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Compliance in Rhode Island Emergency Departments With American Academy of Pediatrics Recommendations for Adolescent Sexual Assaults

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Abstract

OBJECTIVES—We assessed the offering of American Academy of Pediatrics–recommended tests and prophylaxes after sexual assault to adolescents who presented to Rhode Island emergency departments for 3 categories of sexual exposures: sexual assault, consensual sex, and suspected sexual abuse.

PATIENTS AND METHODS—This study entailed a retrospective review of visits for adolescent sexual exposures across 11 Rhode Island emergency departments between January 1995 and June 2001. Cases were identified through billing codes. Offering of each test and prophylaxis was compared by gender, category of sexual exposure, and type of sexual assault. Multivariable linear regression models were used to identify factors associated with the offering of a greater number of tests and prophylaxes after sexual assault.

RESULTS—The vast majority of emergency department visits for adolescent sexual exposures were by sexually assaulted girls (82.5%). Across the 3 sexual exposure categories, girls were offered tests and prophylaxes more often than boys (eg, chlamydia or gonorrhea testing and prophylaxis). Among sexually assaulted adolescents, 32.8% of girls and no boys were offered all recommended tests and prophylaxes. The multivariable linear regression found that vaginally and/or anally assaulted girls were offered, on average, 2.5 more tests and prophylaxes than patients with other types of sexual assaults. Girls presenting for care at the state's women's health care specialty hospital emergency departments were offered 1.7 more tests and prophylaxes than those evaluated in general hospital emergency departments.

CONCLUSIONS—Many adolescents did not receive American Academy of Pediatrics–recommended tests and prophylaxes after sexual assault. Boys received fewer tests than girls. Testing and prophylaxis varied by type of emergency department. Efforts are needed to improve and standardize emergency department medical management of adolescent sexual exposures.

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Keywords

adolescent; sexual child abuse; guideline adherence; rape; sexual abuse

The us department of Justice estimates that US adolescents experience higher rates of sexual assaults than adults.[1] Using data from the National Electronic Injury Surveillance System, the Centers for Disease Control and Prevention found that 10- to 19-year-olds are more frequently evaluated for sexual violence in US emergency departments (EDs) than people of other ages.[2] The adequacy of ED management of sexually assaulted adults has been assessed, but comparable studies have not been performed for adolescents.[3–5] In 1994, the American Academy of Pediatrics (AAP) Committee on Adolescence put forth recommendations for the medical management of adolescents who sustained a sexual assault, specifically rape.[6] The recommendations do not provide explicit advice on how to manage other types of sexual exposures, such as after consensual sex or for suspected sexual abuse. As part of the sexual assault evaluation, the committee recommended testing for chlamydia, gonorrhea, syphilis, and pregnancy. The committee also advised that prophylaxis should be offered for chlamydia and gonorrhea and presented recommendations of other experts about offering emergency contraception (EC) to postmenarchal female rape survivors. Updated AAP committee recommendations in 2001 added that HIV postexposure prophylaxis (PEP) could be considered (not explicitly recommended) as part of the regimen for sexually assaulted patients.[7] No additional changes in the recommended tests and prophylaxes have been made with subsequent AAP updates.[8]

The objectives of this study were to examine the adequacy of ED management of adolescent sexual exposures in the State of Rhode Island, in light of the 1994 and 2001 AAP committee recommendations for testing and prophylaxis after sexual assault. Specifically, the investigators quantified and compared the offering and acceptance of testing (chlamydia-gonorrhea, syphilis, and pregnancy) and prophylaxis (chlamydia-gonorrhea, pregnancy, and HIV) by gender for adolescents who were evaluated in EDs for 3 categories of sexual exposures (sexual assault, consensual sex, or suspected sexual abuse). We also investigated the association of clinical and patient demographic factors to clinician compliance with AAP recommendations for sexually assaulted female adolescents.

METHODS

Study Setting and Population

The study included adolescent patients with a history of a sexual exposure who presented for care at any of the 11 civilian EDs in Rhode Island from January 1995 to June 2001. The 11 hospitals included the state's children's hospital, the state's women's health care specialty hospital, and 9 general hospitals. The institutional review boards of all of the hospitals approved the study. The study period followed the release of AAP updated guidelines on adolescent sexual assault management.[6] It also preceded the publication of nonoccupational HIV PEP guidelines by the State of Rhode Island.[9] In 2000, a protocol for the management of sexual assault for children and adolescents was put in place at the state's children's hospital ED. This protocol included guidelines for testing and prophylaxis for sexually transmitted diseases, pregnancy, and HIV.

