed S, Chen YQ, et al. Risk factors as the basis for triage in low-resource cervical cancer screening programs. *Int J Gynaecol Obstet* 2003; 80:41–47.
7. Heijman TL, Van der Bij AK, De Vries HJ, et al. Effectiveness of a risk-based visitor-prioritizing system at a sexually transmitted infection outpatient clinic. *Sex Transm Dis* 2007; 34:508–512.
8. Wong WBJ, Rutledge T, Quinn L, et al. Impact of a pilot fast-track screening program for a high-volume STD clinic—Chicago, Illinois. 2006 National STD Prevention Conference. Jacksonville, FL, 2006.
9. Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines, 2006. *MMWR Recomm Rep* 2006; 55(RR-11):1–94.
10. Lee DM, Chen MY, Bradshaw CS, et al. Is routine vaginal examination necessary for asymptomatic women attending sexual health services? *Int J STD AIDS* 2006; 17:631–632.