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Screening Juvenile Justice-Involved Females for Sexually Transmitted Infection: A Pilot Intervention for Urban Females in Community Supervision

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Abstract

Little is known about *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC) rates in community-supervised juvenile justice-involved (CSJI) females, or how to best provide screening for sexually transmitted infections in this population. A pilot intervention allowed case managers to offer optional CT/GC screening to CSJI females during mandated visits. Anonymous satisfaction surveys and discussion groups assessed intervention acceptability. Case managers met with 514 CSJI females; 102 (20%) agreed to screening and 117 tests were completed. Among those screened, 21 (18%) had CT and 3 (3%) had GC. Intervention feedback from case managers and clients was positive, but there were barriers to recruitment. Lessons learned from this case manager-facilitated intervention may increase the acceptability and effectiveness of future screening methods in this setting.

Keywords

sexually transmitted infection screening; juvenile justice health care; community-based screening

Females represent a growing cohort within the juvenile justice system and are disproportionately affected by sexually transmitted infections (STI) such as *Chlamydia trachomatis* (CT) and *Neisseria gonorrhoeae* (GC; Belenko, Dembo, Rollie, Childs, & Salvatore, 2009; Centers for Disease Control and Prevention [CDC] STD Surveillance,

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2010a; Hammett, 2009; Kahn et al., 2005). To date, females have higher reported rates of CT and GC than their male counterparts, and females in detention are no exception (CDC STD Surveillance, 2010a). Risk factors that contribute to high rates of infection for females involved with the justice system include less frequent condom use, younger age of sexual debut, higher number of sexual partners, over representation of African Americans, and higher rates of sexual abuse and assault, pregnancy, sex in exchange for drugs or money, substance abuse, and mental health disorders compared to nondelinquent peers (Belenko et al., 2008, 2009; Crosby, DiClemente, Wingood, Rose, & Levine, 2003; Dembo, Belenko, Childs, & Wareham, 2009; Robertson, Thomas, St. Lawrence, & Pack, 2005). Among females entering juvenile justice facilities nationally in 2009, 15% tested positive for CT and 4% were positive for GC (CDC STD Surveillance, 2010a). High disease prevalence has led the Centers for Disease Control and Prevention to target the juvenile justice-involved population for CT and GC prevention efforts and to recommend that all adolescent females receive screening at the time of intake to the detention center, regardless of the symptoms (CDC STD Treatment Guidelines, 2010b).

While some detention facilities in the United States do screen all residentially detained youth for CT and GC infection, many continue to rely on symptomatic report to guide testing (Frye, Wallace, Chavez, & Luce, 2008). This approach is problematic because many females with CT or GC infection remain asymptomatic (CDC STD Treatment Guidelines, 2010b). Furthermore, both CT and GC have the potential for severe, chronic sequelae in infected females, including chronic pelvic pain, increased risk of ectopic pregnancy, and infertility, making management of infection a public health priority (CDC STD Treatment Guidelines, 2010b). Currently available screening tests are increasingly accurate at diagnosing CT and GC infections and can be acquired easily with noninvasive urine collection or a self-obtained vaginal swab. The current practice of limited STI surveillance in an exceptionally high-risk population represents a missed opportunity, as there is great potential risk of disease spread associated with the release of infected youth back into the community without diagnosis or treatment of infection.

Justice system involvement provides an opportunity to screen the approximately 1.6 million high-risk youth passing through juvenile facilities each year (Hammett, Gaiter, & Crawford, 1998; Mertz, Voigt, Hutchins, Levine, & Jail STD Prevalence Monitoring Group, 2002; Romero et al., 2007) and potentially the many more who are supervised in the community. Because females involved with the justice system often transition back and forth between community supervision and secure detention or placement as they violate probation or reoffend, community-supervised juvenile justice-involved (CSJJI) females likely share the same STI risk factors as youth in secure detention facilities. However, to our knowledge, there are no juvenile justice agencies that routinely offer screening to youth undergoing community supervision.

