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Physician adherence to CDC guidelines for sexually active adolescents in the pediatric emergency setting

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Abstract

Objectives—There is limited literature about physicians' adherence to 2010 CDC Sexually Transmitted Diseases Treatment Guidelines specific to specimen collection/testing methods in adolescent females in the emergency setting. The objectives are to 1) Determine physician adherence to CDC guidelines for specimen collection/testing for chlamydia and gonorrhea, 2) Determine physician characteristics associated with guideline adherence and 3) Describe physicians' knowledge of expedited partner therapy (EPT) laws.

Methods—This is a cross sectional, anonymous, Internet-based survey of physician members of the American Academy of Pediatrics Section of Emergency Medicine. Questions addressed practice patterns and knowledge through clinical scenarios of adolescent females. Descriptive statistics are used to report frequency. Chi square and Fisher's exact analyses are used to compare physician subgroups: gender, years in practice, practice setting and geographical region.

Results—Overall, 257 physicians responded and 231 were analyzed; 62.4% female; 46.0% in practice for 7 years; 86.2% in academic medicine. Specimen collection/testing in an *asymptomatic* patient were consistent with guidelines for 85.6% of respondents, but decreased to 37.4% for a *symptomatic patient*. Guideline adherence was not different between physician subgroups. Only 30.4% of physicians reported state EPT law knowledge.

Conclusions—Adherence with the CDC guidelines for chlamydia/gonorrhea specimen collection/testing for adolescents in the emergency setting is inadequate and EPT knowledge is poor. With increased ED use by adolescents, it is critical physicians know and implement the current recommendations to improve adolescent health outcomes.

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Introduction

Sexually transmitted infections (STIs) are a significant problem among adolescents that may result in considerable morbidity if left untreated. Half of all new cases of STIs diagnosed each year are among adolescents aged 15–24 years.¹ The Centers for Disease Control and Prevention (CDC) Sexually Transmitted Diseases Treatment Guidelines contain information on target populations, specimen testing/collection, and treatment.² The optimal *specimen* for chlamydia and gonorrhea testing in females is a provider or self-collected vaginal swab.^{2,3} A first void urine is acceptable, but will detect about 10% fewer infections.^{2–4} Cervical swabs requiring a more invasive speculum exam, while still acceptable, are no longer routinely recommended and their use should be limited.^{2,3,5} Indications for a speculum exam include lower abdominal pain and persistent vaginal discharge (Table 1).⁶ The recommended *test* is nucleic acid amplification testing (NAAT) because it is more accurate than traditional cultures for detecting chlamydia and gonorrhea genital tract infections.^{2–4}

Optimal STI treatment is critical for adolescent females given the serious health consequences of untreated infections that include pelvic inflammatory disease and infertility. Adolescents are also known to have high rates of re-infection that are independently associated with the failure to treat their sexual partners.^{7,8} Providers should discuss with their adolescent patients the treatment of their sexual partners. In 2006, the CDC recommended expedited partner therapy (EPT) for the treatment of heterosexual partners in the past 60 days of patients diagnosed with chlamydia and/or gonorrhea when it is unlikely the partner will seek care.^{2,9} EPT has been associated with decreased gonorrheal or chlamydial infections in the index patient at follow up compared to standard referral requiring patients to notify partners themselves.¹⁰ While state statutes vary regarding this practice, EPT allows providers to either prescribe or dispense medication to their patients to give to their sexual partners without the provider ever examining the partner.^{9,11}

Millions of adolescents use the emergency department (ED) as their primary site for healthcare.¹² From 1997 to 2007, ED use increased by 22% among those <18 years old.¹³ Furthermore, ED utilization increases with increasing adolescent age, especially among females with genitourinary complaints.¹⁴ Recent literature estimates the prevalence rate of asymptomatic chlamydia or gonorrhea infections in pediatric ED to be about 5% and as high as 26% in symptomatic females.^{15–18} Prior research shows it is acceptable and feasible to provide some routine screening in the ED and thus STI screening in the ED may become standard care.^{18–20} The combination of high burden of adolescent STIs, increasing ED use and push for using the ED to screen asymptomatic patients positions physicians practicing in the pediatric emergency setting to be leaders in improving the testing and treatment of STIs. Doing so requires knowledge of the STI guidelines and proper adherence from physicians.