Adolescents were defined as patients aged 12 to 17 years. ED visits for sexual exposures were categorized as sexual assault, consensual sex, or suspected sexual abuse. Sexual assault was defined as "any contact of an offender with the genitalia of a nonconsenting victim."[6] The classification of sexual exposures as consensual sex was based on the patient's description of the nature and intent of the sexual encounter. At the time of their ED

evaluation, these patients claimed that the sexual encounter was consensual. Suspected sexual abuse evaluations were defined as examinations for suspicion of sexual abuse, primarily because a sibling or household member had been sexually assaulted or abused or because a family member was concerned about sexual abuse in the absence of any supportive evidence of abuse or of a child reporting abuse. At the time of the ED evaluation, these patients did not report being sexually assaulted or abused. It is probable that ED visits classified as sexual abuse evaluations or consensual sex may truly have been sexual assaults; however, this could not be discerned at the time of the initial ED visit. Because the true type of sexual encounter could not be discerned at the time of the ED visit, we classified the exposure based on the report of the clinical evaluation by the examining ED clinician. Using this classification system, we could better evaluate the clinician's offering of tests and prophylaxes by the information that they had during the initial evaluation of these patients.

Case Selection

Hospital billing databases were searched by using *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9) codes to identify these visits. For adolescent sexual exposures, these codes were 995.53 (child sexual abuse), 995.83 (adult sexual abuse), E.960.1 (rape), V15.41 (rape), and V71.5 (observation following rape). Four EDs had separate ED provider and hospital billing databases. These separate billing databases were searched independently to maximize capture of patient visits. For these 4 hospitals, the 2 databases were merged, the duplicates removed, and a single list was generated. For all of the other hospitals, the sole source for cases was the billing database of the hospital.

Data Collection and Processing

Research assistants searched medical charts for all of the patient visits identified by the ICD-9 code-directed billing database query. Each medical chart was reviewed; those visits that were for adolescent sexual exposures were included in this study. Repeat or follow-up visits for the same exposure were excluded. For the visits included in the study, the age and gender of the patient, category of sexual exposure, time of exposure, and ED presentation were recorded on a standardized form. For sexually assaulted adolescents, the exposure contact sustained during the sexual assault (genital touching only, oral sex only, vaginal or anal penetration, or unknown or unclear type of assault) was noted. Also, the type of testing (pregnancy, chlamydia-gonorrhea, and syphilis) and prophylaxis (EC, chlamydia-gonorrhea, and HIV PEP) offered to patients was noted. Patient acceptance of the tests and prophylaxes that were offered were recorded. Two trained research assistants independently entered each form into an Epi Info 2002 database (Centers for Disease Control and Prevention, Atlanta, GA) and then performed a data comparison analysis to verify that all of the forms were entered correctly. Incorrect entries were corrected, and subsequent analyses were performed on this verified database.

Data Analysis

The database was transferred for statistical analysis to Stata 9.2 (Stata Corp, College Station, TX) by using StatTransfer 6 (Circle Systems, Seattle, WA). For each of the 3 sexual exposure categories, the patient age and gender, characteristics of the sexual encounter, and location of their ED evaluation were described with summary statistics. To make comparisons of patients across categories, by age, and by gender, the *k*-sample equality of medians test was used for continuous variables, whereas the Pearson's χ^2 test was used for categorical variables. The investigators calculated the percentage of patients who were offered the tests and prophylaxes, and the number of those who accepted when offered the tests and prophylaxes was calculated, as stratified by gender and sexual exposure category. To limit the analyses to patients for whom the offering or acceptance of pregnancy testing and EC was applicable, patients were excluded from these calculations if they were boys,

currently pregnant, using birth control pills, or known to be premenarchal. In addition, for EC, 7 more patients were excluded because they tested positive for pregnancy during their ED evaluation. Two-sample tests of binomial proportions and Pearson's χ^2 tests were used to evaluate the offering and acceptance of testing and prophylaxis by gender and sexual exposure category. Differences were considered statistically significant at the $\alpha = .05$ level. Risk ratios (RRs) with corresponding 95% confidence intervals (CIs) were calculated to determine the relative risk of patients being offered a given test or prophylaxis compared with the other tests and prophylaxes.

