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Emergency Department Directors Are Willing to Expand Reproductive Health Services for Adolescents

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Abstract

Study Objective—Nearly 20 million adolescents receive emergency department (ED) care each year, many of whom have untreated reproductive health issues. ED visits represent an opportunity to provide appropriate care, however ED physician reproductive healthcare practices and capabilities in the United States have not been described.

We sought to characterize pediatric ED director's individual practice and ED system resources for providing adolescent reproductive healthcare.

Design, Setting, Participants, and Intervention—We invited pediatric ED division and/or medical directors nationally to participate in an anonymous, online survey.

Main Outcome Measures—Outcomes included ED directors' personal practice regarding providing adolescent patients reproductive healthcare, and their ED's resources and standard practice regarding screening adolescents for sexually transmitted infections (STIs) and other reproductive health concerns.

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Prior Presentations: Preliminary data from this study was presented as a poster at the 2017 Pediatric Academic Society Meeting in San Francisco, CA.

Conflicts of Interest: The authors report no conflicts of interest.

Results—One hundred thirty-five of 442 (30.5%) ED directors responded. Respondents were 73% male, with a median of 18 (interquartile range, 13-23) years of experience and 63% working in urban EDs.

Seventy-one percent preferred face-to-face interviews for obtaining a sexual history, but only 59% of participants “always ask parents to leave the room for sensitive questions.” Eighty-four percent were receptive to pregnancy prevention interventions being initiated in the ED, with 75% of those willing to provide an intervention. Only 16% indicated their ED has a universal STI-screening program, and only 18% “always” successfully notify patients of a positive STI test.

Conclusion—ED directors are comfortable providing adolescent reproductive healthcare, and many individual- and ED-level opportunities exist to provide improved reproductive healthcare for adolescents in the ED.

Keywords

adolescents; emergency department; sexually transmitted infections; gonorrhea; chlamydia; pregnancy prevention

Introduction

Both sexually transmitted infections (STIs) and unintended pregnancy cause significant morbidity in the adolescent population. The estimated direct medical costs of untreated STIs in the 15-24 year old population was recently estimated at \$6.5 billion in 2000.¹ The direct medical cost of unintended pregnancy was estimated at \$5 billion in 2002 for the entire US population,² with much of this cost due to teen pregnancy.³ Although finding ways to reduce STIs and unintended pregnancy among adolescents may help reduce the costs associated with the consequences of risky sexual behaviors, adolescents’ engagement in high-risk behaviors is inextricably tied to a complexity of individual, social and cultural factors, and therefore difficult to change.⁴⁻⁸ In addition, it is difficult to reduce the costs for caring for adolescents who acquire STIs or become pregnant for a variety of reasons. Among them is that adolescents frequently use the ED⁹ as their usual source of care.¹⁰ Moreover, many adolescents receiving care in the ED are at high-risk for reproductive health issues, such as STIs¹¹ and unintended pregnancy,¹² regardless of the reason for their ED visit.¹³

A few studies in the pediatric ED have evaluated the potential need for and feasibility of interventions to increase STI management or pregnancy prevention strategies for adolescents in the ED.¹³⁻¹⁷ Few studies have attempted to evaluate the pediatric ED environment to determine whether pediatric ED directors are willing to offer such services, or whether the facilities themselves have the resources to provide such care.

Given this lack of knowledge, we conducted a national survey of pediatric ED directors to characterize their individual practice, their ED systematic practices and resources, and willingness to provide reproductive healthcare for adolescents.

Materials Methods

Study Design and Population

This was an anonymous, electronic, cross-sectional survey of pediatric ED directors in the US. We used data from the American Hospital Association, pediatric emergency medicine (PEM) research networks, and PEM fellowship programs to create a list of potential pediatric EDs in the US.^{18–21} Research assistants used web searches and phone calls to confirm that hospitals had a pediatric ED and to obtain ED director contact information.

Inclusion required the ED have a physician designated as a division or medical ED director. If an ED representative indicated they did not have a dedicated pediatric ED, the site was excluded. Sites from which we could not obtain ED director contact information also were excluded. The Human Research Protection Office of Washington University approved this study as exempt from IRB oversight.

