

## Patient-Delivered Partner Treatment and Other Partner Management Strategies for Sexually Transmitted Diseases Used by New York City Healthcare Providers

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**Objectives:** The objectives of this study were to measure frequency and predictors of patient-delivered partner treatment (PDPT) and the frequency of other partner management strategies among New York City healthcare providers (HCPs) as well as to determine whether use of PDPT detracts from other partner management strategies.

**Study Design:** The authors conducted a cross-sectional survey of New York City HCPs.

**Results:** Frequent patient referral was reported by 93.6% (368 of 393) of healthcare providers; only 20% (80 of 401) reported frequent use of provider referral. Overall, 49.2% (196 of 398) of HCPs reported ever using PDPT and 27.1% (108 of 398) reported using PDPT frequently. HCP specialty, practice setting, duration of practice, report of frequent provider referral practice, and HCP race/ethnicity were the strongest predictors of PDPT use. HCPs reporting PDPT use were more likely to report frequent provider referral than those who had never used PDPT (26.7% vs. 12.6%;  $P < 0.001$ ).

**Conclusions:** PDPT use is common and is being used in conjunction with other partner management strategies.

INTERRUPTING THE SPREAD OF SEXUALLY transmitted diseases (STDs) and preventing reinfection requires treatment of exposed partners. Traditional methods of partner management (PM) include patient referral, whereby healthcare providers (HCPs) instruct patients to tell sex partners about possible exposure to infection and the need for evaluation, and provider referral, in which HCPs or their designees contact patients' sex partners directly. Provider referral is frequently used<sup>1</sup> and moderately effective<sup>2</sup> for syphilis; however, it has not been widely used for chlamydia or gonorrhea<sup>1</sup> because the substantial number of these infections makes such a resource-intensive approach impractical. Because high rates of chlamydia and gonorrhea reinfection<sup>3–6</sup> are largely attributable to a failure to ensure that sex partners are treated,<sup>4,7–13</sup> additional PM strategies are needed for these STDs.

Recent randomized, controlled trials have examined alternative PM approaches, deemed “expedited partner therapies,” which attempt to interrupt the spread of disease by treating sex partners without a medical evaluation or counseling session. A commonly used expedited strategy is patient-delivered partner treatment (PDPT), which involves dispensing medication, or a prescription for med-

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ication, to patients infected with an STD for delivery to sex partner(s). Recent PDPT randomized, controlled trials have demonstrated that, compared with traditional PM approaches, PDPT reduced rates of persistent and recurrent gonorrhea and chlamydia infection in the index patient<sup>14–16</sup> with statistically significant results for gonorrhea.<sup>15</sup>

PDPT is used, although not commonly, in the European Union and in Australia.<sup>17–19</sup> In the United States to date, only 4 states have specific legislation or pharmacy or medical boards that permit use of PDPT—for chlamydial infection in California and Tennessee, for chlamydia and gonorrhea in Washington, and for STDs generally in Colorado.<sup>20,21</sup> Despite the limited scope of this authorization across the country, one national and 2 local HCP surveys have determined that for chlamydia or gonorrhea, approximately half of HCPs report having ever used PDPT and 6% to 20% report using PDPT frequently.<sup>22–25</sup> In California, where PDPT was legalized for laboratory-confirmed chlamydia in 2001, approximately 50% of HCPs surveyed in December 2001/early 2002 reported using it usually or always.<sup>26</sup>

Although PDPT is a potentially useful strategy, it could reduce the probability of in-person evaluation for sex partners, and concerns exist that HCPs who use PDPT might be less likely to use other PM strategies with their patients. Fewer in-person evaluations might lead to missed opportunities to educate and counsel patients, diagnose concurrent STDs, and identify upper genital tract disease among women. There are few data with which to judge the extent to which these considerations should temper recommendations related to PDPT; however, such concerns have influenced recommendations that PDPT be practiced in addition to other strategies and not as a replacement for other PM strategies.<sup>27,28</sup> In New York City (NYC), the NYC Department of Health and Mental Hygiene (DOHMH) practices provider referral for early syphilis cases citywide, but does not routinely conduct provider referral for chlamydia and gonorrhea cases because of a lack of resources adequate to follow up on the large number of chlamydia and gonorrhea infections reported to the New

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York City DOHMH (34,000 cases of chlamydia and 11,000 cases of gonorrhea reported in 2004; the majority in the private sector). We analyzed data from a survey of STD knowledge and practices among NYC HCPs to measure the frequency of PDPT use for chlamydia and gonorrhea, to examine the relationship between PDPT use and traditional PM methods of patient and provider referral, and to describe predictors of PDPT use.

