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Prevalence of Sexually Transmitted Infections Among Adolescents Entering Child Protective Services

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Abstract

STUDY OBJECTIVE—Persons aged 15–24 years have the highest rates of sexually transmitted infections (STIs). Adolescents in protective services custody may be at even greater risk of acquiring STIs, however little is known about the prevalence of STIs among this population. We therefore set out to assess the prevalence of STIs among adolescents seen in the Harris County Child Protective Services Clinic.

DESIGN—A retrospective chart review from January 2009 to December 2011 was conducted.

SETTING AND PARTICIPANTS—Patients age 12 to 18 years old seen for their intake physical at the Harris County Child Protective Services clinic in Houston, Texas.

MAIN OUTCOME MEASURES—Main outcome measures included the number of positive tests for chlamydia, gonorrhea, syphilis and HIV. Secondary measures included sexual history, use of condoms and contraception and reports of drug and alcohol use.

RESULTS—Among 437 patients, 60% were female, mean age 15; nearly half were African-American. There were 27 cases of chlamydia, 12 gonorrhea, 3 syphilis, and no HIV. Three of the teens that reported never having sex were positive for an STI. Female, older than 15 and having had sexual intercourse at least once were all significant risk factors.

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CONCLUSIONS—The prevalence of STIs in adolescents entering foster care was comparable to national averages. Recommending routine screening of all adolescents in this population is important to ensure better detection and treatment.

Keywords

Sexually Transmitted Infection; Child Protective Services; Foster Care; Adolescents

INTRODUCTION

Each year thousands of children are referred to the Harris County Child Protective Services (CPS) in Houston, Texas.¹ In 2011, approximately 16% of these children were between the ages of 10 and 13 years, with another 16% between the ages of 14 and 17.¹ Many of these adolescents entered protective services because of family conflicts, juvenile delinquent behaviors, and/or physical or sexual abuse. After entering CPS care, some of the youth are placed in emergency shelters while others end up residing in group or foster homes. Understanding the specific health needs of adolescents presenting into protective services is crucial for providing efficient and appropriate care for this high-risk population. The Centers for Disease Control and Prevention (CDC) has reported that, in the United States, the prevalence of chlamydia was 6.8% among sexually active females ages 14-19 from 1999 to 2008.² In 2011, the highest rates of gonorrhea were observed among adolescent females with a reported 556.5 cases per 100,000 among 15-19 year olds.^{3,4} Also in 2011, the rate of HIV diagnosis among 13-19 year olds was 11 per 100,000 with adolescents accounting for nearly one out of every 4 new HIV diagnosis in the United States.⁵ Lastly, while rates of syphilis in the US decreased among females ages 15-19 years to 2.3 cases per 100,000 in 2012, rates increased among males in that age group to 5.8 per 100,000 in that same year.⁶ In Houston/Harris county in 2010, 11.26 females and 20.17 males per 100,00 ages 15-19 had syphilis; Harris county consistently ranks among the top 5 counties nationwide for this disease.⁷

While rates of sexually transmitted infections (STIs) among adolescents nationwide have been well studied, little is known about the prevalence of STIs among adolescents in foster care. Girardet et al. found that among sexually victimized children, the prevalence of each STI was <10%.⁸ However, these were children 13 years of age and younger; furthermore, most children with an STI had normal or non-specific findings on exam. Steele et al., examined the medical and mental health of children entering the foster care system in Utah;⁹ while 54% of these children had one or more acute or chronic medical condition, STIs were not specifically addressed. A recent study by Lambert et al. described sexual risk factors and STIs of adolescents entering Youth Protection Centres in Quebec, however rates of HIV and syphilis were not measured.¹⁰ In 2002 the American Academy of Pediatrics published their recommendations for the health care of children in foster care.¹¹ For STIs their recommendation is that “...laboratory tests should be performed for HIV and other sexually transmitted diseases when indicated clinically or by history.” However, without first understanding the prevalence of STIs among this population, deciding who should be tested or not may be difficult, especially given that the physical exam is likely to be normal.