Translation of CDC recommendations into clinical practice has been shown to be inadequate.^{21–23} STI screening is infrequently performed in pediatric primary care clinics and a study of emergency medicine providers found only 24% adhered to the CDC pelvic inflammatory disease treatment guidelines in females 12 years and older.^{21,23} It is not known if physicians practicing pediatric emergency medicine adhere to the specimen collection/testing method portion of the 2010 CDC Sexually Transmitted Diseases

Treatment Guidelines (referred throughout as STI collection/testing guidelines) for chlamydia and gonorrhea in adolescent females.

The primary objective of this study is to determine adherence to the STI collection/testing guidelines for chlamydia and use of EPT in adolescent females by physicians practicing in the pediatric emergency setting. Secondary objectives are to determine physician characteristics associated with adherence to the STI collection/testing guidelines and physician knowledge of state EPT laws.

Materials and Methods

This is a national, anonymous, cross sectional internet-based survey of physicians providing emergency medical care for adolescents. The institutional review board of Children's Hospital of Wisconsin approved this study. Qualtrics (www.qualtrics.com), an internet based survey tool, was used to create the survey, which was selected and approved by the American Academy of Pediatrics (AAP) Section of Emergency Medicine (SOEM). Any AAP member with an interest in pediatric emergency medicine can be part of the AAP SOEM, therefore respondents included pediatric emergency medicine physicians, emergency medicine physicians and general pediatricians, but membership is not limited to these specialties. As primary recruitment, the survey link was emailed to physician members of the AAP SOEM. Over a 9 week period (April—June 2013), participants received the initial recruitment email in addition to two more reminders. As a secondary recruitment method, 19 colleagues practicing in pediatric emergency departments from across the United States were asked to email the survey link to their practice partners; 242 survey links were distributed to 11 institutions (Figure 1). Physicians were asked to complete the survey if they had not previously done so through the AAP SOEM. This secondary recruitment period (July—September 2013) was also 9 weeks and was performed in a similar manner. Inclusion criteria were 1) English speaking physician and 2) provide care for adolescent females requiring assessment for chlamydia/gonorrhea. Resident physicians and students were excluded from the study population. Incomplete responses (surveys with three or fewer questions answered) and those from respondents outside the United States were excluded from analysis.

The 10 minute, multiple choice 24-question survey was designed to query adherence with the STI collection/testing guidelines and use of EPT. Survey ideas and concepts were generated and categorized into four domains: specimen collection, specimen testing, use of EPT and EPT laws. After eliminating redundant items, the survey was formatted to develop succinct stems and appropriate response formats.²⁴ Face validity of the survey was affirmed by a multi-disciplinary team of experts in the field, and ease of use and readability was pilot tested with 10 pediatricians. The survey included demographic questions and 4 different clinical adolescent scenarios with questions regarding the providers' choice of specimen collection method and testing, as well as knowledge and use of expedited partner therapy (Appendix A). In all scenarios, the female adolescent patient had sex with one male partner with intermittent condom use. Scenarios differed by age of the patient and presence of acute discharge in either the patient or partner. Adherence to the STI collection/testing guidelines was defined as obtaining either a vaginal swab (provider or self-collected) or a urine sample

and performance of a NAAT. Since obtaining a cervical swab is not routinely recommended and performing a culture is not the standard, for purposes of this study they were considered wrong answers. The survey had polymerase chain reaction (PCR) in the answer instead of NAAT. PCR is a common NAAT and will therefore be referred to NAAT throughout. Participants were only allowed to select one answer per question, but could skip questions if desired. At the completion of the survey, participants were provided a summary of the STI collection/testing and EPT recommendations to facilitate advancement of provider's practice.

Descriptive statistics were performed to summarize demographic variables, adherence to the STI collection/testing guidelines and use/knowledge of EPT. Use of EPT was not analyzed with adherence to the STI collection/testing guidelines. Physician subgroups of interest included gender, years in practice (< 7 years or ≥ 8 years), practice type (academic or private) and geographical region (per United States region census).²⁵ To determine the accuracy of the EPT knowledge questions, participants were analyzed according to the legal status of EPT in their state (ie permissible, prohibited, or potentially allowable). Respondents residing in 'potentially allowable' states were excluded since the only survey answers allowed were 'allowed,' 'not allowed' or 'do not know.' Chi square test was used to compare categorical variables and in cases of low frequency of groups, Fisher's Exact test was used for comparison (SAS V 9.2, Cary, IN). An alpha of 0.05 was used for all statistical calculations.