### Materials and Methods

Using the American Medical Association Physician Masterfile for physicians (MD/DO) and a proprietary database containing licensure information from the New York State medical boards for nurse practitioners (NPs) and physician assistants (PAs), we identified HCPs listed as either living or practicing in NYC. During November 2004 through January 2005, a total of 2000 HCPs were randomly selected, and surveys were mailed to 1600 MD/DOs, 200 NPs, and 200 PAs. On receipt of completed surveys, respondents were sent \$15 bookstore gift certificates. This survey was approved by Institutional Review Boards at both NYC DOHMH and the Centers for Disease Control and Prevention. Characteristics of respondents were compared with nonrespondents to assess the representativeness of the sample that was analyzed. Because we wanted to focus on HCPs who treat patients with STDs, we limited analyses to HCPs who had diagnosed at least one case of chlamydia or gonorrhea during the past year.

To assess the frequency with which NYC HCPs practice patient and provider referral, we included 2 case scenarios on the survey, one describing a patient with likely chlamydia infection and the other a patient with likely gonorrhea infection. HCPs were asked to report the frequency with which they practiced patient or provider referral: rarely, sometimes, usually, or always. To assess PDPT use, HCPs were separately asked, "How often do you give a patient you have diagnosed with chlamydia [gonorrhea] a dose of antibiotic or a prescription for his/her partner(s)?" using a 4-point scale of never, sometimes, usually, or always for response categories. For analyses of patient and provider referral, response categories were dichotomized into frequent use (always/usually) and infrequent use (rarely/sometimes). For analyses of PDPT, groups were dichotomized into ever use (sometimes/usually/always) and never use (never). Results for both chlamydia and gonorrhea were similar for both case scenarios and PDPT responses, so we aggregated results for both diseases. Bivariate analyses were conducted to identify characteristics statistically significantly associated with PDPT use and to examine the relationship between PDPT and other PM strategies. Logistic regression was performed to identify independent predictors of PDPT use. Independent variables that were significant at a 0.10 level in bivariate analysis were added to the multivariate model one at a time and were dropped if they were not significant. Although not significant in stepwise logistic regression, certain variables were retained because they

had been significant in previous studies on PDPT (e.g., HCP type [MD/DO, NP, or PA], HCP specialty or number of patients seen per week) or because of a plausible relation with provider behavior (e.g., HCP sex, HCP type).

### Results

The overall study response rate was 42% (695 HCPs responded to 1647 successfully delivered surveys). The response rate differed significantly by provider type, with a greater percentage of NPs and PAs responding than physicians (59% NPs, 55% PAs, 38% MD/DOs;  $P < 0.0001$ ). Compared with nonresponders, responders were, on average, 1 year older ( $P < 0.05$ ), more likely to be female ( $P < 0.05$ ), and more likely to be an NP or PA than an MD/DO. Providers representing certain specialty groups were more likely to complete and return the survey than others; 50% of obstetrician/gynecologists and 42% of pediatricians sampled responded to the survey compared with 35% of internal medicine HCPs.

Of 622 respondents who reported providing patient care in NYC, 410 (65.9%) reported having diagnosed a case of chlamydia or gonorrhea during the previous year, and all analyses of PM strategies were limited to this group. Among these HCPs, 93.6% (368 of 393) reported frequent use of patient referral; only 20% (80 of 401) reported frequent use of provider referral. Table 1 presents PDPT use by response category separately for chlamydia and gonorrhea and overall for either pathogen. Overall, 49.2% (196 of 398) of HCPs reported ever using PDPT, and 27.1% (108 of 398) reported using this strategy frequently (defined as always or usually) for either chlamydia or gonorrhea. Of providers that reported diagnosing more than 10 cases of chlamydia in the past year, 41.9% reported having ever used PDPT; of those who had diagnosed more than 10 cases of gonorrhea, 34.7% reported having ever used PDPT.