For adolescent female sexual assaults, multivariable linear regressions were performed to identify factors associated with ED clinician offering of more tests and prophylaxes. β coefficients with corresponding 95% CIs were calculated. The factors considered were as follows: type of exposure contact sustained during the sexual assault (genital touching and/or oral sex, vaginal and/or anal intercourse, or unclear and/or unknown sexual contact); patient age; the type of hospital (children's hospital, women's hospital, or general hospital) at which the patient was evaluated; the year the patient presented for an evaluation; and the time elapsed after exposure to ED presentation. Five multivariable models were created. Model 1 included all of the measures for which girls were eligible. Model 2 contained all of the AAP-recommended measures (HIV PEP was excluded). Model 3 included the 3 AAP-recommended tests, whereas model 4 included the 3 prophylaxes. The last model, model 5, looked at the offering of pregnancy testing and EC.

RESULTS

ICD-9 Code Search Results

The ICD-9 code search identified 1101 ED visits for pediatric patients (<18 years old) with sexual exposures. Of these, 1020 (92.6%) were available for review, and 886 (86.9%) of these were verified as visits for pediatric patients with potential sexual exposures, through sexual assault, consensual sex, or suspected sexual abuse. The remaining 134 patients had other diagnoses that were not related to a sexual exposure that represented mistakes in ICD-9 coding. Adolescents (12–17 years old) composed 54.1% of the 886 pediatric patients with sexual exposures. This group of adolescents who presented after sexual exposures composed the 479 subjects included in this analysis.

Demographic and ED Evaluations for Sexual Exposures

Of the 479 adolescent patients, the median age was 15 years (Table 1). The vast majority (95.2%) of all of the sexually-exposed patients were girls. Most patients presented for initial evaluation of their sexual exposure to the state's children's hospital ED (45.3%). Most patients (73.6%) presented within 72 hours of their exposure (when the time elapsed was known). The number of patients evaluated each year varied, but there were no temporal trends across the years.

Table 1 presents the percentages of adolescent patients with sexual exposures stratified into 1 of the 3 exposure categories. Sexual assaults accounted for the largest proportion of sexual exposures (85.8%). The demography of the patients, characteristics of their sexual encounters, and locations of their ED evaluation varied across the sexual exposure categories. Patients in the sexual assault category were older than those in the other categories ($P \leq .001$). The proportion of boys in the suspected sexual abuse category was approximately fourfold greater than the proportion in each of the other 2 categories. The highest proportion of girls was in the sexual assault and consensual sexual exposure categories. As compared with the other 2 exposure categories, a higher percentage of patients in the suspected sexual abuse category were assessed at the state's children's

hospital rather than the other hospitals ($P \leq .001$). The time elapsed since exposure was unknown for a greater proportion of patients in the suspected sexual abuse category (66.7%) than for patients in the sexual assault (6.6%) and consensual sex (15.9%) categories.

Offering and Acceptance of Testing and Prophylaxis

Table 2 provides both the percentages of adolescent patients who were offered and the percentages of patients who accepted testing and prophylaxis when they were offered to them after their sexual exposure, as stratified by sexual exposure category and by gender. Offering of testing and prophylaxis to adolescent patients by ED clinicians varied across sexual exposure categories and gender. For both girls and boys, the percentage of patients offered each test and prophylaxis was generally lower for those in the suspected sexual abuse category than for other patients. Except for chlamydia-gonorrhea prophylaxis, the proportion of patients offered each test and prophylaxis was similar for girls in the sexual assault and consensual sex categories ($P > .15$ for all of the comparisons). An analogous comparison was not possible for boys given the small number of male patients in the consensual sex category. Across all of the sexual exposure categories, girls were significantly more likely than boys to be offered chlamydia-gonorrhea testing and prophylaxis and syphilis testing ($P \leq .002$). There was no difference across all of the categories by gender in the offering of HIV PEP ($P > .05$).

Of the adolescent female sexual assault patients who were seen in the ED within 72 hours, 12.3% were offered the full set of tests and prophylaxes (pregnancy, chlamydia-gonorrhea, and syphilis testing; EC and chlamydia-gonorrhea prophylaxis; and HIV PEP). Excluding HIV PEP, 32.8% were offered all of the AAP-recommended tests and prophylaxes. None of the adolescent male sexual assault patients received all of the 4 possible tests and prophylaxes applicable to boys (chlamydia-gonorrhea and syphilis testing, chlamydia-gonorrhea prophylaxis, and HIV PEP). Even when HIV PEP was excluded, no boys were offered all of the other 3 AAP-recommended tests.