Survey Content and Administration

While the use of a previously validated questionnaire would be preferred,²² our literature search did not identify a questionnaire that met our study objectives, thus we developed our own questionnaire. The study team included experts in survey design and behavioral research, adult and pediatric emergency medicine, infectious diseases, and clinical informatics. We designed a questionnaire to describe physician practices in caring for adolescents at-risk for STIs and delivering information regarding pregnancy prevention. We inquired how often they test for STIs in female adolescents presenting with STI-related complaints, defined as abdominal pain, vaginal discharge, pain with urination, or pain with vaginal intercourse, and in male adolescents presenting with urethral discharge, pain, with urination, or pain with any type of intercourse, based on our previous research.¹³ The survey items (Appendix) were developed and modified through an iterative process of discussion among the authors and a PEM division chief who was not part of the study team. Our methodology adhered to recommended standards for developing new questions. This included significant input from an expert in survey design and an iterative process, including pilot testing in a sample of pediatric emergency medicine physicians who were not in the target sample of ED directors.²³

One physician from each ED site was eligible to complete the survey. All eligible physicians received three email invitations to complete the survey using Research Electronic Data Capture (REDCap),²⁴ and a mailed letter sent simultaneously with the first email invitation. All participants who completed the survey could receive a \$20 Amazon gift card for participating, if they were interested. On a separate website, which could not be linked to their survey data, participants could provide their contact information to receive the gift card.

Data Analysis

We used descriptive statistics to characterize participating physicians' practices and preferences and their institution's resources and standard practices in the ED. Percentages

reported in the text and tables reflect the proportion of physicians who responded to each particular question.

Results

From the initial list of 864 US pediatric EDs, 442 were eligible to participate. Inability to obtain the ED director's contact information and lack of a designated ED director at a particular facility were the predominant reasons for exclusion (Figure 1). Overall, 135 (30.5%) of 442 ED directors responded to the survey. Respondents were predominantly male and completed training in pediatrics, emergency medicine, and/or pediatric emergency medicine (Table 1).

Most represented EDs were in urban or suburban settings and had academic affiliations. All but one of the 135 respondent reported their hospital uses an electronic medical record (EMR), with the three most common vendors being Epic, Cerner, and Allscripts. Very few respondents indicated that their EMR allowed for direct patient entry of data into the medical record during ED visits, using systems such as patient-answered questionnaires on a computer or tablet. Additional information regarding the EDs represented and their resources for reproductive care are shown in Table 2.

Practice patterns among respondents for STI testing varied substantially by STI type. When providing care to a patient with STI-related complaints, the following proportions of respondents indicated they "always" test for the following STIs: 83.1% (108/130) for each of gonorrhea and chlamydia; 43.9% (57/130) for trichomoniasis; 37.2% (48/129) for bacterial vaginosis; 6.2% (8/129) for syphilis; 5.4% (7/129) for human immunodeficiency virus (HIV).

Of 129 respondents, 77 (59.7%) reported they always examined the throat in patients with STI-related complaints, but 94 (72.9%) rarely or never sent chlamydia/gonorrhea testing from the throat. In addition, 19 (14.7%) respondents reported they always examined the anus/rectum, however 99 (76.7%) rarely or never sent chlamydia/gonorrhea testing from the anus/rectum. While 105 (81.4%) indicated they discuss STI prevention "always" or "most of the time" with both female and male patients with STI-related symptoms. Similarly, 99 (76.7%) respondents indicated they discussed pregnancy prevention with female patients always or most of the time, but only 71 (55.0%) discussed pregnancy prevention with male patients. Only 13 (10.1%) respondents reported they prescribed contraception to females "always" or "most of the time, and 66 (51.1%) usually referred female patients elsewhere for reproductive healthcare. In addition, 83.5% (106/127) of ED directors were receptive to pregnancy prevention interventions being implemented in the ED.

When asked if there were risks or downsides to screening all adolescents in the ED for STIs, 54.7% (70/128) of respondents said, "Yes." The four most common concerns were that: 1) universal testing in the ED was inappropriate; 2) cost to the system or patient would be too high; 3) difficulty or lack of resources precluded adequate follow-up; and 4) privacy and confidentiality could not be ensured. Despite these concerns, 84.4% (108/128) of respondents indicated they would be willing to implement a risk-based STI-screening

program, which we defined as asking all patients of a certain age to answer questions to determine STI risk, regardless of the reason for the ED visit.

Discussion

The preponderance of adolescents who come to the ED are receiving care for issues unrelated to reproductive health, yet many are still at risk for issues such as STIs or unintended pregnancy. While these patients may benefit from interventions started in the ED, little is known about whether pediatric ED directors are willing to offer care, such as reproductive health and STI-risk screening, which is beyond what is required for treating adolescent and young adult patients' acute complaints. Our survey demonstrated, for the first time, widespread support for offering risk-based STI screening program and pregnancy prevention programs in the pediatric ED. This finding can expand the potential for the pediatric ED to serve as a site to screen for adolescents' reproductive healthcare needs and STI risk, and to implement techniques that have been proven feasible and valuable in other studies and settings.^{13,14,25–27}

