Short Communication

The Impact of Post-Visit Emergency Department Follow-Up on Sexually Transmitted Infection Related Return Visits

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Abstract

Purpose: In a sample of adolescents who tested positive for a sexually transmitted infection (STI) in an emergency department (ED), we aimed to evaluate whether post-visit telephone contact to inform individuals of their positive STI status, and provide education and referral to a medical home, was associated with a decrease in return ED visits for STI testing.

Methods: In this retrospective cohort study, chi squared analysis was used to evaluate differences among adolescents by successful contact. A logistic regression analysis examined factors associated with return ED visits.

Results: Among the 584 adolescents, successful contact was not significantly associated with a decrease in return ED visits when adjusting for all covariates (OR 1.66, 95% CI 0.93-2.97). Females were more likely to return to the ED for STI testing than males (AOR 1.87; 95% CI 1.19-2.95).

Conclusions: Adolescents contacted regarding STI positive results did not have significantly different ED return visit rates for STI testing than those not contacted.

ABBREVIATIONS

STI: Sexually Transmitted Infection; ED: Emergency Department; HCP: Healthcare Provider; EMR: Electronic Medical Record

INTRODUCTION

Adolescents have high rates of sexually transmitted infections (STI) and use the emergency department (ED) for STI care. Many EDs only notify untreated patients of their positive STI results. This approach leaves those adolescents treated during the visit unaware of their infected status, representing a lost opportunity for education. Contacting all STI positive adolescents post-ED visit provides an opportunity to educate and link patients to a medical home, thus possibly decreasing the need for return STI ED visits while improving patient outcomes.

We examined whether post-ED visit telephone contact with STI positive adolescents within 7 days of an ED visit was associated with a decrease in return ED visits for STI testing.

MATERIALS AND METHODS

We studied a retrospective cohort of patients included in a previously published quality improvement study aiming to improve patient notification of positive STIs. This study was conducted in the ED of an urban, tertiary care pediatric hospital. Through electronic medical record (EMR) review, follow up was ascertained from the ED and outpatient primary care clinics at the children’s hospital and the adjacent adult hospital. The current study was approved by both the adult and children’s hospital institutional review boards.

Our cohort included all male and female adolescents ages 14...
to 21 years positive for Chlamydia, gonorrhea or Trichomonas vaginalis during their first ED visit between April 2011 - August 2012 (females) and July 2011 - June 2013 (males). Our main outcome was an ED return for STI testing within 6 months of the first STI positive ED visit. We defined successful contact as those contacted within 7 days of their ED visit and notified of their STI positive status.

A designated healthcare provider (HCP) attempted to contact each STI positive patient regardless of ED treatment using a confidential phone number documented in the EMR. During contact, the HCP relayed test results and inquired about completion of treatment. For patients not treated in the ED, the HCP arranged appropriate treatment; thus, successful contact was considered a proxy for treatment. The HCP also recommended safer sex behaviors including condom use and abstinence until 7 days after treatment. Additionally, the HCP discussed the importance of partner notification and treatment and follow-up care with a primary provider. If no primary provider was identified, the HCP discussed establishing care. Treatment information was documented in the EMR.

Descriptive statistics were used to evaluate cohort demographics. Chi squared testing evaluated differences in demographics and predictor variables among those contacted and not contacted post ED visit. Logistic regression models evaluated associations between independent variables (successful contact, age, race, gender, documentation of a confidential phone number, and ED empiric treatment) and the primary outcome (pediatric or adult ED return visit with STI testing within 6 months of the initial STI positive ED visit). Among the cohorts, relative risks (RR) of returning for STI testing and returning to the ED (vs. clinic or no return) were calculated.

RESULTS

Among the 584 STI positive adolescents (383 females and 201 males), there were no significant differences in race, age or empiric ED treatment by successful contact, though females (p=0.05) and those with a documented confidential phone number in the EMR (p<0.0001) were more likely to be contacted. A chart demonstrating cohort flow is shown in Figure 1. Of those contacted, 36.6% returned to any setting for STI testing versus 30.2% of those unable to be contacted (p=0.21). Of the 73 patients who returned to a clinic setting, 7 (9.6%) visited an obstetrics/gynecology clinic due to a new pregnancy.