In Maryland, all youth in juvenile detention centers are screened for CT and GC within 72 hours of admission. Of the 676 tests performed statewide among females entering such facilities in 2010, 18% were positive for CT and 3% were positive for GC (Maryland Department of Health, 2010), indicating high rates of infection even when compared to other detention settings nationwide (CDC STD Surveillance, 2010a). Within Maryland, Baltimore

City's 15- to 19-year-old females have uniquely high rates of CT and GC (CDC STD Surveillance, 2010a). The high rates of CT and GC in this population demonstrate the need for increased screening, treatment, and prevention efforts.

Although Baltimore City has many venues for adolescents to receive STI services in the community, justice-involved youth may not seek out health care as often as their peers (Cromwell, Risser, & Risser, 2002). Little is known about CT/GC rates in CSJJI females or how to best provide them with screening and treatment services. Provision of CT/GC screening during mandated visits with juvenile justice community case managers would build on prior interventions among justice-involved youth (Belenko et al., 2008; Cromwell et al., 2002; Katz et al., 2004; Romero et al. 2007; Spaulding, Clarke, Jongco, & Flanigan, 2009; Wood & Shoroye, 1993) and might represent a viable opportunity for STI services in this hard-to-reach population. Using existing relationships between nonmedical case managers and their CSJJI clients in a gender-sensitive environment could enhance the success of the intervention. In addition, the involvement of nonmedical personnel could represent an opportunity to limit the cost of screening services in a setting that demands fiscal prudence.

This article describes a pilot intervention done collaboratively by Maryland Department of Juvenile Services (DJS) community case managers and medical staff and the Johns Hopkins School of Medicine; the goal of the intervention was to expand DJS CT/GC screening and treatment services by including Baltimore City female youth under community supervision. The purpose of the intervention was to (a) define the rates of CT and GC in Baltimore City CSJJI females, (b) provide STI screening and sexual health counseling services to this high-risk female population, and (c) examine the acceptability of using DJS nonmedical case managers to facilitate CT/GC screening in a community supervision setting. We employed a case study approach to describe the pilot intervention and summarize the findings, including the lessons learned.

Method

Participants

All Baltimore City females requiring DJS community supervision at the Baltimore City Juvenile Justice Center and supervised by the female intervention team (FIT) were eligible to participate in the pilot intervention. This included females in aftercare, community detention, electronic home monitoring, precourt supervision, probation, and the violence prevention initiative. Because the terms of supervision vary among FIT clients, the frequency of visits to the unit may differ for each female, ranging from daily to monthly monitoring. FIT case managers and supervisors were included in the intervention training, implementation, and evaluation. Medical personnel from DJS and the Johns Hopkins School of Medicine acted as project leaders and designed the pilot intervention with FIT supervisors' input.

Measures

Screening—The rates of CT and GC in this CSJJI sample were compiled and compared with state prevalence data for adolescent females in secure DJS facilities, where all females are screened within 72 hours of admission using urine nucleic acid amplification testing (NAAT). No comparison data exist for local community-based DJS facilities. Laboratory specimens of both the populations were tested by the Maryland Department of Health and Mental Hygiene (DHMH) Laboratories Administration using the Becton Dickinson ProbeTec *Chlamydia trachomatis* and *Neisseria gonorrhoeae* Q^x Amplified DNA Assay. Young women were able to participate in the intervention without the consent of their parents in accordance with Maryland minor consent laws. Screening, treatment, and risk reduction counseling provided under the intervention were at no charge to the youth. All associated costs were covered by DJS funding sources. DJS was charged a minimum fee of US\$12 per specimen to cover the cost of the test reagents through a prior agreement with DHMH.

Acceptability—Pilot intervention acceptability was assessed using ongoing DJS-collected measures of project satisfaction from the FIT case managers and intervention participants. The percentage of the total number of females to visit FIT who received CT/GC screening during the course of the year served as a general indicator of overall uptake of the intervention. Case manager satisfaction with the pilot intervention was evaluated using an anonymous survey that had 11 questions with responses on a 4-point Likert-type scale and three open-response questions. Examples of questions asked include, “I think that screening youth for CT/GC is important” and “I feel confident explaining services to clients and answering their questions.” Surveys were administered to staff 3 times during the course of the yearlong intervention: at 2 months, 6 months, and 12 months. Case manager surveys were compared over time by grouping responses falling into the “never” or “sometimes” category and those falling into the “usually” or “always” category to create two groups: one for negative and one for positive responses.