Results

Two hundred fifty-seven (22.3%) responded to the survey, although 23 incomplete (three or less questions answered) surveys and three surveys from respondents outside the United States were excluded from analysis. Two hundred thirty-one surveys were included in the data analysis. Respondent characteristics are described in Table 2 with representation by gender, years in practice, practice type and region of the United States. Almost all the physicians were pediatric trained (96.9%) and practiced in a children's or general ED (96.9%).

Physician management of each scenario is presented in Table 3. Adherence to the STI collection/testing guidelines for asymptomatic females aged 14 and 18 were 87.4% and 85.6%, respectively. Adherence was lower if the partner reported symptoms (85.6% vs 70.4%, $p<0.001$) and was significantly lower when the patient developed vaginal discharge (85.6% vs 37.4%, $p<0.001$). Use of the cervical swab specimen was the most common response that did not adhere to the STI collection/testing guidelines. Sixty-one percent of physicians obtained a cervical swab when the patient was symptomatic with acute vaginal discharge. Prescription of EPT was consistently low in each scenario; 15.4% of symptomatic patients were prescribed EPT.

No significant difference in proportion of physicians that adhered to the STI collection/testing guidelines was found when comparing subgroups by gender, years in practice, practice type or geographical region there was (Table 4). There was no difference in the proportion of physicians prescribing EPT by gender, years in practice, and practice type (Table 5). The proportion of physicians prescribing EPT was significantly different among

geographical regions for the asymptomatic female patient with a symptomatic partner scenario. The Midwest had the lowest use of EPT and the West the highest (Midwest 5.3% vs Northeast 18.9% vs South 6.0% vs West 26.3%, $p=0.006$).

Few respondents, 68 (30.4%), report knowledge of their state EPT laws. Respondents practicing in an academic setting were more likely to self-report knowledge of state EPT laws compared to those in private practice (33.2% vs 13.3%, $p=0.03$). There was no difference in knowledge of EPT when comparing provider gender ($p=0.29$), years in practice ($p=0.22$), or region ($p=0.57$). We evaluated the accuracy of the 68 participants that reported knowledge of their state's EPT laws. Thirteen were excluded from this analysis, three did not report a state and ten live in states in which EPT is 'potentially allowable' therefore accuracy could not be determined. Fifty-five participants were included in this analysis. Thirty-seven (67.3%) thought their state allows EPT and most, 34 (91.9%), were correct. Eighteen (32.7%) thought their state prohibits EPT and 7 (38.9%) were correct. Overall, 41 (17.7%) of all study participants had correct knowledge of state EPT laws.

Discussion

This study demonstrated adherence to the STI collection/testing guidelines by physicians in the pediatric emergency setting was poor for symptomatic adolescent female patients. Use of a cervical swab instead of a vaginal swab or urine sample was the most common reason for lack of adherence. This is noteworthy because vaginal swabs are as accurate for diagnosis as cervical swabs and are less invasive and anxiety provoking to adolescents.^{4,26} The high prevalence of chlamydia/gonorrhea among symptomatic adolescent females in the ED and push for screening in the ED highlights the importance of improved STI collection/testing guideline adherence and increased use of EPT.^{15,17,18}

Comparison of physician subgroups found no differences in the STI collection/testing guideline adherence. Review of previous literature, including the use of emergency contraception among physicians in the emergency setting, does not show any consistent trends in adherence to guidelines based on provider characteristics such as gender, years in practice, geographical region or practice type.^{21,27-29} Therefore our results are not unexpected and support the use of broadly implemented interventions to improve collection/testing adherence instead of targeting specific subgroups.

A lag in knowledge translation may be one reason for discrepancy between the guideline recommendations and the reported physician practice. Knowledge translation is defined as "a dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve the health of patients, provide more effective health services and products and strengthen the health care system," by the Canadian Institutes of Health Research.³⁰ These findings are consistent with the Institute of Health report that it takes 17 years for new knowledge to be translated into clinical practice.³¹ Prior studies have shown lack of adherence may be multifactorial including a lack of knowledge of the updated guidelines, derivation of guidelines outside of emergency medicine, distrust/disagreement with the recommended collection/testing methods and EPT, multiple/complex recommendation, and hesitancy to change.^{22,32-36} While our study did not

specifically address why there is a lack of adherence to the guidelines, it is not unreasonable to assume these factors play a role in our participant adherence.