Table 1 presents the associations between the primary predictor variable (successful contact) and covariates (age, gender, race, documented confidential phone number, empiric ED treatment) and the primary outcome (a return ED visit for STI testing). When adjusting for all other covariates, successful contact was not significantly associated with a return ED visit. Females were more likely to return for STI testing than males (AOR 1.87; 95% CI 1.19 - 2.95). No other single variables or interactions were significantly associated with an ED return visit. Among those who were contacted and returned, the RR of returning to an ED setting (vs. a clinic setting or not returning) was 1.35 (95% CI: 0.94-1.94).

DISCUSSION

In contrast to the findings of our previous study, we did not...
Table 1: Factors associated with adolescents’ return visit to an ED after testing positive for an STI: results of unadjusted and adjusted logistic regression models (n=584 STI positive patients).

<table>
<thead>
<tr>
<th>Factor</th>
<th>Odds ratio</th>
<th>95% Confidence Interval</th>
<th>Adjusted odds</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Successful contact n=478</td>
<td>1.84</td>
<td>1.04 - 3.26</td>
<td>1.66</td>
<td>0.93 - 2.97</td>
</tr>
<tr>
<td>Documented confidential phone number n=503</td>
<td>1.66</td>
<td>0.89 - 3.10</td>
<td>1.41</td>
<td>0.74 - 2.69</td>
</tr>
<tr>
<td>ED empiric treatment n=451</td>
<td>1.22</td>
<td>0.76 - 1.96</td>
<td>1.40</td>
<td>0.85 - 2.30</td>
</tr>
<tr>
<td>Age n=584</td>
<td>1.02</td>
<td>0.91 - 1.14</td>
<td>1.01</td>
<td>0.90 - 1.13</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male n=201</td>
<td>Ref</td>
<td></td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>Female n=383</td>
<td>1.82</td>
<td>1.18 - 2.82</td>
<td>1.87</td>
<td>1.19 - 2.95</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black n=524</td>
<td>Ref</td>
<td></td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>White n=33</td>
<td>1.10</td>
<td>0.48 – 2.51</td>
<td>1.15</td>
<td>0.49 - 2.67</td>
</tr>
<tr>
<td>Other n=27</td>
<td>1.45</td>
<td>0.62 – 3.39</td>
<td>1.30</td>
<td>0.55 - 3.07</td>
</tr>
</tbody>
</table>

*aadjusited for all variables in the table

find a significant decrease in return ED visits for STI testing after successful contact [5]. The previous study only included females and collected ED return visit data from one institution. In our current study, we included both genders, identified ED and clinic return visits at two institutions and had a higher successful contact rate (>80%) than previously (58.8%) [6]. Because of our institutional improvement work on STI follow-up care, it is possible that adolescents who were contacted by the HCP may have been satisfied with their follow-up care, therefore increasing their motivation to return to the ED for future care.

Our study also demonstrated that females were more likely to return for STI testing than males. Adolescent males who are symptomatic oftentimes are empirically treated as the diagnosis of an STI is less complex than in that of a female. Therefore, it is possible that most of the males were empirically treated, but the females were not treated until confirmatory laboratory testing was available thus prompting them to return to the ED for continued symptoms and repeat testing.

This study also did not demonstrate a significant association between successful contacts and return visit location. However, there were 73 patients who returned to a clinic setting which represents a success in that they returned to a primary care home for STI care. Because up to 30% of women with Chlamydia are re-infected within 3 months of the initial diagnosis, and the Center for Disease Control recommends re-testing 3 months after a positive test result thus, it is unclear whether these patients were returning because they were symptomatic and likely re-infected, or for routine screening or “test of cure” [7,8]. In either instance, these patients chose not to use the ED on their return visit thus indicating that they do have a primary care home or are making a new linkage. It is encouraging that some patients have begun to use primary care settings for routine STI care, but further work on linking ED adolescents to a primary care setting and exploring opportunities for ED contraception interventions is warranted.

This study has several limitations. It was a retrospective analysis of a previously collected dataset, and return visits were identified only at two institutions. Patients may have returned to other healthcare centers and this information was not captured. Also, there may be other unmeasured significant differences between those contacted and those we were unable to contact potentially biasing our results.

CONCLUSION

Adolescents contacted for STI positive results did not have significantly different ED return visits rates than those not contacted. Among adolescents who returned to any setting, one-third returned to non-ED settings for STI care suggesting that a post-visit contact from an HCP may be one strategy to improve linkage to a primary medical home.

ACKNOWLEDGEMENTS

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REFERENCES

3. Yealy DM, Greene TJ, Hobbs GD. Underrecognition of cervical Neisseria gonorrhoeae and Chlamydia trachomatis infections in the emergency