To evaluate participant satisfaction with the pilot intervention, anonymous surveys were administered on an ongoing basis throughout the year to willing program participants who came to the FIT unit for in-person follow-up. The surveys had seven questions with responses on a 4-point Likert-type scale, five yes/no questions, and four open-ended response questions. Examples of survey questions include, “The doctor or nurse answered your questions in a way you understood” and “If you were given a medicine today, was the medicine clearly explained to you?” Participant satisfaction was evaluated by grouping survey responses falling into the “poor” or “fair” or “no” categories and those falling into the “good” or “great” or “yes” categories to create two groups: one for negative and one for positive responses.

In addition, at 6 and 12 months, the project leaders conducted informal roundtable discussions with case managers to elicit feedback on the intervention and address any particular challenges; handwritten notes were taken during these discussions. During the second half of the yearlong pilot intervention, additional medical provider support was initiated in response to FIT staff requests. The frequency of testing in the first half of the

year was compared with the second half of the year to illuminate any changes in feasibility during the course of the study, as staff support was increased.

The pilot intervention was conducted between July 1, 2010, and June 30, 2011. Data were collected as standard of care by DJS. The institutional review boards of the Johns Hopkins School of Medicine and the Maryland DJS in Baltimore approved the secondary analysis of the DJS-collected data.

Procedure

All FIT case managers and supervisors attended a 2-hour training session by the project leaders that covered basic CT/GC education, Maryland minor consent laws, urine collection and storage, and the intervention protocol for STI counseling and screening. An intervention manual was made available on the FIT unit to support staff following the training. CSJJI clients supervised at FIT were offered optional CT/GC screening on an ongoing basis as part of a range of DJS support services. Case managers did not inquire about sexual history or practices but offered the urine screening using an intervention fact sheet; this document provided a written script for case managers as they introduced the intervention to clients. If the adolescent desired screening, the case managers consented the individual using a standardized consent form, collected urine for CT/GC NAAT, offered condoms and health literature, and scheduled the participant for a follow-up visit with the medical personnel. There are no medical facilities or examination rooms on the FIT unit, and no precedent for medical information-gathering existed prior to the pilot intervention. Urine collection was performed in a public women's bathroom outside the unit (within the DJS building) and was initiated and supervised by FIT case managers. Specimens were submitted to and performed by the DHMH Laboratories Administration.

One-on-one follow-up visits with licensed medical personnel took place on the FIT unit and were scheduled for 2 weeks after screening to allow for adequate time to receive specimen results. At follow-up, participants were asked to report age, race, ethnicity, city of residence, detention history, and health insurance status; current medical problems, medication, and allergies; sexual history including risk behaviors, contraception, STI, and pregnancy history; and current symptoms suggestive of STI or pregnancy. Based on the participant's history and behavior, both general and individual-specific sexual health counseling and education were provided on topics including minimizing sexual risk behavior, the importance of condom use, and contraception options. At the time of the follow-up visit, all participants were offered written information on sexual health, a community health resource guide (including contact information for local services), and condoms. If indicated, clients were offered pregnancy testing and/or emergency contraception (EC). Participants who returned for follow-up with positive CT or GC results were given treatment on-site according to CDC (2006) guidelines, and the need for partner disclosure and therapy was discussed. Participants who tested positive were given information on free STI testing/treatment sites in Baltimore City for their partners; medication was not dispensed for partners at the time of the visit due to a lack of Maryland legislation supporting expedited partner therapy. Because the FIT unit is not equipped or designed to provide comprehensive medical care, the adolescent was referred to a community health provider for further evaluation and/or

treatment if a need for physical or pelvic examination, further STI testing, initiation of contraception method beyond EC, or another medical concern was identified during the visit.