Although EPT is effective and supported by the CDC, AAP, Society for Adolescent Health and Medicine, and the American College of Obstetrics and Gynecology,^{9,37-39} our study highlighted that the physicians we studied rarely prescribe EPT. During study recruitment, EPT was permissible in 32 states by law, potentially allowed in 11 states including District of Columbia, and prohibited in 7 states.¹¹ Cramer et al used data from the STI Surveillance Network and found 9.5% of patients eligible for EPT reported receiving EPT for their partner, similar to what was observed in our study.⁴⁰ A nine state study of physicians practicing in specialties that treat adolescents, found while 63% of providers support EPT, only 20% reported ever offering EPT.⁴¹ Barriers to prescribing EPT have been identified including minimal physician resident education, costs, and legal considerations.⁴⁰⁻⁴⁵ Most of the physicians surveyed in our study did not know state EPT laws and of those who thought EPT was illegal, over half were incorrect. EPT is governed by the state, not national law, and there is wide variation in state practices. For example, in some states the medication can be dispensed, opposed to a prescription for the medication, and in others, if the patient does not know or is unwilling to disclose the partner's name, the provider is allowed to write 'expedited partner therapy' instead of a name on the prescription. Electronic medical record prescribing may also hinder EPT prescription, as it is difficult to electronically prescribe to the partner if he/she is not registered in the medical records.⁴⁶

This study has limitations. As primary recruitment, the survey was only emailed to members of the AAP which may be a biased sample. But as the largest pediatrician organization with national representation, this sampling provided the optimal cross section of pediatricians working in the emergency setting. The recruitment methodology used may have included non-AAP SOEM physicians, yet all participants in the secondary recruitment were PEM trained. There was no mechanism in place to prohibit physicians from taking the survey multiple times which would reduce the response rate. These results may not be generalized to other physician subspecialties. Those who did participate may have an interest in this topic or may have responded differently from actual practice both of which potentially overestimates adherence to the STI collection/testing guidelines and EPT use/knowledge. Lastly, the survey sent to participants stated 'PCR' in the survey answers, instead of 'NAAT'. As there are other forms of NAATs available, some participants may not have recognized PCR as a form of NAAT.

Our study found poor physician compliance with the STI collection/testing guidelines for chlamydia and gonorrhea in adolescent females. Additionally, use of expedited partner treatment for adolescents in the emergency setting is inadequate. This study highlights the need for improved adherence to the STI collection/testing guidelines, increased EPT knowledge, and appropriate EPT use in the ED setting. Results may inform the development of a novel intervention to optimize care and bridge the gap between knowledge and practice in the pediatric ED setting.

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Appendix A

(Questions with correct responses are **bolded**)

Q1 What percentage of the population that you treat is aged 14–18 years?

- <25%
- 25–50%
- >50%
- Do not know/unsure

Q2 If appropriate in the context of the patient visit, do you test/screen for gonorrhea/chlamydia?

- Yes

- No, do not have the equipment to perform those tests
- No, performing those tests is not within the scope of my practice

Q3 During the average month, how often do you test/screen for gonorrhea or chlamydia in adolescent female patients, less than 18 years old?

- Monthly (1–2 times per month)
- Weekly (>5 times per month)
- Daily (>25 times per month)
- Multiple times a day (>40 times per month)

Q4 A 14 year old female presents requesting testing for gonorrhea and chlamydia. She is sexually active with a male partner. Sometimes they use condoms. Neither she nor her partner has had any symptoms. How would you collect a sample for gonorrhea/chlamydia testing for this asymptomatic 14 year old patient?