We found that pediatric ED directors are both comfortable in personally providing reproductive healthcare and often willing to offer expanded STI screening and pregnancy-prevention services in their ED. While encouraging, we discovered considerable variability in STI-testing practice patterns, with opportunities to improve testing for HIV and other STIs. Very few ED physicians performed extra-genital STI testing, and few EDs currently provide either universal or risk-based STI-screening programs. Many ED directors expressed concern regarding universal STI-testing programs. A prior survey of pediatric ED physicians found that pediatric ED physicians infrequently prescribed emergency contraception.²⁸ Lack of follow-up, time constraints, and lack of resources were among the most cited reasons for not prescribing emergency contraception. This mirrors our findings regarding ED directors' concerns for implementing universal STI testing and may represent a broader theme regarding the scarcity of adolescent reproductive health services in the ED setting. While ED directors in our study were willing to offer expanded STI screening and pregnancy prevention services, these barriers reported previously²⁸ must be kept in mind when new interventions for such care are designed, tested, and implemented. Some of concerns related to universal testing could be mitigated with risk-based testing.

Leveraging the EMR, patient-answered questionnaires, and decision-support systems can potentially minimize the burden on ED staff to screen patients at risk.¹³ This requires an initial effort to set up such programs, but thereafter could decrease the time required to identify high-risk patients. One potential hindrance to this approach is the preponderance of respondents indicating their EMR does not support patients entering their own data to the EMR using patient-completed electronic questionnaires. Epic and Cerner, however, which were the most commonly used EMRs among our survey respondents and among the most popular nationally,²⁹ do support this functionality in various fashions. It is possible ED directors were either unaware of these capabilities, or simply have not had the opportunity to use them. This is a relevant issue, as adolescents and adults in both the pediatric ED and other settings have indicated they prefer answering questions regarding their sexual history via electronic questionnaire, and in some instances, they provide more comprehensive and

accurate information using electronic questionnaires.^{13,30–37} Thus, the preference expressed by most ED directors we surveyed to gather this kind of sensitive information during face-to-face interviews seems questionable. Based on these findings, ED physicians likely will need to adjust both their individual practice and ED workflows to accommodate expanded reproductive healthcare interventions in the pediatric ED.

It is promising that most respondents supported ED-based pregnancy-prevention interventions, given adolescents' willingness to begin this care in the ED.¹⁵ Most respondents indicated they have access to a clinic to which they could refer patients for reproductive health and family planning. As follow-up of patients in the outpatient setting after discharge from the ED for family planning services is often poor,²⁶ initiating this care in the ED may be an effective strategy to reduce adolescents' pregnancy risk. We did not, however, specifically ask providers their perspectives on prescribing contraceptives in the ED. This warrants further research, as long-acting, highly effective contraceptive options are recommended for adolescents, although the feasibility of prescribing or initiating hormonal contraception in the pediatric ED setting is still largely unknown. Additional research, perhaps conducted through a national organization such as Emergency Medical Services for Children, could provide a more comprehensive representation of EDs in the United States and better identify whether both pediatric and general EDs have resources for adolescent reproductive healthcare. Surveys conducted through professional organizations, such as the American College of Emergency Physicians or the American Academy of Pediatrics Section on Emergency Medicine, also might allow for broader sampling of individual ED providers to better ascertain current practice and beliefs regarding providing adolescent reproductive healthcare in the ED.

Given prior findings that emergency contraception is infrequently prescribed for patients at high risk of pregnancy,²⁸ initiating hormonal contraception under other circumstances may face many hurdles. Implementation of interventions such as interactive smartphone applications²⁷ or computer assisted motivational interventions³⁸ that have been used in non-ED settings may be promising for use in the ED, providing these interventions would not require significant staff resources or additional lab testing or medication.

Limitations

Our study has several limitations. Due to our low survey response rate, there is potential for a nonresponse bias. As we excluded EDs without a physician director, the potential for coverage error also exists, as we may have disproportionately excluded rural and/or smaller EDs from our sample.³⁹ Our intention to survey all US pediatric ED directors was significantly hampered by the lack of an available, comprehensive data source to facilitate contacting them. We had difficulty obtaining contact information for ED directors in rural areas, so our data may not accurately reflect ED physician practices or resources in rural settings. We do not have a way to verify whether ED directors self-reported practices were accurate. As we surveyed only one physician per site, we cannot determine whether the respondent's practice is representative of the practice of other healthcare providers at that site. In addition, while respondents indicated a willingness to increase reproductive health services in the ED for all adolescents regardless of their ED complaint, we did not inquire

whether respondents routinely screen for reproductive and STI-risk factors in their individual practice. We also did not assess knowledge of current STI treatment guidelines; ED providers must be knowledgeable about the latest STI treatment guidelines if they are to offer expanded reproductive health care and STI screening services in the ED in accordance with these guidelines.