Therefore, we assessed the prevalence of chlamydia, gonorrhea, syphilis and HIV among adolescents in foster placement entering care at a child protective services clinic.

METHODS

We conducted a retrospective review of medical charts from the Harris County Protective Services Clinic in Houston, Texas from January 2009 to December 2011. According to Harris County CPS data, 576 adolescents aged 12 to 18 years entered CPS custody during our study period; of these youth, 437 presented to our clinic for their intake physical. Two of the authors are primary providers at this clinic and performed over 90% of the physicals. All adolescents presenting to care are interviewed about their sexual practices and offered testing for sexually transmitted infections (STIs). First they are asked if they are sexually active; if they respond in the affirmative, additional questions are asked to clarify if they have engaged in oral, genital or anal sex. If they report that they have never been sexually active, additional questions are also asked to further clarify if they have engaged in any sexually activity, including oral or anal sex.

All urine and serum samples are sent to a commercial lab. Urine specimens are tested using the Gen-Probe Aptima Combo 2 assay (Gen-Probe Inc. San Diego, CA, USA); serum samples are also collected for HIV antibody testing and RPR for syphilis screening (because of the high prevalence of syphilis in our community). Youth may opt out of this testing and therefore are more likely to provide urine samples than serum; additionally, some youth decline HIV testing despite consenting to syphilis testing. Results from the STI testing are entered into a logbook for tracking purposes; this logbook was used to retrieve the patients' charts. Additionally, information (when available) about contraception and drug use was abstracted. The University of Texas-Houston Health Sciences Center's Committee for the Protection of Human Subjects, and the Harris County Child Protective Services approved the study.

We evaluated our data with descriptive statistics and the chi-square test. We compared prevalence of STIs among patients of different race/ethnicity, gender and age, and examined the relationship of sexual intercourse history, condom and drug use with the prevalence of STIs. The level of significance was $p < 0.05$, STATA version 11 was used.

RESULTS

We reviewed 437 charts. The mean age (SD) was 15.0 (1.5) years; 63% of the patients were female (Table 1). Nearly one half of the patients were African-American and living in a shelter when evaluated. Of the adolescents seen, 422 (97%) were screened for chlamydia and gonorrhea, 191 (44%) were screened for syphilis and 170 (39%) for HIV. Chlamydia was the most prevalent STI, with gonorrhea being the second most common (Table 1); six patients were infected with both. There were three cases of syphilis, and no reported cases of HIV, however fewer teens were tested for these infections. Three of the 27 cases of chlamydia were among males; all positive tests for gonorrhea and syphilis were from females. Three of the adolescents who were positive for an STI reported never having sex (oral, anal or genital).

No one reported intravenous drug abuse (IVDA). Nearly 20% of the population reported using both alcohol and tobacco, and 25% reported alcohol and illicit drug use. The only factors significantly associated with having an STI was age 15 or greater, female sex and history of having had sexual intercourse at least once (Table 2). Condom use approached significance ($p = 0.068$) with those reporting condom use being less likely to have an STI.

DISCUSSION

Chlamydia trachomatis is the most commonly reported sexually transmitted infection among adolescents, and a majority of infected individuals are asymptomatic.¹² Current AAP recommendations for children in foster care suggest screening adolescents for STIs when clinically indicated by history or symptoms.¹² Among our patients, the prevalence of chlamydia was 6.4% and 2.8% for gonorrhea, which is comparable to the CDC national data. Lambert et al. found a prevalence of 4.8% and 1.7% for chlamydia and gonorrhea respectively, also with a female predominance; however urine samples for STI testing were excluded in Lambert's study if the youth reported that they had not been sexually active.¹⁰ Most of our patients were asymptomatic and 3 out of 27 of our patients tested positive for chlamydia despite reporting no sexual history, further indicating that adolescent sexual histories can be unreliable. In a large national study, Diclemente et al. found that 10% of teens reporting no sexual activity were positive for STIs.¹³ Current CDC recommendations promote routine screening of all adolescents for chlamydia and HIV, and screening for gonorrhea in all adolescent females and high-risk adolescent males.¹⁴ Based on our study results, the prevalence of sexually transmitted infections in our adolescent patients entering foster care is similar to national averages and screening by history alone would have missed about 10% of chlamydia infections. We agree with current CDC recommendations for routine screening of all adolescents for STIs, including HIV, and recommend that all teens entering foster care be offered testing. Further studies to delineate specific risk factors as well as protective factors that could guide interventions among this population are still needed.