All of the boys accepted testing and prophylaxis when offered to them. For girls, acceptance of testing and prophylaxis when offered was >85% across the tests and prophylaxes for all of the sexual exposure categories with a few exceptions. Less than half of the female adolescent patients offered HIV PEP accepted it, even among patients who presented within 72 hours of their sexual exposure. In the suspected sexual abuse category, acceptance of testing was 75.0% for chlamydia-gonorrhea and 33.3% for syphilis. Overall, acceptance of EC was slightly less than acceptance of chlamydia-gonorrhea prophylaxis, even for those who presented within 72 hours of their exposure.

Offering of testing and prophylaxis also varied by type of test and prophylaxis, particularly for adolescents who were sexually assaulted. Table 3 provides the relative risks of sexual assault patients being offered each of tests and prophylaxes, stratified by gender. Female adolescents had an equal probability of being offered pregnancy and chlamydia-gonorrhea testing and were more likely to be offered these tests than syphilis testing and all 3 of the prophylaxes. HIV PEP was least likely to be offered. On the whole, boys followed similar trends in relative risks of being offered the tests and prophylaxes, but stable estimates for the RRs could not be obtained because the sample size was small for boys.

Correlates of ED Clinician Offering of Tests and Prophylaxes

The results of the multivariable linear regression models identifying factors associated with the offering of more recommended tests and prophylaxes after a sexual assault are shown in Table 4. Because of the limited number of boys with sexual assault, only the findings for girls are presented. As shown in model 1, adolescent female sexual assault patients who

were penetrated vaginally or anally were, on average, offered 2.5 additional tests and prophylaxes compared with patients whose sexual assaults involved genital touching or oral contact only. Patients for whom the specifics of the exposure were unclear or unknown were offered more tests and prophylaxes than those with genital touching or oral contact only. There were no clear trends in the offering of all of the tests and prophylaxes by age. Compared with the 9 general hospitals, more tests and prophylaxes were offered to adolescent patients at the women's health care specialty hospital and, to a lesser extent, the children's hospital. The offering of tests and prophylaxes decreased for patients presenting >72 hours after their sexual assault. There was a general, although nonsignificant, trend toward increased frequency of testing and prophylaxis for patients who presented in more recent years.

Model 2, which does not include HIV PEP, reinforced the associations delineated in model 1. The remainder of the models separated the use of tests (model 3) and prophylaxes (model 4) and highlighted the use of pregnancy testing and EC (model 5). Model 3 found that year of the study and time elapsed since the sexual assault were not associated with test offering. Model 4 demonstrates that offering of prophylaxis increased over time and that prophylaxes were offered less often for patients who presented >72 hours after their sexual exposure. Model 5, which focuses on pregnancy testing and prophylaxis, indicated that pregnancy testing and EC were more frequently offered to older adolescent patients.

DISCUSSION

Adolescents presenting to EDs during the study period who sustained sexual assault did not consistently receive all of the AAP-recommended testing and prophylaxes. These results are similar to those described in studies of adults evaluated in US EDs.[3–5] In addition, some unfortunate differences were noted in the offering of tests and prophylaxes based on the types of hospitals where patients presented for care, with specialty hospitals being more likely to offer comprehensive care after sexual assault. In light of the infrequency of sexual assault visits at each of the general hospitals, centralizing treatment of sexual assault survivors to 1 specialty hospital with the greatest expertise might improve compliance with AAP recommendations. Alternatively, the use of internal protocols for treating adolescent sexual assault, particularly at the children's hospital, where compliance with guidelines was higher than the general hospitals but lower than the women's hospital, may also lead to more consistent care across hospital types.

The absence of recommendations for testing and treatment of adolescents presenting to EDs for suspected sexual abuse and for consensual sex may account for some of the differences in the offering of tests and prophylaxes across sexual exposure categories. For suspected sexual abuse, the AAP suggests a case-by-case approach to the use of tests and prophylaxes as extrapolated from the AAP sexual assault testing and prophylaxis recommendations.[10] As demonstrated in this study, ED clinicians were much less apt to offer tests and prophylaxes to suspected sexual abuse patients, which is probably appropriate given the circumstances of the presentations of these patients. However, the offering of tests and prophylaxes was not in any discernible pattern, which suggests great variability in clinician practice. It should be noted that this category of patients was significant in size, which indicates that ED clinicians encounter these complex case-by-case determinations frequently. The AAP does not provide explicit guidelines addressing tests and prophylaxis for adolescent patients after consensual sex. Nevertheless, ED clinicians choose testing and prophylaxis for adolescent consensual sex exposures and sexual assaults quite similarly. It is likely that these consensual sexual exposures were prompted by a concern by parents or other caregivers that the sexual encounter constituted sexual assault. As such, the ED clinician may have acted under the presumption that a sexual assault occurred. The appropriateness of this practice is not

known. Explicit guidance on the selection of tests and prophylaxes for suspected sexual abuse and consensual sex should assist in promoting uniform practice patterns.