Any participant who did not return for a follow-up visit in person was contacted by phone with her results. If positive for CT or GC, phone contact was attempted as soon as the result was known and repeated attempts continued until the youth was reached and scheduled for follow-up. If negative for CT and GC, one to two attempts at phone contact were made; if the youth was reached, results were provided, demographic and sexual health information was collected, and sexual health counseling was performed over the phone by medical personnel. If a client was unreachable by phone, positive cases were referred to the health department for community follow-up, and negative cases were closed. All participants who followed up in person were offered condoms, health literature, and a Baltimore City health resource card detailing where multiple health services (including STI testing and treatment) could be obtained in the city.

Results

Screening

Among the 514 CSJJI females supervised by FIT case managers during the pilot intervention period, 102 (20%) were screened (Table 1); 13 participants requested screening multiple times. At the end of the pilot intervention period, 123 separate tests had been completed for 102 females; however, six of the urine samples were rejected due to leakage, incorrect labeling, or the specimen being too old. Therefore, the final study sample included 117 tests collected and completed from 102 females. Screening was performed by nine case managers, one unit supervisor, and two medical personnel.

Twenty-one (18%) of the tests completed were positive for CT and three (3%) for GC during the pilot intervention period (compared to 18% and 3% positivity in residential detention as noted above). Fourteen (58%) of the 24 CSJJI females who tested positive for either infection were asymptomatic. Nineteen (79%) of the individuals who tested positive for either CT or GC were administered treatment on the FIT unit by medical personnel; the five females who did not return for treatment at FIT were treated in residential detention centers or in the community by primary providers or the Baltimore City Health Department. As required by law, all positive results were reported to the Baltimore City Health Department.

Among participants, 20 (20%) requested pregnancy testing; 3 (3%) were positive and were referred for options counseling and/or obstetrical care. Thirty-four participants (33%) accepted EC through the intervention.

Of those youth who were tested, 60 (59%) received posttest counseling either in person or by phone (Table 2). Of the 60 females, 41 (68%) who completed sexual risk questionnaires were referred for further medical evaluation. Reasons for referral included contraception, symptoms of possible pelvic inflammatory disease, symptoms of possible other STI, pregnancy, or nonsexual health concerns.

Acceptability

Eight case managers completed the anonymous satisfaction survey at 2 months and 6 months, and seven completed it at 12 months; one case manager was relocated to another department before the pilot study ended and therefore was unable to complete the final survey. The majority of responses about the pilot intervention were positive: 80% at 2 months, 67% at 6 months, and 83% at 12 months. The anonymous satisfaction survey comments revealed that multiple case managers liked expanding FIT services to include STI screening, and one individual felt that including sexual health as part of FIT services helped to open communication about being safe overall. Negative written feedback included concerns about handling urine and increased workload.

Of the 60 females who were reached for follow-up, 20 (33%) completed anonymous satisfaction surveys. Responses were overwhelmingly positive, with 97% of the responding participants reporting positive feedback and only 3% reporting negative feedback for the intervention. Specific positive feedback described appreciating the opportunity to get STI services at FIT, liking the provider team, and knowing CT/GC disease status. Specific negative feedback included the time required to receive results and sexual health counseling and disappointment with positive test results.

Discussion Groups

Roundtable discussion at the project's halfway point indicated that while many case managers liked being able to offer STI services, it was challenging to remember to do so in the setting of a busy client schedule. Several case managers felt that it was hard to prioritize STI screening when client visits were already congested by many other requirements. Case manager-identified reasons for youth nonparticipation in the screening intervention included refusal to participate and case manager failure to offer screening to all females in their care.

Suggestions for feedback that were generated at the roundtable discussions included hiring an additional FIT staff person devoted to the intervention, establishing a reminder system for screening, and increasing communication about the intervention between the project leaders and the case managers. Observations of the pilot intervention by the project leaders included the importance of buy-in by the director, unit supervisors, and case managers, which could greatly impact opportunities for dialogue, feedback, and changes over time.

In response to FIT staff feedback, during the second half of the year the project leaders provided additional support for screening services. These efforts included more frequent one-on-one conversations with staff about the intervention, more frequent screening support by medical personnel, and the development of a system for FIT case managers to have minimal responsibility for the handling of urine. Screening rates increased by 20% during the second half of the year (from 52 tests to 65 tests completed).

Discussion

The pilot intervention described here attempts to address the need for increased screening, treatment, and prevention services for STI in a high-risk juvenile justice-involved female

population. The findings suggest that the rates of CT and GC in a sample of Baltimore City CSJJI females is comparable to those found among females in statewide DJS detention facilities; however, the community-based screening rate (20%) was low compared to screening rates that approach 100% in the detention setting. Although previous work has demonstrated the utility of screening for CT and GC in residential detention (Belenko et al., 2008; Cromwell et al., 2002; Katz et al., 2004; Romero et al. 2007; Spaulding et al., 2009), there is a significant lack of information regarding rates of STI in equally at risk CSJJI females; the pilot intervention attempts to address this information shortage.

The association between CT and GC infection and juvenile justice-involved females has been demonstrated repeatedly in the literature (Belenko et al., 2008; CDC, 2009; Hammett, 2009; Kahn et al., 2005; Katz et al., 2004; Lofy, Hofmann, Mosure, Fine, & Marrazzo, 2006; Morris et al., 1995), and many factors impact the risk of STI acquisition in CSJJI females (Belenko et al., 2008, 2009; Crosby et al., 2003; Dembo et al., 2009; Robertson et al., 2005). One challenge to addressing STI risk in the CSJJI female population is that youth involved with the juvenile justice system often do not have a stable, intact support system or basic resources to rely on that might allow for a more systemwide approach to implementing sexual behavioral change. This pilot intervention was conducted within the context of mandated visits with case managers in a gender-sensitive environment to provide CT/GC screening, treatment, and risk reduction services to CSJJI females. This approach took advantage of the participants' legal involvement as a unique opportunity to provide reproductive health care and education. However, despite participant involvement in existing DJS programming, the rate of follow-up for STI results and counseling was less than 50%. This suggests that sexual health education and risk assessment should take place at the initial visit rather than at a follow-up visit in order to involve more participants in the full health education intervention.

The intervention brought a new service to females who previously did not have access to STI screening and reproductive health counseling in the community-supervised DJS setting, and qualitative results show that both case managers and intervention participants appreciated the screening services established by the intervention. These findings suggest that a permanent screening program in the CSJJI setting would be well received by our intervention target population. However, the acceptability findings indicate that a modified intervention that includes the support of case managers but does not rely on them alone for recruitment or specimen processing could be more successful. In addition, screening rates may improve if services were provided to all youth as part of case manager-driven community supervision programming (rather than being optional) or if medical personnel were more regularly available to provide screening support. Increased reliance on medical personnel might make a screening intervention more costly, thereby challenging long-term sustainability; however, in such a high-risk adolescent population, screening might prove to be more cost-effective by preventing expensive outcomes such as pelvic inflammatory disease, unwanted pregnancy, or chronic pelvic pain (Aghaizu et al., 2011).

Strengths

The pilot intervention was established to address an unmet need of juvenile justice youth in the community through the formation of a partnership between DJS nonmedical staff and medical personnel. The intervention model examined in the current study serves as an innovative approach to screening a high-risk population for CT and GC on three levels: a case manager-driven screening model, case manager–health clinician partnership for prevention and treatment of CT and GC in DJS youth, and testing of juvenile justice youth in a nonclinical community setting by juvenile justice staff.

The intervention expanded FIT services by redirecting resources and partnering with several community and state organizations to bring services to participants free of charge. In addition to STI screening, CSJJI females had access to sexual health counseling, written information, and pregnancy prevention with the administration of condoms and EC. Ongoing efforts were made by the intervention team to support the FIT case managers, especially during the latter part of the year, and testing rates increased in the last 6 months of the intervention.

Limitations

The case manager-driven pilot intervention was implemented in one community supervision unit at DJS, which might challenge the generalizability of the results in other settings. The sample of females tested was small compared to the total number of females who visited the FIT unit during the course of the yearlong pilot intervention. This raises concern that the subset of youth who were screened through the intervention was not representative of the total population of CSJJI females supervised at FIT or CSJJI females in general. In addition, because screening was optional it is possible that case managers specifically targeted youth who they perceived were at higher risk of infection or that females who consented to screening had symptoms or behavior that made them a particularly high-risk subset of CSJJI females. The CDC recommends at least annual CT screening for all sexually active adolescent females (CDC STD Surveillance, 2010a); it is unknown how many of the females were screened in other venues and what percentage of those who refused screening at FIT did so because they had recently been tested in DJS detention facilities or elsewhere in the community, or because they had never been sexually active. According to the CDC, 49% of Maryland's sexually active females aged 16 to 25 who were enrolled in health plans in 2007 were screened for CT infection (CDC, 2009), suggesting that many CSJJI females may be receiving screening by health care providers in the community.