Frequent use of patient referral did not differ significantly by HCP type (MD/DO, PA, or NP), HCP sex, practice setting, or duration in practice. Frequent use of patient referral did differ significantly by HCP specialty ( $P < 0.05$ ); however, there was no difference between specialties when the analysis was limited to physicians. Frequent use of provider referral also did not differ by provider type (MD/DO, PA, or NP) but did differ significantly by practice setting ( $P < 0.05$ ) and HCP specialty ( $P < 0.01$ ), with HCPs specializing in emergency medicine or working in emergency department/urgent care settings being less likely to conduct provider referral than those specializing in internal medicine or pediatrics or working in inpatient settings.

When examining the association between use of PDPT and other PM strategies, we determined that use of patient referral was high regardless of whether the HCP reported use of PDPT (93.1% among those who ever used PDPT and 93.8% among those who never used PDPT). In contrast, use of provider referral differed significantly by whether the HCP had ever used PDPT. HCPs who

TABLE 1. Provider Use of Patient-Delivered Partner Treatment for Chlamydia and Gonorrhea Among Providers Reporting Diagnosing Chlamydia/Gonorrhea in the Past Year

	Chlamydia		Gonorrhea		Chlamydia or Gonorrhea	
	n/N	Percent	n/N	Percent	n/N	Percent
Always	46/398	11.6	44/399	11.0	48/399	12.0
Usually	57/398	14.3	49/399	12.3	60/399	15.0
Sometimes	91/398	22.9	85/399	21.3	88/399	22.1
Never	204/398	51.3	221/399	55.4	203/399	50.9

TABLE 2. Multivariate Analysis: Predictors of Use\* of Patient-Delivered Partner Treatment (PDPT) for Chlamydia or Gonorrhea

Variable	PDPT Use (n/N)	PDPT Use (Percent)	Odds Ratio	95% Confidence Interval	P Value
Practice setting					
Ambulatory care	134/260	51.5	Ref	—	—
Inpatient	39/65	60.0	1.4	0.8–2.7	0.27
Emergency department/urgent care	5/40	12.5	0.1	0.02–0.8	0.03 <sup>†</sup>
Other	16/29	55.2	1.8	0.8–4.1	0.19
Provider type					
MD/DO	140/275	50.9	Ref	—	—
Nurse practitioner	27/56	48.2	1.0	0.5–2.2	0.95
Physician assistant	29/67	43.3	1.0	0.5–2.0	0.99
Provider specialty					
Internal medicine	64/121	52.9	Ref	—	—
Obstetrics/gynecology	54/87	62.1	1.9	1.0–3.7	<0.05 <sup>†</sup>
Pediatrics	23/46	50.0	1.0	0.5–2.2	0.91
Emergency medicine	6/36	9.05	1.2	0.2–7.5	0.86
Family practice	28/57	49.1	1.2	0.6–2.4	0.68
Adult health	4/10	40.0	0.6	0.1–3.0	0.53
Other	17/41	41.5	0.7	0.3–1.5	0.36
Number of years practicing					
≥10 y	93/206	45.2	Ref	—	—
<10 y	103/192	53.7	1.8	1.1–2.9	0.01 <sup>†</sup>
Sex of provider					
Female	109/232	47.0	Ref	—	—
Male	87/166	52.4	1.6	1.0–2.6	0.06
Race/ethnicity					
White, non-Hispanic	99/218	45.4	Ref	—	—
Asian	54/93	58.01	1.6	0.9–2.7	0.12
Black	16/41	39.0	0.9	0.4–2.0	0.87
Hispanic	19/28	67.9	2.6	1.1–6.6	0.04 <sup>†</sup>
Other	5/11	45.5	0.9	0.2–3.9	0.92
Healthcare provider use of provider referral					
Infrequent	143/316	45.3	Ref	—	—
Frequent	52/77	67.5	2.4	1.3–4.3	0.005 <sup>†</sup>

\*Use reflects “ever” use of PDPT. The categories of sometimes, usually, and always have been aggregated to create the “ever” category.

<sup>†</sup>Statistically significant *P* value <0.05.

reported having ever used PDPT were 2 times more likely to report frequent provider referral than those who had never used PDPT (26.7% vs. 12.6%; *P* <0.001). Correspondingly, among HCPs who reported frequent provider referral, 67.5% reported having ever used PDPT.