Although the AAP guidelines for chlamydia-gonorrhea and syphilis testing and chlamydia-gonorrhea prophylaxes do not differ for boys and girls, boys were offered fewer tests and prophylaxes than girls. Given that boys make up a much smaller proportion of the adolescent sexual assaults that are seen in the ED, providers may not be as familiar with providing the optimal tests and prophylaxes to these patients. Clarification of appropriate medical management of male patients could improve the use of appropriate testing and prophylaxis.

Even when limiting the analyses to patients who sustained a sexual assault, ED clinicians are favoring certain tests and prophylaxes over other tests and prophylaxes. Adolescent female sexual assault victims are more likely to be offered pregnancy and chlamydia-gonorrhea testing than syphilis testing, EC, and chlamydia-gonorrhea prophylaxis. Patients generally accepted these tests and prophylaxes when offered, which suggests that there is a problem with clinicians not offering these tests. Of course, given the retrospective nature of this study, inconsistent documentation in the ED medical chart of offering when patients declined these measures might explain this finding. Nevertheless, given the inconsistencies in which patients were offered tests and prophylaxes, increased ED clinician education about the AAP recommendations seem needed to improve patient care.

HIV PEP was offered the least often of all of the prophylaxes. It also had a substantially lower acceptance than the other tests and prophylaxes. Although previous studies have found that HIV PEP is being used to some extent by US ED clinicians for pediatric sexual exposures,[11–18] it has not been definitively recommended by the AAP.[19] Although likely underreported, there have been confirmed cases of HIV transmission through child sexual abuse that involved recurrent sexual contact.[20] The use of HIV PEP for nonoccupational exposures in pediatric patients requires additional study and clarification. Potential factors that might interfere with patients accepting HIV PEP should also be considered, including the cost and availability of HIV PEP, the lengthy recommended duration of treatment, concern about adverse effects, and discouragement from clinicians.

Although the results of this study represent a positive step in evaluating the adequacy of ED management of adolescent sexual exposures and identifying factors that may increase the offering of recommended tests and prophylaxes offered, the findings should be interpreted in the context of the study's limitations. ICD-9 coding mistakes could have prevented some cases from appearing in the billing databases and, hence, could not be included in this study. The data were collected from patient medical charts, and, thus, documentation failures may explain why tests and prophylaxes seemed not to be offered. Because of poor documentation, we were unfortunately unable to evaluate the use of HIV testing. Laboratory databases at these hospitals, which were not available to us, would have helped clarify which patients actually underwent the tests that were offered to them. However, the relative differences observed across tests would not be affected by documentation or mistakes in ICD-9 coding. Classification of patients into exposure categories was also limited by the information recorded in the medical charts; however, enough information was available for analyses. In addition, there are likely many ways that adolescent sexual exposures could be classified. This study's classification categories sought to distinguish groups of patients based on what is known to the ED clinician at the time of the ED visit. It is possible that, if the ED visits were classified differently, the observed results could vary. Some patient records could not be located, but there is no reason to suspect that missing data biased the outcomes of the study. In addition, clinical practices might vary across states, so the findings from EDs in the study state might not be applicable to all of the other states in the United

States. However, AAP guidance on adolescent sexual assault is available nationally, and this study demonstrates some significant gaps in adherence to these standards, which may have resulted in unwanted infections and unintended pregnancies. More intensive clinical education about these issues might lead to improved practices and clinical outcomes. Finally, the data presented here are from 1995 through 2001 and might not be reflective of current clinical practice. However, because there has been no significant change in AAP recommendations since this study was conducted, it is unlikely that practice has changed significantly. In addition, the concerns raised in this study about variations in clinical practice patterns are noteworthy and are not likely to have changed with the passage of time. We do hope that future studies can investigate whether clinical practice patterns are noticeably different.