- Speculum exam with cervical swab for culture
- Speculum exam with cervical swab for NAAT*
- Provider vaginal swab for culture
- Provider vaginal swab for NAAT***
- Patient self vaginal swab for culture
- Patient self vaginal swab for NAAT***
- Urine sample for NAAT***
- Observe, no testing at this time
- Do not know/unsure

Q5 If treatment is indicated for this asymptomatic 14 year old female, with regards to her partner, do you:

- Give her a prescription for her partner (expedited partner therapy)
- Recommend that her partner be seen by a healthcare provider
- Not discuss her partner's therapy
- Treatment is not indicated

Q6 A female patient presents with the same complaints as the previous scenario. Please note the patient is now an 18 years old female. How would you collect a sample for gonorrhea/chlamydia testing for this asymptomatic 18 year old female?

- Speculum exam with cervical swab for culture
- Speculum exam with cervical swab for NAAT*
- Provider vaginal swab for culture
- Provider vaginal swab for NAAT***
- Patient self vaginal swab for culture
- Patient self vaginal swab for NAAT***
- Urine sample for NAAT***
- Observe, no testing at this time
- Do not know/unsure

Q7 If treatment is indicated for this asymptomatic 18 year old female with regards to her partner, do you:

- Give her a prescription for her partner (expedited partner therapy)
- Recommend that her partner be seen by a healthcare provider
- Not discuss her partner's treatment
- Treatment is not indicated

Q8 The same 18 year old female from the previous scenario presents requesting testing for gonorrhea and chlamydia. She remains asymptomatic, but now her male partner has penile discharge. How would you collect a sample for gonorrhea/chlamydia testing for this asymptomatic 18 year old female, with a symptomatic partner?

- Speculum exam with cervical swab for culture
- Speculum exam with cervical swab for NAAT*
- Provider vaginal swab for culture
- Provider vaginal swab for NAAT***
- Patient self vaginal swab for culture
- Patient self vaginal swab for NAAT***
- Urine sample for NAAT***
- Observe, no testing at this time
- Do not know/unsure

Q9 If treatment is indicated for this 18 year old female with regards to her symptomatic partner, do you:

- Give her a prescription for her partner (expedited partner therapy)
- Recommend that her partner be seen by a healthcare provider
- Not discuss her partner's treatment
- Treatment is not indicated

Q10 The same 18 year old female from the previous scenario presents requesting testing for gonorrhea and chlamydia. She was asymptomatic, but now is complaining of vaginal discharge. How would you collect a sample for gonorrhea/chlamydia testing for this symptomatic 18 year old female?

- Speculum exam with cervical swab for culture
- Speculum exam with cervical swab for NAAT*
- Provider vaginal swab for culture
- Provider vaginal swab for NAAT***
- Patient self vaginal swab for culture
- Patient self vaginal swab for NAAT***
- Urine sample for NAAT***
- Observe, no testing at this time
- Do not know/unsure

Q11 If treatment is indicated for this symptomatic 18 year old female, with regards to her partner, do you:

- Give her a prescription for her partner (expedited partner therapy)
- Recommend that her partner be seen by a healthcare provider
- Not discuss her partner's treatment
- Treatment is not indicated

Q12 If offered a choice, which method of collection do you think your female adolescent patients would prefer?

- Speculum exam with cervical swab
- Provider vaginal swab
- Patient self vaginal swab
- Urine sample

Q13 What do you think is the biggest barrier to using the method of collection that your patients would choose in the previous question?

None, I use that method of collection

- I do not have access to the equipment to perform those tests

- I do not think that method is the recommended collection method
- I do not know if my patients will correctly collect the specimen
- Do not know/unsure (5)

Q14 In which state does the majority of your clinical practice occur?

Q15 With regards to treating partners of patients, the laws of my state in which the majority of my practice is located:

- Allow a provider to treat sexual partners for gonorrhea/chlamydia without having an established provider-patient relationship
- Do not allow a provider to treat sexual partners for gonorrhea/chlamydia without having an established provider-patient relationship
- I do not know the laws of my state for treating partners for STI

Q16 If your patient does not know or is unwilling to disclose her partners' names, my state law:

- Allows me to write "expedited partner therapy" or "EPT" instead of a name on the prescription
- Does not allow me to write a prescription
- I do not know my state law regarding this topic

Q17 How familiar are you with the most recent CDC guidelines for gonorrhea/chlamydia?

- Not familiar at all
- Somewhat familiar
- Very familiar

Q18 As diagnostic and treatment recommendations change for adolescents, what method do you think best supports implementing evidence based practices?