Table 2 presents a multivariate model of predictors of PDPT use. HCP practice setting, HCP specialty, duration of practice, HCP race/ethnicity, and report of frequent provider referral practice were each independently associated with PDPT in multivariate analysis. HCP report of frequent provider referral was one of the strongest independent predictors of PDPT use (odds ratio [OR] = 2.4; *P* = 0.005). HCPs who practiced in emergency department/urgent care settings were much less likely than those practicing in either inpatient or ambulatory care settings to use PDPT (OR = 0.1; *P* = 0.03). Additional significant HCP related predictors of PDPT use included having a specialty of obstetrics/gynecology (OR = 1.9; *P* <0.05), having completed medical or graduate school within the previous 10 years (OR = 1.8; *P* = 0.01), and being of Hispanic race/ethnicity (OR = 2.6; *P* = 0.04). Exploration of relationships between covariates showed that there was a significant relationship between HCP sex and HCP specialty (*P* <0.0001), with females representing a higher proportion of obstetrician/gynecologists, family practice, pediatrics, and males representing a higher proportion of emergency medicine and internal medicine specialties. An interaction term for sex and specialty was added to the multivariate model and found to be nonsignificant and therefore was not included in the final model. In addition, as might be

expected, there was also a significant relationship between specialty type and practice setting (*P* <0.0001). Because both were significantly related to PDPT, they were both kept in the final multivariate model. HCP type (MD/DO, NP, PA) was also kept in the final model because of a plausible relationship with PDPT.

## Discussion

Similar to findings from national and other local provider surveys, the majority (93.6%) of HCPs in our sample reported using patient referral strategies.<sup>23–25</sup> However, a larger proportion of HCPs in our sample (20%) reported frequent use of provider referral compared with that estimated by previous surveys.<sup>25,29</sup> Our estimates of the proportion of NYC HCPs who report having ever used PDPT (approximately 50%) are commensurate with previous research<sup>22–24</sup>; however, more NYC HCPs appear to be using PDPT frequently (27%) than identified in previous surveys of other HCP populations.<sup>22–24,29</sup> Previous assessments of the frequency of PDPT use have varied; 20% of a Seattle-based sample of HCPs reported PDPT use for *Chlamydia trachomatis* at least half of the time,<sup>22</sup> 11% to 14% of a national sample HCPs reported frequent (usual or always) PDPT use for *C. trachomatis* or *Neisseria gonorrhoeae*,<sup>24</sup> 6% of HCPs in CT/RI reported frequent (usual or always) PDPT use (in Connecticut/Rhode Island).<sup>23</sup>

Our findings highlight the associations among different uses of multiple PM strategies, including PDPT, and suggest that NYC providers are using PDPT as well as patient or provider referral

strategies. In fact, the positive association between PDPT use and frequent provider referral suggests that HCPs who practice PDPT might be more cognizant than other providers of the importance of PM in interrupting the cycle of reinfection and disease transmission.

Our multivariate results indicate that HCPs' number of years in practice, specialty type, and practice setting can influence whether an HCP chooses to use PDPT. HCPs that had completed their medical training more recently were more likely to provide PDPT. This may be because of improved medical education surrounding sexual health and increased awareness of the importance of partner management for STDs. Because obstetrician/gynecologists have a female patient population and thus may face significant challenges in providing care to male partners of their patients, they may be more likely than other HCPs to dispense PDPT to their patients, thus treating male partners and preventing reinfection among their patients. HCPs practicing in emergency departments or urgent care settings may be reluctant to use PDPT because a chlamydia or gonorrhea diagnosis would likely not be laboratory-confirmed before dispensing PDPT. Previous research has demonstrated that urban emergency departments have a high prevalence of chlamydia and gonorrhea,<sup>30,31</sup> and it is well known that inner-city emergency departments often serve as primary care facilities, particularly for lower-income patients. Given that STDs are highly prevalent in emergency department/urgent care settings<sup>30,31</sup> and that both index patients and their sex partners can receive fragmented care in these settings, HCPs practicing in emergency department settings might have an opportunity to improve partner management by adopting PDPT.