CONCLUSIONS

Tests and prophylaxes are not being consistently offered in compliance with AAP recommendations in Rhode Island EDs to adolescent sexual assault survivors. Adolescent boys are offered testing less often than girls. ED clinicians are favoring some of the appropriate tests and prophylaxes over others, although there is no preference delineated by the AAP for particular tests or prophylaxes. Additional research should be directed toward eliminating these deficiencies and improving compliance with AAP recommendations. Explicit recommendations for tests and prophylaxes for patients who present for care after consensual sexual exposures and suspected sexual abuse are needed.

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Abbreviations

ED	emergency department
AAP	American Academy of Pediatrics
EC	emergency contraception
PEP	postexposure prophylaxis
ICD-9	*International Classification of Diseases, Ninth Revision, Clinical Modification*
RR	risk ratio
CI	confidence interval

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What's Known on This Subject

Although there have been studies that examined adequacy of treatment after sexual assault for adult patients, little is known about how well emergency departments comply with AAP recommendations for sexually assaulted or abused pediatric patients.

What This Study Adds

This study illustrates that compliance with AAP recommendations varies according to type of hospital. In addition, ED clinicians favor certain types of tests and prophylaxes. The difficulty in applying recommendations for patients whose sexual exposure was unclear or potentially consensual in nature is highlighted.

TABLE 1

Adolescent Sexual Exposures: ED Evaluations

Variable	All Patients (*n* = 479)	Sexual Assault (*n* = 411)	Suspected Sexual Abuse (*n* = 24)	Consensual Sex (*n* = 44)
Median age (range), y	15 (12–17)	15 (12–17)	14 (12–17)	14 (12–17)
Gender				
Male, %	4.8	3.9	20.8	4.6
Female, %	95.2	96.1	79.2	95.4
Hospital type				
State children's hospital, %	45.3	41.9	79.2	59.1
State women's hospital, %	27.8	30.4	4.2	15.9
General hospitals, %	26.9	27.7	16.6	25.0
Year of presentation				
1995, %	6.1	6.6	0.0	4.6
1996, %	11.1	10.0	25.0	13.6
1997, %	16.1	16.0	12.5	18.2
1998, %	16.9	17.3	25.0	9.1
1999, %	20.0	21.2	12.5	13.6
2000, %	17.3	16.3	16.7	27.3
2001, %[a]	12.5	12.6	8.3	13.6
Hours elapsed since exposure, *n*[b]	429	384	8	37
<24, %	31.9	32.6	37.5	24.3
24–48, %	29.6	29.2	37.5	32.5
49–72, %	12.1	11.7	12.5	16.2
>72, %	26.4	26.5	12.5	27.0

[a] Data are from January to June 2001.

[b] Hours elapsed since exposure was not available for all of the patients.

TABLE 2

Adolescent Sexual Exposure Management

Variable	Pregnancy, Female	Testing				Prophylaxis					Prophylaxis Within		
		Chlamydia-Gonorrhea		Syphilis		EC[b,c]	Chlamydia-Gonorrhea		HIV PEP[d]		EC (<72 h)[b,d]	HIV PEP (<72 h)[e]	
		Female	Male	Female	Male	Female	Female	Male	Female	Male	Female	Female	Male
All patients, *n*	450	456	23	456	23	443	456	23	454	23	302	306	8
Offered, %	77.3	72.8	34.8	54.8	21.7	40.9	53.1	8.7	13.9	4.3	52.6	18.0	12.5
Accepted when offered, %	99.4	100.0	100.0	100.0	100.0	86.2	90.9	100.0	46.0	100.0	86.8	45.5	100.0
Sexual assault, *n*	389	395	16	395	16	382	395	16	393	16	268	272	8
Offered, %	77.4	74.7	37.5	56.7	25.0	43.2	56.7	12.5	15.0	6.3	55.2	19.1	1.3
Accepted when offered, %	99.3	100.0	100.0	100.0	100.0	85.5	91.1	100.0	47.5	100.0	85.8	46.2	100.0
Sexual abuse evaluation, *n*	19	19	5	19	5	19	19	5	19	5	7	7	0
Offered, %	65.0	42.1	0.0	15.8	0.0	5.3	10.5	0.0	0.0	0.0	0.0	0.0	NA
Accepted when offered, %	100.0	75.0	NA	33.3	NA	100.0	100.0	NA	NA	NA	NA	NA	NA
Consensual sex, *n*	42	42	2	42	2	42	42	2	42	2	27	27	0
Offered, %	81.0	69.0	100.0	54.8	50.0	35.7	38.1	0.0	9.5	0.0	40.7	11.1	NA
Accepted when offered, %	100.0	96.6	100.0	95.7	100.0	93.3	87.5	NA	25.0	NA	100.0	33.3	NA

NA indicates not applicable.