Limitations of this retrospective chart review stem from the accuracy and completeness of the documented records, as well as the reliability of self-reported data collected from the adolescents. Strengths include the large number of subjects and the completeness of the screening for chlamydia and gonorrhea.

CONCLUSIONS

In our study population of adolescents entering foster care, the prevalence of sexually transmitted infections was comparable to national averages. We therefore recommend routine screening of all adolescents in this population for STIs, including HIV, regardless of symptoms or reported history. Routine screening will help to ensure better detection and treatment as well as prevention of complications and transmission to others.

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Implications and Contribution

Adolescents in child protective services (CPS) are at high risk of health problems, including behaviors and histories that could lead to acquiring sexually transmitted infections. This is one of the first studies specifically examining the prevalence of sexually transmitted infections among a cohort of adolescents presenting to a CPS clinic.

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Table 1**Characteristics of Study Population (n=437)**

Age, mean (SD), years	15.01	(1.45)
Range	12-18	
Sex, n (%)		
Female	276	(63.2)
Male	161	(36.8)
Race/Ethnicity		
African American, not Hispanic	200	(45.8)
Caucasian, not Hispanic	109	(24.9)
Hispanic	96	(21.9)
Asian or Pacific Islander	6	(1.4)
Biracial	13	(3.0)
Other/Unknown	13	(3.0)
Placement at time of intake		
Shelter	239	(54.7)
Foster home	60	(13.7)
Residential treatment center	53	(12.1)
Relative	83	(19.0)
Unknown	2	(0.5)
Sexually transmitted Infections		
Urine (n=422)		
Chlamydia	27	(6.4)
Gonorrhea	12	(2.8)
Serum		
Syphilis (n=191)	3	(1.6)
HIV (n=170)	0	(0)
Sexual intercourse and/or abuse ^a		
Has had sex at least once	296	(67.7)
Has never had sex	116	(26.5)
History of sexual abuse	27	(6.2)
Unknown	25	(5.7)
Contraception		
Condoms	114	(26.1)
Birth control pill	4	(0.9)
Depo-provera	2	(0.5)
Intrauterine device (IUD)	1	(0.2)
Withdrawal	1	(0.2)
Condoms and depo-provera	1	(0.2)
None	210	(48.1)
Unknown	104	(23.8)
Drug use – has used at least once ^a		

Alcohol	136	(31.1)
Tobacco	125	(28.6)
Illicit	182	(41.6)
None	179	(41.0)
Unknown	45	(10.3)

^aDoes not total 100% because of overlap of variables

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Table 2

Presence of STI by Characteristics (n=437)

Characteristic	+STI	No STI	<i>p</i> -value
Age ^a			0.004
< 15 years	5	152	
15 years	31	249	
Sex ^a			0.000
Female	33	243	
Male	3	158	
Race/Ethnicity			0.707
African American, not Hispanic	20	180	
Caucasian, not Hispanic	6	103	
Hispanic	9	87	
Asian or Pacific Islander	0	6	
Biracial	1	12	
Other/Unknown	0	13	
Sexual intercourse ^a			0.018
Has had sex at least once	32	264	
Has never had sex	3	113	
Unknown	1	24	
Condoms			0.068
Uses condoms	14	100	
No condom use reported	22	301	
Drug use – has used at least once			0.613
Drug use reported	19	194	
No drug use reported	17	207	

^a *p* 0.05