This study has several limitations. PM questions were asked in the context of a larger survey on STD diagnosis, treatment, and management; therefore, questions that focused specifically on the practice of PDPT were limited in number; we were unable to assess reasons why HCPs do or do not use PDPT, and we did not ask PDPT questions specific to the sex of the index patient. Because this was a cross-sectional survey, we are only able to comment on the frequency of HCP practices and could not directly measure whether one PM strategy detracted from another. We were also unable to estimate the proportion of persons who were given medication to give to their partners with this survey because we did not assess the exact number of STDs diagnosed or the number of cases for which PDPT was used. This should be further examined in future research. In addition to these limitations, our response rates, particularly among physicians, were not high (overall, 42%), which might have affected the generalizability of our findings. It is possible that our low overall response rate and the relatively high percentage of responses from obstetrician/gynecologists could have contributed to our finding that 28% of providers reported using PDPT frequently given that obstetrician/gynecologists were more likely than other specialists to use PDPT. It is also possible that there could have been response bias, whereby providers who chose to respond to the survey may be those more likely to use PDPT. In addition, providers may not have given accurate reports of the frequency with which they use PDPT; however, it is difficult to anticipate the direction of any bias resulting from this. Despite such limitations, the strengths of this study lie in our assessment of different PM practices, inclusion of both physicians and midlevel providers, and demonstration that no difference in PDPT use exists among these groups. Additionally, this study was the first to investigate the relation between use of PDPT and other PM strategies.

Future investigation should examine how HCPs make decisions regarding different PM strategies and barriers to PDPT use. Formal or informal criteria used by HCPs to determine whether they

should use PDPT might have direct bearing on its real-world effectiveness and on missed opportunities for prevention. Information is lacking on how HCPs apply PM strategies with individual patients, including whether PDPT is used in combination with, or as a substitute for, provider referral. The impact of missed opportunities for in-person clinical evaluation and counseling (e.g., undiagnosed concurrent STDs or pelvic inflammatory disease) should also be evaluated.

Our findings indicate that NYC HCPs are using strategies beyond patient referral to assure treatment of their patients' sex partners and that these include both PDPT and provider referral. Currently, NY State law and regulations preclude provider prescription of medication to any individual not under the prescribing physician's care. As legislatures and licensing bodies consider policies surrounding PDPT, they should take into consideration the limited efficacy of existing PM strategies, the frequency with which HCPs use PDPT, and whether PDPT is used in conjunction with other PM strategies. Development of specific criteria for PDPT use could help to maximize potential benefits and minimize any risks to patients or their partners. PDPT appears to be widely practiced among NYC HCPs diagnosing chlamydia and gonorrhea and may be an important means of reducing reinfection and preventing the spread of chlamydia and gonorrhea in NYC.

## References

1. Golden MR, Hogben M, Handsfield HH, et al. Partner notification for HIV and STD in the United States: Low coverage for gonorrhea, chlamydial infection, and HIV. *Sex Transm Dis* 2003; 30:490–496.
2. Peterman TA, Toomey KE, Dicker LW, et al. Partner notification for syphilis: A randomized, controlled trial of three approaches. *Sex Transm Dis* 1997; 24:511–518.
3. Fortenberry JD, Brizendine EJ, Katz BP, et al. Subsequent sexually transmitted infections among adolescent women with genital infection due to *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, or *Trichomonas vaginalis*. *Sex Transm Dis* 1999; 26:26–32.
4. Whittington WL, Kent C, Kissinger P, et al. Determinants of persistent and recurrent *Chlamydia trachomatis* infection in young women: Results of a multicenter cohort study. *Sex Transm Dis* 2001; 28: 117–123.
5. Xu F, Schillinger JA, Markowitz LE, et al. Repeat *Chlamydia trachomatis* infection in women: Analysis through a surveillance case registry in Washington State, 1993–1998. *Am J Epidemiol* 2000; 52:1164–1170.
6. Blythe MJ, Katz BP, Batteiger BE, et al. Recurrent genitourinary chlamydial infections in sexually active female adolescents. *J Pediatr* 1992; 121:487–493.
7. Oh MK, Boker JR, Genuardi FJ, et al. Sexual contact tracing outcome in adolescent chlamydial and gonococcal cervicitis cases. *J Adolesc Health* 1996; 18:4–9.
8. Rietmeijer CA, Van Bemmelen R, Judson et al. Incidence and repeat infection rates of *Chlamydia trachomatis* among male and female patients in an STD clinic: Implications for screening and rescreening. *Sex Transm Dis* 2002; 29:65–72.
9. Potterat JJ, Rothenberg R. The case-finding effectiveness of self-referral system for gonorrhea: A preliminary report. *Am J Public Health* 1977; 67:174–176.
10. Woodhouse DE, Potterat JJ, Muth JB, et al. A civilian–military partnership to reduce the incidence of gonorrhea. *Public Health Rep* 1985; 100:61–65.
11. Patel HC, Viswalingam ND, Goh BT. Chlamydial ocular infection: Efficacy of partner notification by patient referral. *Int J STD AIDS* 1994; 5:244–247.
12. van de Laar MJ, Termorshuizen F, van den Hoek A. Partner referral by patients with gonorrhea and chlamydial infection. Case-finding observations. *Sex Transm Dis* 1997; 24:334–342.
13. Golden MR, Whittington WLM, Handsfield HH, et al. Partner management for gonococcal and chlamydial infection: Expansion of public health services to the private sector and expedited sex partner