Conclusion

More than 80% of responding pediatric ED directors in our national sample were receptive to implementing risk-based STI-screening programs and pregnancy-prevention programs in the ED. Given the high-volume of adolescents who are receiving care in the ED and who may be engaging in behaviors that increase risk for STIs or pregnancy,¹³ implementation of such programs in pediatric EDs could be an untapped public health opportunity.^{14,15,26} Careful attention must be paid to both ED workflow and resource limitations as such interventions are developed.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1.
Identification and sampling of eligible pediatric emergency department directors to participate in the study.

Table 1.

Demographics and Practice Patterns of Respondents (N=135)*

Respondent Characteristics	n (%)
Gender, n=124	
Male	90 (72.6)
Female	34 (27.4)
Years since completing training, median (IQR)	18 (13, 23)
Type of training, n=123 [†]	
Pediatrics	89 (72.4)
Emergency Medicine	34 (27.6)
PEM fellowship	73 (59.3)
Internal Medicine	5 (4.1)
Surgery	2 (1.6)
Family Medicine	2 (1.6)
Oversees a single ED, n=131	104 (79.4)
Physician Practice Patterns	n (%)
Asks parents to leave the room for sensitive questions, n=130	
Always	77 (59.2)
Most of the time	46 (35.4)
Sometimes	7 (5.4)
Rarely	0
Never	0
Verify adolescent contact information in chart, n=130	
Always	54 (41.5)
Most of the time	50 (38.5)
Sometimes	13 (10.0)
Rarely	9 (6.9)
Never	5 (3.1)
Comfort level asking adolescents about sexual history, n=130	
Very comfortable	115 (88.5)
Somewhat comfortable	12 (9.2)
Neutral	3 (2.3)
Somewhat uncomfortable	0
Very uncomfortable	0
Preferred method for obtaining sexual history, n=130	
Electronic questionnaire	37 (28.5)
Paper questionnaire	1 (0.8)
Face-to-face interview	92 (70.8)
Receptive to pregnancy prevention interventions in ED, n=127	
Yes	106 (83.5)
No	21 (16.5)

Preferred method for pregnancy prevention interventions, n=106 [^]	
Electronic education in ED	39 (37.1)
Handout education in ED	8 (7.6)
Private discussion in ED	33 (31.1)
Referral directly to outside clinic	26 (24.5)

Abbreviations. IQR – interquartile range; PEM – emergency department pediatric emergency medicine; ED – emergency department

* Not all participants responded to all questions; percentages shown are of the row totals in first column indicating number answering each question.

⁺ More than one choice was allowed, so percentages do not total 100.

[^] Among those receptive to pregnancy interventions in the ED.

Table 2.

ED Characteristics and ED Resources for Reproductive Care (N=135) *

ED Characteristics	n (%)
Pediatric patients/year in ED, median (IQR)	21000 (12000, 42000)
ED Setting, n=135	
Pediatric ED in a pediatric hospital	48 (35.6)
Pediatric ED in a general hospital	64 (47.4)
General ED in a general hospital	23 (17.0)
Location, n=134	
Urban	84 (62.7)
Suburban	45 (33.6)
Rural	5 (3.7)
ED has university/academic affiliation, n=135	97 (71.2)
EMR used in the ED, n=135	
Epic	64 (47.4)
Cerner	32 (23.7)
Allscripts	13 (9.6)
Other	25 (18.5)
None	1 (0.7)
EMR allows for electronic data entry by patients, n=104	
Yes	7 (6.7)
No	90 (96.5)
Does not know	7 (6.7)
ED Resources	n (% Yes)
Protocol to keep adolescent health information confidential, n=127	78 (61.4)
NAAT testing available in ED, n=125	100 (80.0)
Has universal STI screening program, n=128	21 (16.4)
Has risk-based STI screening program, n=128	10 (7.8)
Has dedicated provider reviewing STI test results, n=125	123 (98.4)
Always make one attempt to notify of STI test result, n=126	113 (89.7)
Methods used to contact patients, n=126 [†]	
Phone	125 (99.2)
Letter	88 (69.8)
Text	10 (7.9)
Email	5 (4.0)
Other (Telegram, PCP notification, law enforcement, EHR portal)	8 (6.3)
“Always” successfully notify of STI test result, n=126	23 (18.3)
Adolescent clinic available for patient referrals, n=127	95 (74.8)

Abbreviations. ED – emergency department; EMR – electronic medical record; NAAT – nucleic acid amplification testing; STI – sexually transmitted infection; PCP – primary care physician; EHR -- electronic health record

* Not all participants responded to all questions, percentages shown are of those who responded

[†] More than one choice allowed

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