[a] Data exclude those premenarche, known pregnant, and taking birth control.

[b] Data exclude those premenarche, known or tested pregnant, taking birth control.

[c] Emergency contraception is also called the “morning-after pill” or postcoital contraception.

[d] Data exclude those with low or no HIV risk exposures and source known negative exposures.

[e] Data exclude those with low or no HIV risk exposures, source known negative exposures, and those who did not present in the 72-hour window.

TABLE 3

Adolescent Sexual Assaults, Relative Risks of Testing, and Prophylaxes Being Offered

Variable	Testing, RR (95% CI)			Prophylaxis, RR (95% CI)		
	Pregnancy	Chlamydia-Gonorrhea[a]	Syphilis	EC (<72 h)[b]	Chlamydia-Gonorrhea[a]	HIV PEP (<72 h)
Girls						
Testing						
Pregnancy	—	0.97 (0.89–1.04)	0.73 (0.66–.0.81)	0.71 (0.63–0.81)	0.73 (0.66–0.81)	0.25 (0.19–0.32)
Chlamydia-gonorrhea[a]	1.04 (0.96–1.12)	—	0.86 (0.76–0.97)	0.73 (0.65–0.84)	0.76 (0.68–0.84)	0.26 (0.20–0.33)
Syphilis	1.36 (1.23–1.51)	1.32 (1.19–1.46)	—	0.97 (0.85–1.12)	1.00 (0.89–1.13)	0.34 (0.26–0.44)
Prophylaxis						
EC (<72 h)[b]	1.40 (1.24–1.58)	1.35 (1.20–1.53)	1.03 (0.89–1.18)	—	1.03 (0.89–1.18)	0.35 (0.27–0.45)
Chlamydia-gonorrhea[a]	1.36 (1.23–1.51)	1.31 (1.18–1.46)	1.00 (0.89–1.13)	0.97 (0.85–1.12)	—	0.34 (0.26–0.44)
HIV PEP (<72 h)	4.04 (3.15–5.20)	3.91 (3.04–5.02)	2.97 (2.29–3.84)	2.89 (2.21–3.77)	2.97 (2.29–3.84)	—
Boys						
Testing						
Chlamydia-gonorrhea[a]	NA	—	0.67 (0.23–1.92)	NA	0.33 (0.08–1.41)	0.33 (0.05–2.32)
Syphilis	NA	1.5 (0.52–4.32)	—	NA	0.50 (0.11–2.35)	0.50 (0.07–3.77)
Prophylaxis						
Chlamydia-gonorrhea[a]	NA	3.0 (0.71–12.69)	2.0 (0.42–9.42)	NA	—	1.0 (0.11–9.44)
HIV PEP (<72 h)	NA	3.0 (0.43–20.9)	2.0 (0.27–15.08)	NA	1.0 (0.11–9.44)	—

NA indicates not applicable.

[a] Testing or prophylaxis were for either chlamydia and/or gonorrhea.

[b] Emergency contraception is also called the “morning after pill” or postcoital contraception.

TABLE 4

Regression Analyses, Impact of Factors on Tests and Prophylaxes Offered to Female Sexual Assault Victims