- treatment through a partnership with commercial pharmacies. *Sex Transm Dis* 2001; 26:658–665.
14. Schillinger JA, Kissinger P, Calvet H, et al. Patient-delivered partner treatment with azithromycin to prevent repeated *Chlamydia trachomatis* infection among women: A randomized, controlled trial. *Sex Transm Dis* 2003; 30:49–56.
  15. Golden MR, Whittington WLH, Handsfield HH, et al. Effect of expedited treatment of sex partners on recurrent or persistent gonorrhea or chlamydial infection. *N Engl J Med* 2005; 352:676–685.
  16. Kissinger P, Mohammed H, Richardson-Alston G, et al. Patient-delivered partner treatment for male urethritis: A randomized, controlled trial. *Clin Infect Dis* 2005; 41:623–629.
  17. Arthur G, Lowndes CM, Blackham J, et al. Divergent approaches to partner notification for sexually transmitted infections across the European Union. *Sex Transm Dis* 2005; 32:734–741.
  18. Thompson SC, McEachern KA, Stevenson EM, et al. The epidemiology of notified genital *Chlamydia trachomatis* infection in Victoria, Australia: A survey of diagnosing providers. *Int J STD AIDS* 1997; 8:382–387.
  19. Andersen B, Ostergaard L, Nygard B, et al. Urogenital *Chlamydia trachomatis* infections in general practice: Diagnosis, treatment, follow-up and contact tracing. *Fam Pract* 1998; 15:223–228.
  20. Golden MR, Anukam U, Williams DH, et al. The legal status of patient-delivered partner therapy for sexually transmitted infections in the United States: A National Survey of State Medical and Pharmacy Boards. *Sex Transm Dis* 2005; 32:112–114.
  21. Legislative Counsel of California. California Health and Safety Code, Section 120582, parts a, b, 2005.
  22. Golden MR, Whittington WLH, Gorbach PM, et al. Partner notification for chlamydial infections among private sector clinicians in Seattle–King County: A clinician and patient survey. *Sex Transm Dis* 1999; 26:543–547.
  23. Niccolai LM, Winston DM. Physicians' opinions on partner management for nonviral sexually transmitted infections. *Am J Prev Med* 2005; 28:229–233.
  24. Hogben M, McCree DH, Golden MR. Patient-delivered partner therapy for sexually transmitted diseases as practiced by US physicians. *Sex Transm Dis* 2005; 32:101–105.
  25. McCree DH, Liddon NC, Hogben M, et al. National survey of doctors' actions following the diagnosis of a bacterial STD. *Sex Transm Infect* 2003; 79:254–256.
  26. Guerry S, Bauer H, Packer L, et al. Chlamydia screening and management practices of primary care physicians and nurse practitioners in California. *J Gen Intern Med* 2005; 20:1102–1107.
  27. Centers for Disease Control and Prevention. Expedited partner therapy in the management of sexually transmitted diseases. Atlanta, Georgia: US Department of Health and Human Services, 2006.
  28. Douglas JM. Letter from the Director of STD Prevention of the National Center for HIV, STD and TB Prevention. Centers for Disease Control and Prevention, Department of Health and Human Services, May 11, 2005.
  29. St. Lawrence, Montano DE, Kasprzyk D, et al. STD screening, testing, case reporting, and clinical and partner notification practices: A national survey of US physicians. *Am J Public Health* 2002; 92:1784–1788.
  30. Mehta SD, Rothman RE, Kelen GD, et al. Unsuspected gonorrhea and chlamydia in patients of an urban adult emergency department: A critical population for STD control intervention. *Sex Transm Dis* 2001; 28:33–39.
  31. Mehta SD, Shahan J, Zenilman JM. Ambulatory STD management in an inner-city emergency department: Descriptive epidemiology, care utilization patterns, and patient perceptions of local public STD clinics. *Sex Transm Dis* 2000; 27:154–158.