BRIEF REPORT

Documentation of Tobacco, Alcohol, and Drug Screening in Hospitalized Adolescents

Alison Riese, MD, MPH,[a,b] Elizabeth Tarr, BA,[a] Janette Baird, PhD,[b] Brian Alverson, MD[a]

ABSTRACT

OBJECTIVES: To examine the frequency of documented screening for tobacco, alcohol, and drug use in hospitalized adolescents on the pediatric hospitalist service.

PATIENTS AND METHODS: This was a retrospective chart review of adolescents aged 14 to 17 years hospitalized at a large urban academic children's hospital in the Northeast from 2013 to 2015. Only patients admitted directly to the hospitalist service and only the first admission (if multiple occurred) were included. Patients presenting for psychiatric illness, ingestions, or impaired neurologic functioning were excluded. Admission history and physical (H&P) notes were reviewed to identify documented screening for tobacco, alcohol, and drug use. χ^2 tests and 95% confidence intervals (CIs) were used to compare screenings for each substance and assess for associations of patient and encounter characteristics.

RESULTS: A total of 443 charts met criteria for inclusion. The majority of adolescents were girls (n = 286; 64.6%), and mean age was 15.6 years (SD: 1.1). The H&P notes included notation of screening for tobacco use in 75.4% (95% CI: 71.1%–79.3%), alcohol use in 56.4% (95% CI: 51.7%–61.1%), and drug use in 37.9% (95% CI: 33.4%–42.6%) of charts. Girls were 1.4 times more likely to have of documented screening for alcohol use than boys. The admission diagnosis category was significantly associated with documentation of alcohol screening. Tobacco and drug screening frequency did not differ on the basis of sex, age, or diagnosis category.

CONCLUSIONS: Documentation of substance use screening was not universal in admission H&P notes. These discrepancies suggest a need for improvements in screening protocols and documentation methods.

[a]*Warren Alpert Medical School, Brown University, Providence, Rhode Island; and* [b]*Lifespan Injury Prevention Center, Rhode Island Hospital, Providence, Rhode Island*

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Address correspondence to Alison Riese, MD, MPH, Department of Pediatrics, Hasbro Children's Hospital, 593 Eddy St, Potter Building, Suite 200.9, Providence, RI 02903. E-mail: alison_riese@brown.edu

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Early initiation of substance and tobacco use is an important risk factor for future use and has negative health sequelae.[1] In 2017, 60% of high school students reported trying alcohol, 36% had tried marijuana, 29% had tried cigarettes, and 42% had tried an electronic vapor product.[2] The 2015 National Survey on Drug Use and Health estimates that 5.0% of teenagers have a substance use disorder,[3] although 1-time use of illicit substances has been linked to an increased risk of substance-related injuries, sexual risk-taking, and overdose.[4–6]

Because of these risks, the American Academy of Pediatrics (AAP) has produced a policy statement[7] on Screening, Brief Intervention, and Referral to Treatment (SBIRT) for substance, tobacco, and alcohol use, which is an evidence-based practice to identify, reduce, and prevent risky substance use behaviors, including in the adolescent population. In the statement, the AAP underscores the importance of addressing tobacco and substance use in all health care settings to which adolescents may present. However, not all pediatricians adhere to these guidelines. In the outpatient setting, some providers neglect to ask teenagers about substance use at all, whereas others may conduct screenings without the time or training to offer subsequent appropriate counseling.[8,9] In SBIRT, ideally validated brief screening questionnaires are used in a standardized manner, followed by a collaborative discussion to enhance a patient's motivation to change their use, for those who have positive screen results. The literature reveals the effectiveness of screening and brief interventions (as short as 20 minutes) for risk behaviors for adults in emergency department (ED)[10] and inpatient settings[11,12] as well as adolescents in the ED.[13,14] Additionally, dramatic improvement in the use of SBIRT has been seen with the adoption of screening policies and training in the ED.[15]

The inpatient hospital setting may represent an underused venue for screening, intervention, and referral to treatment of adolescents. An Australian study revealed such deficiencies in this setting,[16] although no similar study has been conducted in the United States. In the current study, we examined documented screening for tobacco, alcohol, and drug use in the admission history and physical (H&P) notes for adolescents admitted to the general pediatrics ward. We aimed to assess patient characteristics that were associated with documented screening (or lack thereof) to identify those that may be at risk but not identified and provide focus for provider training and potential evidence for universal screening.