- Computerized/summarized clinical guidelines
- Brief, paper/pocket card guidelines
- Electronic medical record clinical prompts
- Practice based monitoring and feedback (institutionalized QI initiatives)

Q19 What is your gender?

- Male
- Female

Q20 What is the setting of your clinical practice?

- Outpatient Clinic (Primary Care)
- Children's Emergency Department/Urgent Care
- General Emergency Department/Urgent Care
- Reproductive Clinic
- STI Clinic (Health Department)

Q21 How would you describe the majority of your clinical practice?

- Private practice
- Academic practice

Q22 What type of residency program did you complete?

- Pediatrics
- Emergency Medicine
- Other (which specialty): _____

- Currently in residency

Q23 Did you complete fellowship training?

- Yes (which specialty): _____
- No
- Currently in a fellowship (which specialty): _____

Q24 How many years since you completed your entire medical training?

- Currently in training
- 7 years
- 8–15 years
- >15 years

*The original survey sent to participants listed PCR instead of NAAT as an option.

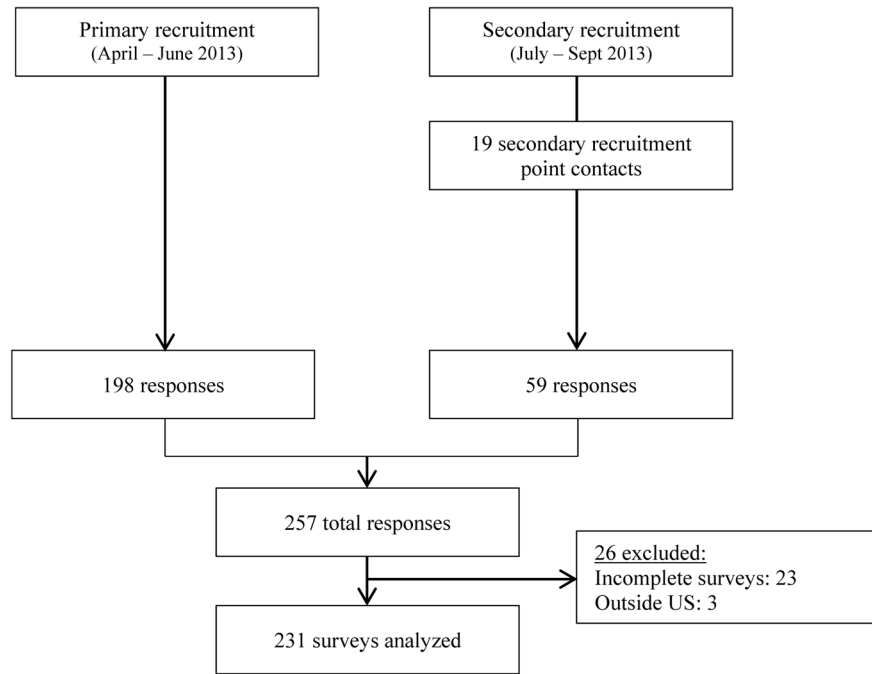


Figure 1.
Recruitment flow diagram.

Table 1

Indications for a pelvic exam⁷

Persistent vaginal discharge
Dysuria or urinary tract symptoms in a sexually active female
Dysmenorrhea unresponsive to nonsteroidal anti-inflammatory drugs
Amenorrhea
Abnormal vaginal bleeding
Lower abdominal pain
Contraceptive counseling for an intrauterine device or diaphragm
Perform Pap test
Suspected/reported rape or sexual abuse
Pregnancy

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Table 2

Respondent characteristics (N=231)

	n (%) [^]
Female	141 (62.4)
Years in practice	
7 years	103 (46.0)
8 years	120 (54.0)
Practice type	
Private	31 (13.8)
Academic	194 (86.2)
Region	
Midwest ^a	77 (35.2)
Northeast ^b	54 (24.7)
South ^c	67 (30.6)
West ^d	21 (9.6)
Pediatric residency, % yes	217 (96.9)
PEM fellowship, % yes	187 (83.5)
Practice setting	
Children's ED/urgent care	210 (92.9)
General ED/urgent care	9 (4.0)
Primary care clinic	7 (3.1)

[^]Missing data is 5%. Percentages based on number of responses for each category.

^aIllinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Ohio, Nebraska, North Dakota, South Dakota, and Wisconsin

^bConnecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania

^cAlabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

^dAlaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

Table 3

Overall rates of physician adherence to CDC STI collection/testing guidelines and use of expedited partner therapy prescription by scenario (N=231)[^]

	Scenario			
	14 year old asymptomatic patient	18 years old asymptomatic patient	18 years old asymptomatic patient with partner with penile discharge	18 years old symptomatic patient with vaginal discharge only
Adhered to CDC collection/testing guidelines (% yes)	201 (87.4)	196 (85.6)	162 (70.4)*	86 (37.4)*
Prescribed EPT (% yes)	20 (8.8)	25 (10.9)	28 (12.3)	35 (15.4)

[^] Missing data is 5%. Percentages based on number of responses for each category.

* p<0.001 when compared to the 18 year old asymptomatic patient scenario

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Table 4

Rates of adherence to CDC STI collection/testing guidelines by subgroups (N=231)

	Scenario							
	14 year old asymptomatic patient		18 years old asymptomatic patient		18 years old asymptomatic patient with partner with penile discharge		18 years old symptomatic patient with vaginal discharge only	
	n (%)	p-value	n (%)	p-value	n (%)	p-value	n (%)	p-value
Gender, n (%)								
Female	124 (87.9)	0.97	124 (87.9)	0.44	101 (76.6)	0.68	54 (38.3)	0.98
Male	74 (88.1)		70 (84.3)		58 (69.0)		32 (38.1)	
Years in practice, n (%)								
7 years	94 (91.3)	0.15	91 (88.3)	0.45	74 (71.8)	0.66	39 (37.9)	0.84
8 years	102 (85.0)		101 (84.9)		83 (69.2)		47 (39.2)	
Practice type, n (%)								
Private	25 (80.6)	0.23	24 (77.4)	0.15	19 (61.3)	0.20	12 (38.7)	0.97
Academic	172 (89.1)		169 (88.0)		140 (72.5)		74 (38.3)	
Region, n (%)								
Midwest ^a	67 (87.0)	0.97	68 (88.3)	0.86	55 (71.4)	0.93	23 (29.9)	0.27
Northeast ^b	48 (88.9)		47 (87.0)		40 (74.1)		24 (44.4)	
South ^c	59 (88.1)		55 (83.3)		46 (68.7)		28 (42.1)	
West ^d	17 (85.0)		17 (85.0)		14 (70.0)		9 (45.0)	

^a Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Ohio, Nebraska, North Dakota, South Dakota, and Wisconsin

^b Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania

^c Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

^d Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

Table 5

Rates of expedited partner therapy by subgroups (N=231)

	Scenario							
	14 year old asymptomatic patient		18 years old asymptomatic patient		18 years old asymptomatic patient with partner with penile discharge		18 years old symptomatic patient with vaginal discharge only	
	n (%)	p-value	n (%)	p-value	n (%)	p-value	n (%)	p-value
Gender, n (%)								
Female	15 (10.8)	0.23	17 (12.1)	0.56	16 (11.5)	0.88	20 (14.5)	0.97
Male	5 (6.0)		8 (9.5)		9 (10.8)		12 (14.3)	
Years in practice, n (%)								
7 years	9 (8.7)	0.86	11 (10.7)	0.82	10 (9.8)	0.50	14 (13.9)	0.79
8 years	11 (9.4)		14 (11.7)		15 (12.7)		18 (15.1)	
Practice type, n (%)								
Private	3 (9.7)	1.00	3 (9.7)	1.00	2 (6.9)	0.54	4 (12.9)	1.00
Academic	17 (8.9)		22 (11.4)		23 (12.0)		28 (14.7)	
Region, n (%)								
Midwest ^a	7 (9.2)	0.52	7 (9.1)	0.31	4 (5.3)	0.006	7 (9.2)	0.20
Northeast ^b	7(13.2)		8 (14.8)		10 (18.9)		10 (18.5)	
South ^c	4 (6.1)		5 (7.5)		4 (6.0)		9 (13.6)	
West ^d	1 (5.0)		4 (20.0)		5 (26.3)		5 (26.3)	

^a Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Ohio, Nebraska, North Dakota, South Dakota, and Wisconsin

^b Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New Jersey, New York, and Pennsylvania

^c Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

^d Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming