Using the Hospital as a Venue for Reproductive Health Interventions: A Survey of Hospitalized Adolescents

BACKGROUND AND OBJECTIVES: Less than one-half of sexually active adolescents have received counseling regarding contraception and sexually transmitted disease (STD) from their health care provider. We hypothesized that hospitalized adolescents would be interested in receiving reproductive health education and/or STD testing. In addition, we assessed the opinion of female adolescents on initiation of contraception during hospitalization.

METHODS: A convenience sample of 13- to 18-year-old male and female adolescent patients hospitalized at a tertiary pediatric hospital were approached for inclusion. Consenting patients completed a self-administered anonymous questionnaire.

RESULTS: Questionnaires from 49 female adolescents and from 51 male adolescents were collected. Based on their answers, 37% of female adolescents and 44% of male adolescents want to learn more about contraception and/or abstinence in the hospital independent of sexual activity. Thirty percent of respondents reported a desire for STD testing in the hospital. Fifty-seven percent of female subjects answered that adolescents should be offered contraception while in the hospital.

CONCLUSIONS: Among hospitalized adolescents in this study, there was an interest in reproductive health education and contraception even among those with a primary care provider and without sexual experience. Thus, hospital-based pediatricians can play a pivotal role in expanding critical sexual health services by discussing and offering sexual health care to hospitalized adolescents. We recommend that hospitals make a brochure available to all admitted adolescents, with opportunity for follow-up discussions with their hospitalist.

Adolescents aged 15 to 24 years represent only one-quarter of the sexually active population; however, it is estimated they acquire nearly 50% of all new sexually transmitted diseases (STDs).1 According to recent Centers for Disease Control and Prevention (CDC) data, rates of Chlamydia trachomatis and Neisseria gonorrhoeae infections among 15- to 19-year-olds are the highest of any age group. Although teenage pregnancy rates are at an all-time low in the United States,7 these rates are still higher than those of other developed countries.3,4 Continued reduction in adolescent pregnancy rates requires pediatricians to develop a healthy framework for sexual exploration while improving education and disease prevention. Due to the numerous negative consequences of adolescent childbearing to mother and child, and the need for improvement of uptake of contraception, pregnancy prevention among adolescents remains a national public health priority.3,5
Pediatricians play a critical role in the sexual health care of adolescents, and they should provide medically accurate, comprehensive education as part of routine care. An American Academy of Pediatrics policy statement declares that “pediatricians are in an ideal position to provide longitudinal sexuality education to children and adolescents as part of preventive health care.” Despite these recommendations, only 40% of adolescents report that their physicians ask about sexual activity, and less than one-half of sexually active adolescents have received counseling regarding contraception and STDs from their health care provider. Male subjects may be traception and STDs from their health received counseling regarding con-
of sexually active adolescents have
counseling and education for adoles-
cents are not routinely offered. The
inpatient setting has the advantage of
a prolonged provider–patient interac-
tion during the hospital stay, which
may encourage a more trusting envi-
ronment for discussion of sensitive
topics. Using an anonymous survey instrument, our primary objective in
the present study was to assess the
desire of hospitalized adolescent
male and female patients to receive
reproductive health education and/or
STD testing during the inpatient stay.
A secondary goal was to assess the
opinion of female adolescents regard-
ing initiation of contraception during
dospitalization. We hypothesized that
adolescents would express interest
in receiving sexual health services,
including education, medication pre-
scription, and STD screening in the
inpatient setting.

METHODS
This cross-sectional survey was con-
ducted in a convenience sample of
male and female patients admitted to
the medical and surgical floors of
Hasbro Children’s Hospital in Prov-
dence, Rhode Island. The hospital
institutional review board approved the
study and waived written parental con-
sent, although verbal parental consent
was required. Eligible patients were
13 to 18 years old with any admitting
diagnosis. Patients were excluded if
they were too acutely ill to participate,
if they had a significant developmental
delay, if they were wards of the state,
or if they self-reported an insuffi-
cient ability to understand English with ade-
quate fluency to answer written ques-
tions independently.

Patients were screened and enrolled
between February 2013 and October
2013. After the identification of an
eligible participant, patients were vis-
it in their rooms by investigators.
Sleeping patients and patients out
of their rooms would be approached
again if they were still in the hospit-
al on subsequent selected screening
days. Verbal consent was obtained
from a parent or guardian if the
patient was aged <18 years, and ver-
bal assent was obtained from all sub-
jects. Assenting patients completed a
self-administered, anonymous written
questionnaire that was developed by
using a previously published study
addressing adolescent attitudes on
sexual health and contraception.
Participants were told that all surveys
would be reviewed at a later date in
bulk, and there was a statement at
the end of the survey noting that if
they had sexual health questions they
could ask their hospital medical team
or primary care provider for answers.
There were 27 questions in the female
survey and 22 questions in the male
survey (Supplemental Information).
Questions regarding history of preg-
nancy and interest in birth control
provision were eliminated from the
male survey. Questions about desired
source of education were derived
from a published survey focusing on
adolescent obesity and education in
the inpatient setting. The survey con-
tained questions about demographic
data, sexual health knowledge and
education, personal sexual history,
and degree of interest in learning
more about sexual health while hos-
pitalized. For female participants,
the survey also contained questions
regarding initiating contraception. In
addition, participants identified reli-
gious preference and self-ranked
Survey responses were entered electronically into a spreadsheet, and their accuracy was verified by using double-entry by a separate investigator. Age, Likert scores, and other continuous variables were analyzed by using the Wilcoxon rank-sum test; categorical variables were analyzed by using a \( \chi^2 \) analysis. Statistical analysis was performed with Stata version 11.1 (Stata Corp, College Station, TX).

**RESULTS**

One hundred adolescents were consented and completed the survey (Fig 1). Questionnaires from 49 female adolescents and from 51 male adolescents were collected. None of the respondents had been admitted for a health reason directly related to sexual activity. Demographic characteristics are listed in Table 1. Ninety-five percent of adolescents reported having a primary care physician; all female respondents and 94% of male respondents reported having a visit with their medical provider in the last year. Forty-six percent of all respondents reported that their primary care provider had not counseled them on contraception or abstinence.

Adolescents with no history of sexual activity were invited to skip the questions on desire for STD testing. Rates of sexual activity are presented in Table 1. Of those who responded to the question, 25% (4 of 16) of male subjects and 33% (6 of 18) of female subjects were interested in receiving STD testing while in the hospital. Forty-four percent (20 of 45) of male adolescents and 37% (17 of 46) of female adolescents wanted to learn more about contraception or abstinence in the hospital. There was no significant difference in respondents’ desire to learn about contraception in the hospital according to gender, patient age, degree of religiousness, or reported sexual history. There was no significant difference in reporting interest in in-hospital education among those who did and did not report having a primary care physician or previous sexual experience among both male and female subjects. Among the patients who wanted more information about contraception, the majority preferred to receive that information in a brochure (Table 2). The next most popular option was a discussion with the pediatric hospital physician. Only 6% (5 of 81) of adolescents preferred to learn more about contraception from their primary care provider.
Fifty-seven percent (25 of 44) of female patients answered that adolescents should be offered contraception while in the hospital. There was no significant difference in respondents’ desire to be offered contraception between self-reported sexually experienced female subjects and nonexperienced female subjects. Despite this finding, 72% (21 of 37) of female patients responded that they preferred their primary care physician prescribe birth control.

**DISCUSSION**

Our data indicate that a substantial minority of adolescents are interested in receiving sexual health education and services while hospitalized, signifying that the inpatient setting is an additional health care environment in which sexual health interventions can occur. Adolescents in our study were interested in learning about multiple methods of contraception while in the hospital setting, with no preference for 1 particular method. Many preferred to receive this information by brochure, although one-fifth of respondents expressed a desire to discuss these issues with a pediatric hospitalist. These results are consistent with those found in a similar study in the emergency department setting on adolescents and emergency contraception education. Our findings suggest that at a minimum, brochures on contraception should be offered to all hospitalized adolescents regardless of admitting diagnosis, with hospitalist providers following up to discuss the information further if desired.

Earlier studies have found that contraception use improves when both partners agree on method selection, but this improvement relies on the availability of accurate and comprehensive contraceptive information for both genders. Previous literature has outlined male adolescent health care gaps. In addition to other contraceptive methods, male patients in our study expressed an interest in learning more

**TABLE 1** Demographic Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Male Patients (n = 51)</th>
<th>Female Patients (n = 49)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean ± SD, y</td>
<td>15.2 ± 1.6</td>
<td>15.5 ± 1.8</td>
</tr>
<tr>
<td>Days in hospital, mean ± SD</td>
<td>3.1 ± 2.9</td>
<td>4.7 ± 5.1</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>6 (3)</td>
<td>8 (4)</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>20 (10)</td>
<td>10 (5)</td>
</tr>
<tr>
<td>White</td>
<td>53 (27)</td>
<td>65 (32)</td>
</tr>
<tr>
<td>Other</td>
<td>15 (8)</td>
<td>14 (7)</td>
</tr>
<tr>
<td>No response</td>
<td>6 (3)</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catholic/Christian</td>
<td>67 (34)</td>
<td>61 (30)</td>
</tr>
<tr>
<td>Other</td>
<td>4 (2)</td>
<td>8 (4)</td>
</tr>
<tr>
<td>No religion</td>
<td>18 (9)</td>
<td>24 (12)</td>
</tr>
<tr>
<td>No response</td>
<td>12 (6)</td>
<td>6 (3)</td>
</tr>
<tr>
<td>Presenting diagnosis by category</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>35 (18)</td>
<td>22 (11)</td>
</tr>
<tr>
<td>Psychiatric</td>
<td>6 (3)</td>
<td>18 (9)</td>
</tr>
<tr>
<td>Trauma/burn</td>
<td>12 (6)</td>
<td>6 (3)</td>
</tr>
<tr>
<td>Infectious</td>
<td>10 (5)</td>
<td>10 (5)</td>
</tr>
<tr>
<td>Other</td>
<td>37 (19)</td>
<td>43 (21)</td>
</tr>
<tr>
<td>Sexual education history</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No PCP counseling</td>
<td>51 (23/45)</td>
<td>41 (19/46)</td>
</tr>
<tr>
<td>No school counseling</td>
<td>10 (5/48)</td>
<td>28 (13/47)</td>
</tr>
<tr>
<td>No parental counseling</td>
<td>20 (10/49)</td>
<td>29 (13/45)</td>
</tr>
<tr>
<td>Reported sexual activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral sex</td>
<td>28 (13/46)</td>
<td>23 (11/47)</td>
</tr>
<tr>
<td>Vaginal sex</td>
<td>24 (11/45)</td>
<td>34 (16/47)</td>
</tr>
<tr>
<td>Anal sex</td>
<td>2 (1/45)</td>
<td>11 (5/47)</td>
</tr>
<tr>
<td>No history of sexual activity</td>
<td>67 (30/44)</td>
<td>62 (29/46)</td>
</tr>
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<tr>
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<tr>
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</tr>
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<td>24 (11/45)</td>
<td>34 (16/47)</td>
</tr>
<tr>
<td>Anal sex</td>
<td>2 (1/45)</td>
<td>11 (5/47)</td>
</tr>
<tr>
<td>No history of sexual activity</td>
<td>67 (30/44)</td>
<td>62 (29/46)</td>
</tr>
</tbody>
</table>

**TABLE 2** Interest in Education According to Contraceptive Method and Source of Education

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male Patients (Total Respondents = 43)</th>
<th>Female Patients (Total Respondents = 46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraceptive method</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oral contraceptive pill</td>
<td>7 (3)</td>
<td>13 (6)</td>
</tr>
<tr>
<td>Patch</td>
<td>16 (7)</td>
<td>9 (4)</td>
</tr>
<tr>
<td>Implantable rod</td>
<td>16 (7)</td>
<td>11 (5)</td>
</tr>
<tr>
<td>Intrauterine device</td>
<td>7 (3)</td>
<td>13 (6)</td>
</tr>
<tr>
<td>Emergency contraception</td>
<td>13 (6)</td>
<td>9 (4)</td>
</tr>
<tr>
<td>Interest in other methods</td>
<td>28 (12)</td>
<td>26 (12)</td>
</tr>
<tr>
<td>No interest in learning more</td>
<td>63 (27)</td>
<td>50 (23)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Desired source of education</th>
<th>Male Patients (Total Respondents = 38)</th>
<th>Female Patients (Total Respondents = 43)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brochure</td>
<td>55 (21)</td>
<td>28 (12)</td>
</tr>
<tr>
<td>Hospital physician</td>
<td>18 (7)</td>
<td>25 (11)</td>
</tr>
<tr>
<td>Primary care provider</td>
<td>8 (3)</td>
<td>5 (2)</td>
</tr>
<tr>
<td>Does not want to learn more</td>
<td>3 (1)</td>
<td>44 (19)</td>
</tr>
</tbody>
</table>

Data are presented as % (n). Respondents could select >1 answer.
about the implantable rod and intrauterine devices. The inpatient setting provides an opportunity to educate all adolescents about long-acting reversible contraceptive methods, including their high efficacy rates and ease of use in adolescents. Such educational opportunities might support enhanced contraception awareness among this age group. Therefore, we recommend that both male and female patients receive brochures on contraception and reproductive health.

One-quarter of male respondents and one-third of female respondents were interested in receiving STD testing, suggesting that the hospital setting is an acceptable place to screen sexually active adolescents for chlamydia and gonorrhea. An added benefit to testing in the hospital would be that results might return while the patient is hospitalized, allowing for immediate, supervised treatment. The CDC recommends that individuals aged ≥13 years be screened for HIV regardless of sexual experience, which can easily be accomplished in the inpatient setting. The rates of self-reporting of sexual activity in our survey are corroborated by a separate larger survey of Rhode Island high school students conducted by the CDC, which found that sexually active adolescents should be screened for STDs. The limitation of inpatient testing may be that patients might be discharged before obtaining their results. A method of secure and confidential communication with patients is critical, and partnership with primary care providers may simplify this process. Furthermore, there may be confidentiality issues regarding billing and descriptions of services provided, much like in outpatient care.

Our study population had a high rate of identification of a primary care provider. However, nearly one-half of participants had not received contraception and/or abstinence information from their medical provider. This finding is consistent with previous studies that reported poor sexual health education in the primary care setting. Our study results further support the assertion that the hospital setting is an acceptable alternative for initiation of sexual health education among adolescents who may not be receiving such information from their primary provider. In addition, our data suggest that hospitalists should not assume that adolescents with primary care providers receive education on contraception and/or abstinence.

The majority of adolescent female patients wanted the hospital to offer birth control, and yet the majority also preferred to have birth control offered by the primary care physician. Further study of these topics is needed to explore these attitudes. Although many female patients expressed an interest in contraception initiation, we did not ask them specifically if they wanted such therapy while they were inpatients. Additional study is needed to assess the feasibility, acceptance, and compliance of hospitalized adolescent female patients if they are offered contraception during a hospital stay.

There are several limitations to our study. Our sample size was small and a convenience sample that excluded weekends. It is difficult to draw conclusions from low response rates. The study was limited to English speakers only and did not include wards of the state, which is a high-risk population. Patients with developmental delay were also excluded, although it has been reported elsewhere that this population is sexually active and often lacks sexual health education. We were unable to contact the vast majority of subjects because of unavailability of the patient, lack of parental availability, and being non-English-speaking. One limitation was that our institutional review board required parental consent, which resulted in the inability to enroll patients who did not have a parent or guardian present and may have caused some potential participants to decline. This recommendation was in conflict with Rhode Island and federal legislation, which indicate that children ≥13 years of age have the right to confidential STD testing and treatment even without parental consent. Limitations placed on research on adolescents, a defined vulnerable research population, have historically provided challenges and have been shown to decrease participation in sexual health research even when parents are aware of sexual activity. Although we encouraged parents to let the patient complete the form on his or her own, we were unable to be present during the administration of the form and therefore could not ensure that parents did not participate in survey completion or influence patients in their responses. In addition, parental presence may have biased some adolescents who had not disclosed sexual activity to their parents toward answering untruthfully on the survey. Potential participants were not always present in their rooms during recruitment, and the sample may have therefore unintentionally excluded patients with certain medical needs who needed to be out of the room for studies or procedures. Despite these limitations, our recommended
intervention is low risk and low cost; it requires a brief amount of time with the pediatric hospitalist and the use of brochures, which are relatively inexpensive.

CONCLUSIONS

To our knowledge, this study is the first to explore the inpatient setting as a venue for basic sexual health education and service delivery to adolescents. Our findings show that hospitalized adolescents are interested in receiving sexual health services in the inpatient setting, regardless of sexual experience or engagement with a primary care provider. Although we recognize that the pediatric hospitalist has limited time for counseling, our study suggests that adolescents are interested in learning more from their hospital physician. We recommend that hospitals make a brochure available to all admitted adolescents, with an opportunity for follow-up discussion with their hospitalist. Further studies may be helpful for hospitals considering developing, implementing, and investigating mechanisms for providing sexual health services to adolescents before discharge from the hospital.

REFERENCES


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