METHODS

This was a retrospective chart review of adolescent patients aged 14 to 17 years who were hospitalized at a large urban academic children's hospital in the Northeast. This was a subsequent study on an existing data set, which consisted of adolescent patients admitted to the pediatric hospitalist service between March 2013 and March 2015, compiled from the hospital's billing database. The hospitalist service covers >98% of general pediatric patients. Resident physicians conduct all admission evaluations and enter the H&P notes electronically; these are reviewed and addended by the attending hospitalist. These H&P notes contained a templated (although not mandatory) section for social history, which included fields for tobacco and alcohol use but not for drug use.

Charts were excluded if the patient was admitted to a specialty service or transferred to the hospitalist team from the ICU or other service. We excluded patients admitted for management of eating disorders because they were admitted to a different service with distinct evaluation and documentation methodologies. We included only the first admission if >1 occurred during the study period. We excluded patients with significant impairment due to developmental delay or neurologic problems, primary psychiatric admissions, and alcohol or drug ingestions and those who declined to speak with the physician because of refusal or severity of symptoms. Finally, we excluded patients aged ≥18 years because of the small number ($n = 30$). The chart review process itself is described in more detail in a previous publication.[17]

Data Collection

For charts meeting criteria, the admission H&P notes were reviewed by the research assistant, who recorded whether the H&P notes contained documented screening for tobacco, alcohol, and drug use. This information was coded as dichotomous variables. For charts with documented screening, use or nonuse of the substance was recorded. When this was unclear, the usage variables were coded as 99 (0.4%–2% of charts) and were grouped with nonuse data when calculating frequency of substance use. Additional information extracted included age, sex, race and/or ethnicity, insurance type, medical diagnosis category, and admission time.

Data Analysis

Stata/SE (Stata Corp, College Station, TX)[18] was used for statistical analysis. Frequencies (counts and percentages) were calculated for patient and encounter characteristics and for substance use screening documentation along with 95% confidence intervals (CIs)[19] to determine significant differences in documentation frequency for each substance. A χ^2 test was used to assess for significant associations between documented screening frequency and patient and encounter variables. Percentages with 95% CIs are shown in bar graphs with error bars for analyses of screening by sex, age, and diagnosis category. Finally, for charts in which documented screening was present, we present the frequency of positive results for tobacco, alcohol, and drug use.

RESULTS

The hospital billing database identified 985 charts that met the initial inclusion criteria (14–17-year-olds admitted to the hospitalist service from March 2013 to 2015). After chart review, 542 charts (55.0%) were excluded. The most frequent reasons for exclusion were a psychiatric diagnosis ($n = 267$ of 542; 49.3%) and repeat admissions ($n = 113$ of 542; 20.8%). The remaining 443 charts constituted the study data set. Patient and visit characteristics are described in Table 1.

Among these 443 charts, screening for tobacco, alcohol, and drug use was

TABLE 1 Patient Demographics and Encounter Characteristics

Characteristic	$N = 443$
Patient sex, *n* (%)	
Boys	157 (35.4)
Girls	286 (64.6)
Age, y	
Mean (SD)	15.6 (1.1)
14, *n* (%)	86 (19.4)
15, *n* (%)	126 (28.4)
16, *n* (%)	123 (27.8)
17, *n* (%)	108 (24.4)
Race and/or ethnicity, *n* (%)	
Hispanic	99 (22.4)
Non-Hispanic white	277 (62.5)
Non-Hispanic African American	45 (10.2)
Asian American	11 (2.5)
Multiracial or other	11 (2.5)
Insurance type, *n* (%)	
Private	235 (49.7)
Public	222 (46.9)
Uninsured or unknown	16 (3.4)
Admission time, *n* (%)[a]	
Daytime	122 (27.5)
Overnight	312 (72.5)
Medical diagnosis category, *n* (%)	
Gastrointestinal	127 (28.7)
Skin and/or musculoskeletal	88 (19.9)
Neurologic	60 (13.5)
Respiratory	45 (10.2)
Genitourinary	34 (7.7)
Ear, nose, and/or throat	28 (6.3)
Other	61 (13.8)

[a] Daytime, 8:00 AM–11:59 PM; overnight, 12:00 AM–7:59 AM.

documented at significantly different frequencies in the admission H&P notes. Screening for tobacco history was documented in 75.4% (95% CI: 71.1%–79.3%), alcohol history in 56.4% (95% CI: 51.7%–61.1%), and drug history in 37.9% (95% CI: 33.4%–42.6%) of charts. When grouping screening for tobacco, alcohol, and drug use together, 31.8% ($n = 141$) of charts had all 3 documented, 48.5% ($n = 215$) had 1 or 2 items documented, and 19.6% ($n = 87$) had no items documented.

Documented screening for alcohol history was significantly (1.4 times) higher for girls (62.9%) than boys (44.6%; $P < .001$), but sex was not significantly associated with screening for tobacco or drug history. Similarly, documented screening did not vary significantly by age (Fig 1).

Documented screening for alcohol history also varied significantly by diagnosis category, with significantly lower documentation for patients with respiratory diagnoses (33.3%) compared with gastrointestinal (65.4%), neurologic (66.7%), and genitourinary (73.5%) diagnoses ($P < .001$). There was no significant difference in screening for tobacco or drug use by diagnosis category (Fig 2). Patient race and/or ethnicity, insurance status, and admission time category (day or night) had no association with screening for tobacco, alcohol, or drug history (data not shown).

For charts in which screening was documented, patient-reported drug use was most prevalent ($n = 48$ of 168; 28.6%) compared with alcohol use ($n = 39$ of 250; 15.6%) or tobacco use (37 of 334; 11.1%).

DISCUSSION

This study reveals a lack of universal documentation of substance use screening for hospitalized adolescents, likely reflecting inconsistent screening practices. In our sample, tobacco screening was documented most frequently, followed by alcohol screening and drug screening. Fewer than one-third of charts showed screening for all 3. Female patients were screened for alcohol use significantly more frequently than male patients despite national data suggesting that teenaged boys and girls report both past and current alcohol use with similar frequency.[2] Screening for alcohol and drug use appeared to increase with patient age but this relationship was not statistically significant. This trend likely reflects the physician expectations that older adolescents are more likely to experiment with substances than younger ones and suggests that providers may be more comfortable discussing this topic with the older age group.[2]

The finding that frequency of screening varied with diagnosis category suggests that different diagnoses may lead to more thorough substance use screening in some patients. Certain presentations understandably raise suspicion of intoxication more than others (eg, seizures, vomiting, altered mental status), and for prevention purposes, screening for tobacco (eg, among adolescents with asthma) is extremely important. However, all adolescents should be screened for tobacco, alcohol, and drug use at every admission, regardless of chief complaint. The AAP summarizes several brief validated tools for this purpose that can be selected on the basis of the clinical scenario.[7]

Evaluation of substance use history in the inpatient setting is important for several reasons. It represents a chance to normalize discussions of substance use between adolescents and health care providers and prompts providers to act on the findings.[20–22] For patients reporting nonuse, health care providers can reinforce their positive health choices. For patients with positive screen results, the inpatient team may consider conducting brief negotiated interviews, which have been shown to motivate behavior changes in the acute care setting.[10–14] Additionally, the inpatient team should make appropriate referrals and alert the primary care provider of a patient's substance use, initiating a plan for continued support after discharge, or help establish a medical home and follow-up for those who do not have 1. Considering that substance use screening occurs inconsistently in the primary care setting,[23–25] the hospitalists' role can be to prompt targeted intervention for these patients.

We acknowledge that maintaining confidentiality may present a barrier to successfully screening this population in the inpatient setting. Previous studies reveal that adolescents benefit from teenager-centered care while in the hospital[26–28] and prefer electronic surveys used to assess risky behaviors.[20,29] The possibility of conducting substance use screening via tablet might partially resolve concerns related to confidentiality and likely be acceptable to hospitalized adolescents. Before screening, providers should explicitly define conditions for which confidentiality must be broken related to serious threats to patient safety or if mandated by law.

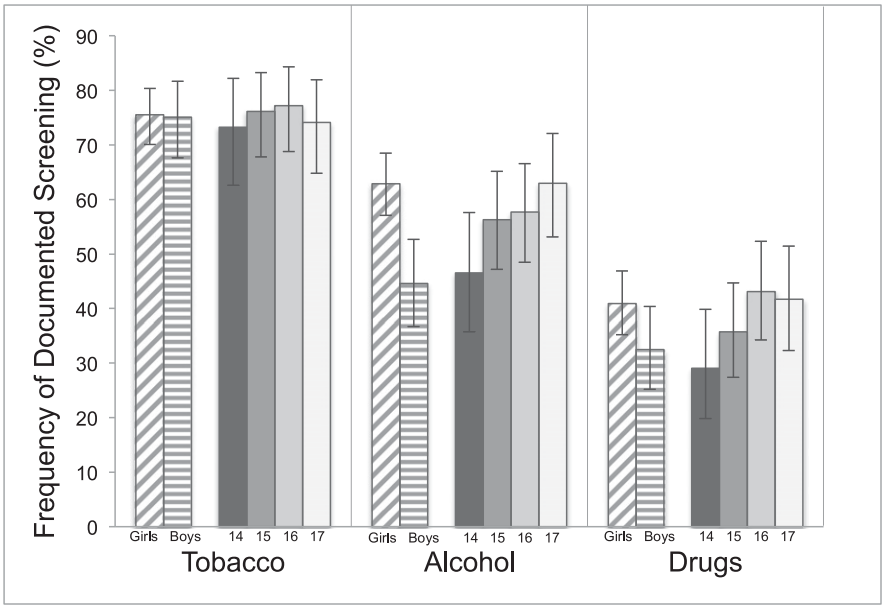

FIGURE 1 Frequency of documented screening for tobacco, alcohol, and drug use by sex (patterned bars) and years of age (shaded bars) for hospitalized adolescents from March 2013 to 2015, with error bars showing 95% CIs.

Our study has several limitations. The generalizability of our results is limited because the study took place at a single institution. With our chart review, we detected only screening that was recorded in the patient chart and did not capture any discussions between patient and provider that were not documented. We acknowledge that overall, negative responses are less likely to be charted than positive responses, thus affecting the interpretation of our data. The template nature of the electronic medical record may have influenced rates of documentation of negative and positive screening results. Additionally, we excluded charts of adolescent with psychiatric or ingestion-related admission to help avoid overestimation of substance use in the inpatient population, given increased substance use rates among these patients;[30,31] however, determining the frequency of SBIRT among this high-risk group would also be of interest and should be addressed in future research. Also, future work in which the influence of provider characteristics on adolescent screening is examined would be valuable.

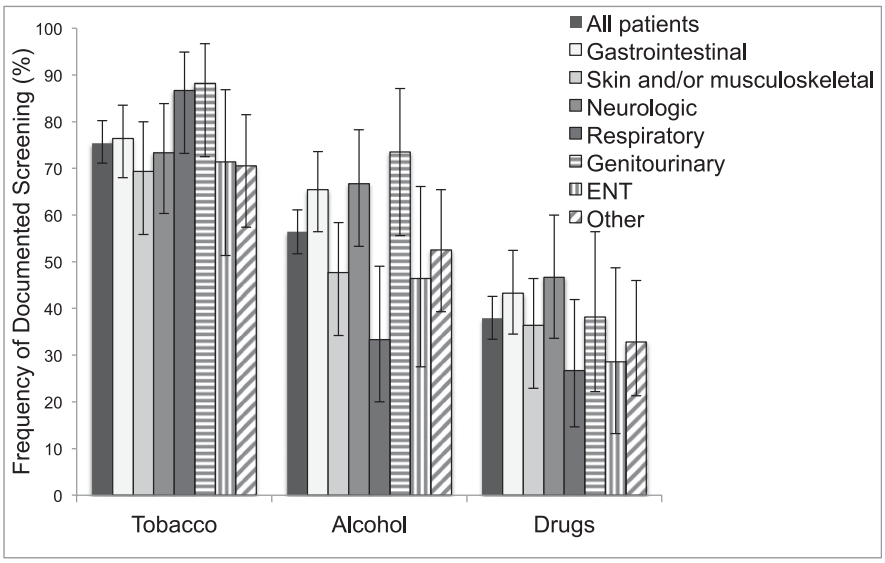

FIGURE 2 Frequency of documented screening for tobacco, alcohol, and drug history by medical diagnosis category for hospitalized adolescents from March 2013 to 2015, with error bars showing 95% CIs. ENT, ear, nose, and/or throat.

CONCLUSIONS

Admission H&P notes inconsistently included documentation of substance use screening for adolescent patients. Detected screening inconsistencies suggest a need for universal screening protocols and improvements in the electronic medical record. Screening is paramount to identify health risk behaviors in adolescents and prompt provider action. The inpatient setting represents an underused opportunity to screen for substance use and provide subsequent intervention and referral to treatment.

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