Although reliance on DJS personnel and programming for participation in the intervention had the advantage of existing FIT unit infrastructure, a potential challenge of providing health services in this setting is the possibility of perceived coercion. Our intervention attempted to address this concern by repeatedly emphasizing the voluntary nature of the intervention and keeping follow-up visits one-on-one between the participant and the health care provider.

Conclusions and Implications

This pilot intervention brought new services to CSJJI females in Baltimore City, a population uniquely at risk of CT and GC (CDC, 2011). Results demonstrate high rates of infection, similar to youth in Maryland's juvenile detention centers. Nonmedically trained case managers and participants generally supported the provision of STI services in the community-supervised setting, yet case managers experienced barriers to screening. Therefore, if a case manager-driven screening model is employed, additional supports are needed as well as continued or strengthened partnership between case managers and medical personnel. Implementing a modified pilot intervention that can be replicated and adapted throughout DJS and in other juvenile justice settings will be the next step toward improving reproductive health service delivery to community-supervised youth; ultimately, care could be expanded to include contraception management, sexual violence screening, and other STI/HIV screening.

Future efforts to embed STI services within juvenile justice settings should consider including individuals under community supervision in addition to their residentially detained counterparts in order to address the spread of infection and to offer more inclusive and available services to a high-risk population. Such efforts might be more successful if community supervision took place in proximity to clinics offering STI and family planning services or next to juvenile justice facilities with existing health staff, in order to consolidate resources while expanding services to community-supervised youth. By offering this high-risk adolescent population reproductive health services as part of established programming, the juvenile justice system could promote a holistic approach to rehabilitation for youth in its care and enhance access to sexual health services beyond the walls of detention.

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Table 1

Population of Total FIT Unit Entrants, Intervention Participants, and Participants Who Completed Follow-Up Counseling, July 2010–July 2011.

	Total FIT Population <i>n</i> (%)	Intervention Participants <i>n</i> (%)	Participants Who Completed Follow-Up^a <i>n</i> (%)
Total	514	102	60
African American	396 (77)	89 (87)	57 (95)
White	113 (22)	13 (13)	3 (5)
Other	5 (1)	0	0
Mean age (years)	15.5 (range: 11–21)	16.3 (range: 11–20)	16.7 (range: 14–19)

Note. FIT = female intervention team.

^a Follow-up was completed either by phone or in person.

Table 2Health and Sexual Risk Factors for Intervention Participants Who Completed Follow-Up Counseling.^a

	Participants <i>n</i> (%)
Number who completed follow-up counseling ^a	60
Report a regular health care provider	49 (82)
Ever had sex	53 (88)
Report one or more sexual risk factors ^b	44 (73)
Condom use with last sex	25 (42)
Current hormonal/IUD contraception	17 (28)
History of pregnancy	22 (37)
History of STI ^c	17 (28)
Mean age of first sex	14.3 years

Note. CT = *Chlamydia trachomatis*; GC = *Neisseria gonorrhoeae*; HPV = Human papillomavirus; IV = intravenous; IUD = intrauterine device; STI = sexually transmitted infection.

^aFollow-up was completed either by phone or in person.

^bSexual risk factors included > 1 sexual partner within a week, sex without a condom, sex while intoxicated/high, sex with someone met online, sex in exchange for drugs or money, sex with a man who has male partners, sex with an HIV or hepatitis C positive person, ever used IV drugs, ever had a partner who used drugs with needles.

^cSTIs included GC, CT, trichomoniasis, syphilis, HIV, herpes simplex virus, genital warts/abnormal pap/HPV, hepatitis B, or hepatitis C.