Variable	Model 1, No. of Tests and Prophylaxes (*n* = 353), *β* (95% CI)	Model 2, No. of Tests and Prophylaxes Excluding HIV PEP (*n* = 353), *β* (95% CI)	Model 3, No. of Tests (*n* = 366), *β* (95% CI)	Model 4, No. of Prophylaxes (*n* = 353), *β* (95% CI)	Model 5, Use of Pregnancy Testing and EC (*n* = 353), *β* (95% CI)
Exposure contact					
Genital touching or oral	Reference	Reference	Reference	Reference	Reference
Vaginal and/or anal	2.51 (2.07 to 2.94)	2.34 (1.95 to 2.74)	1.44 (1.17 to 1.72)	1.06 (0.78 to 1.34)	0.78 (0.58 to 0.99)
Unclear and/or unknown	1.69 (1.13 to 2.26)	1.59 (1.07 to 2.11)	1.14 (0.78 to 1.50)	0.56 (0.20 to 0.92)	0.48 (0.22 to 0.75)
Age to y					
12	Reference	Reference	Reference	Reference	Reference
13	0.40 (−0.19 to 0.99)	0.25 (−0.29 to 0.79)	0.14 (−0.24 to 0.52)	0.26 (−0.12 to 0.64)	0.21 (−0.06 to 0.49)
14	0.25 (−0.30 to 0.81)	0.17 (−0.34 to 0.69)	0.07 (−0.28 to 0.42)	0.16 (−0.19 to 0.52)	0.25 (−0.01 to −0.51)
15	0.59 (0.02 to 1.15)	0.46 (−0.06 to 0.98)	0.22 (−0.14 to 0.58)	0.36 (0.00 to 0.72)	0.40 (0.14 to 0.67)
16	0.56 (−0.02 to 1.13)	0.52 (−0.01 to 1.04)	0.28 (−0.08 to 0.65)	0.27 (−0.09 to 0.64)	0.41 (0.15 to 0.69)
17	0.37 (−0.23 to 0.96)	0.29 (−0.25 to 0.83)	0.21 (−0.35 to 0.40)	0.34 (−0.04 to −0.72)	0.31 (0.04 to 0.59)
Hospital type					
General hospitals	Reference	Reference	Reference	Reference	Reference
State's women's hospital	1.65 (1.29 to 2.02)	1.44 (1.11 to 1.77)	0.81 (0.58 to 1.03)	0.85 (0.62 to 1.08)	0.48 (0.32 to 0.65)
State's children's hospital	0.38 (0.03 to 0.73)	0.32 (−0.01 to 0.64)	0.21 (−0.01 to 0.43)	0.18 (−0.05 to 0.40)	0.19 (0.03 to 0.35)
Year					
1995	Reference	Reference	Reference	Reference	Reference
1996	−0.03 (−0.71 to 0.64)	−0.12 (−0.73 to 0.51)	0.08 (−0.35 to 0.51)	−0.12 (−0.55 to 0.31)	−0.26 (−0.57 to 0.06)
1997	0.11 (−0.52 to 0.75)	−0.02 (−0.60 to 0.57)	0.04 (−0.36 to 0.44)	0.09 (−0.31 to 0.50)	−0.10 (−0.40 to 0.19)
1998	0.05 (−0.57 to 0.67)	−0.16 (−0.74 to 0.41)	−0.21 (−0.61 to 0.18)	0.25 (−0.15 to 0.65)	−0.10 (−0.39 to 0.19)
1999	0.28 (−0.34 to 0.90)	−0.02 (−0.58 to 0.55)	−0.09 (−0.48 to 0.31)	0.35 (−0.04 to 0.75)	−0.15 (−0.44 to 0.14)
2000	0.73 (0.08 to 1.37)	0.35 (−0.24 to 0.94)	0.10 (−0.31 to 0.51)	0.59 (0.18 to 1.00)	0.05 (−0.25 to 0.35)
2001	1.22 (0.56 to 1.89)	0.75 (0.14 to 1.36)	0.35 (−0.07 to 0.78)	0.86 (0.44 to 1.28)	0.20 (−0.11 to 0.51)
Hours elapsed since exposure					
<24	Reference	Reference	Reference	Reference	Reference
24–48	0.13 (−0.22 to 0.47)	0.21 (−0.10 to 0.53)	0.12 (−0.10 to 0.34)	0.01 (−0.22 to 0.23)	0.14 (−0.03 to 0.30)
49–72	0.44 (−0.02 to 0.91)	0.43 (0.01 to 0.86)	0.22 (−0.08 to 0.52)	0.24 (−0.06 to 0.53)	0.23 (0.01 to 0.45)

Variable	Model 1, No. of Tests and Prophylaxes (n = 353), β (95% CI)	Model 2, No. of Tests and Prophylaxes Excluding HIV PEP (n = 353), β (95% CI)	Model 3, No. of Tests (n = 366), β (95% CI)	Model 4, No. of Prophylaxes (n = 353), β (95% CI)	Model 5, Use of Pregnancy Testing and EC (n = 353), β (95% CI)
>72	−0.52 (−0.89 to −0.15)	−0.36 (−0.69 to −0.02)	0.15 (−0.24 to 0.84)	−0.68 (−0.92 to −0.45)	−0.18 (−0.35 to −0.01)