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A comparison of screening practices for adolescents in primary care following implementation of screening, brief intervention, and referral to treatment (SBIRT)

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Abstract

Purpose: The American Academy of Pediatrics recommends screening adolescents for substance use at all well-child and appropriate acute-care visits. However, many pediatric practices aim for such screenings annually at well-child visits.

Methods: As part of a larger study, 7 urban Federally Qualified Health Center clinics implemented universal screening for risky alcohol and drug use using the CRAFFT. The current study compared uptake of screening and screening results at well-child versus acute-care visits.

Results: Over a period of 13 months for which encounter-level electronic medical records data were available, there were 6346 clinic visits by 3475 unique patients ages 12–17, at which 76.6% ($n=4865$) of visits had a screening for problematic substance use conducted. Rates of screening were 95.1% (2750/2891 involving 2629 unique adolescents) for well-child visits; and 61.2% (2115/3455 involving 1535 unique adolescents) for acute-care visits. Rates of positive screening results were 9.0% (248/2750 involving 245 unique adolescents) for well-child visits; and 7.8% (164/2115 involving 126 unique adolescents) for acute-care visits. Of the 469 unique adolescents screened *only* during an acute-care visit during that same period, 40 unique adolescents had positive screening results, for a positive screening rate of 8.5%.

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Implications and Contributions: Although screening at adolescent well-care visits was high in this implementation study, screening rates were lower during acute-care visits. Adolescents who were only screened during acute-care visits would not have been identified if screening is solely completed at well-child visits.

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Conclusions: Nearly 10% of adolescent patients screened only at acute-care visits would not have been screened if screening were implemented solely at well-child visits, and 40 adolescents reporting substance use would have been missed. The findings highlight the benefits of screening adolescents at every primary care visit to better detect and intervene in adolescents' substance use.

Keywords

Substance Use; Screening; Prevention; Adolescent Health; SBIRT

Substance use among adolescents in the United States remains highly prevalent. In 2011, past-month use of alcohol, tobacco, and other drugs (ATOD) was reported to be 9.2%, 3.4%, and 7.9%, respectively, for youth 12 to 17 years of age (1). These rates are concerning because adolescent ATOD use is associated with mental (2–4) and physical (5) health problems, poor school performance (6), and increased risk of developing a substance use disorder in adulthood (7–10).

Primary care visits present an opportunity to identify and intervene with substance-using youth, because most youth in the US access the health care system (11–16), and preventing substance abuse among adolescents is a national public health priority (15). Despite recommendations by the World Health Organization (17) and the American Academy of Pediatrics (AAP) (18–20) that all adolescents receive screening for ATOD use, most adolescent medicine providers report that they do not follow these recommendations (21–24). Although the U.S. Preventative Services Task Force only recommends screening adolescents for tobacco in primary care, the AAP recommends screening adolescents for substance use at all well-child and appropriate acute-care visits. However, many pediatric practices aim for just annual screenings at well-child visits (25).

Overall, around half of pediatricians report routinely asking their adolescent patients about ATOD use, while the remaining half report selectively asking certain adolescents about these topics (Periodic Survey of Fellows, AAP) (26). Unfortunately, there is often little congruence between providers' assumptions of adolescent ATOD use, as compared to screening and diagnostic results (27), and there is evidence that providers will often over-report their performance of desired clinical behaviors in order to appear adherent to best-practices (28). Additionally, there is evidence of discrepancy between instances of substance use documented in clinical records, and the instances of positive screening for substance use in primary care (29). The most common reasons for a lack of universal screening given by providers is a lack of time and insufficient training on how to manage a positive screen within a limited visit window (30).

In addition to screening rates of adolescents in primary care settings being low, the use of validated screening tools for detection of substance use is also concerning (31–34). In one study surveying pediatric and family care providers in a single health system, researchers found that 70 percent of providers in their sample did not use a validated screening tool, and generally only asked anecdotally about the frequency and type of personal use, frequency and type of social network use, and whether the patient had been offered substances (35).

Adolescence is a time of rapid physiological and social development, and onset of new substance use can occur quickly. Thus, an important practical question facing providers is the frequency with which to institute routine screening, and the type of visit in which to screen. For example, should providers screen for substance use only during well-child visits, or should they attempt to screen during acute-care visits as well? The present study seeks to address this gap in the literature by comparing screening practices at well-child and acute-care visits, and assessing the proportion of adolescent patients with substance use problems that would have been missed had screening been conducted during well-child visits only.

Patients and Methods

Data for the present study were drawn from a multi-site cluster randomized trial of adolescent SBIRT implementation conducted at seven sites of a large Federally Qualified Health Center (FQHC) in Baltimore, MD (see Mitchell et al., 2016 for methods of parent study)(36). The randomized trial compared two principal strategies of SBIRT delivery: 1) the Generalist strategy, in which the primary care provider delivers a brief intervention for substance misuse, and 2) a Specialist strategy, in which a brief intervention is delivered by a behavioral health counselor. All of the participating sites, regardless of their randomized condition, followed a uniform screening protocol, which called for universal screening of every adolescent patient at every visit.

Procedures

Medical Assistants (MAs) were instructed to administer the CRAFFT, along with an additional question related to tobacco use, as part of the patient triage protocol at every visit. The CRAFFT was filled out independently by the adolescent patient and returned to the MA for scoring and entry into the EMR for the primary care provider to review with the patient. Once the provider reviewed the screening results with the patient, the provider either delivered the brief intervention (in the Generalist strategy), or initiated a warm handoff to a behavioral health provider who completed a brief intervention (in the Specialist strategy).

Participants

Between June 2012 and February 2013, adolescent patient records were extracted from the Electronic Health Record for each of the seven participating clinics. Health records were extracted for every adolescent age 12–17 years who visited the clinic during the implementation period.

Over the course of the 13-month implementation of the study, there were 6346 adolescent patient visits, involving a total of 3475 unduplicated participants. The overall average age of the participant sample was 14.3 (SD=1.68) years for those attending well-child visits, or annual physicals, and 14.4 years (SD=1.76) for those attending acute-care visits.

Measures

De-identified data were pulled directly from the electronic medical record (EMR) at each site of the FQHC. All sites implemented the same screening protocol that utilized the CRAFFT screener for alcohol or drug use problems (37). In addition, minimal demographic

data were pulled from participants' EMR, but only gender and age were reliably entered across site records. This study was approved by the Friends Research Institute Institutional Review Board.

CRAFFT.—The CRAFFT screener is an acronym for the first letters of the key words in the screen's six questions: 1) "Have you ever ridden in a Car driven by someone (including yourself) who was high or had been using alcohol or drugs?"; 2) "Do you ever use alcohol or drugs to Relax, feel better about yourself, or fit in?"; 3) "Do you ever use alcohol or drugs while you are by yourself, Alone?"; 4) "Do you ever Forget things you did while using alcohol or drugs?"; 5) "Do your family or Friends ever tell you that you should cut down on your drinking or drug use?"; and 6) "Have you have gotten into Trouble while you were using alcohol or drugs?" Responses are tallied for each adolescent screened to determine whether they meet the criteria for "risk," with "low risk" defined as zero affirmative responses, "medium risk" defined as less than two affirmative responses, and "high risk" defined as greater than two affirmative responses (38). In this study, we use any endorsement of use, greater than zero, as our criterion for a positive screen. The CRAFFT screening tool was specifically developed to be age-appropriate for adolescents and young adults, as well as brief enough to be included in busy clinic settings. Participants were also asked a single screening question to assess tobacco use ("How would you describe your cigarette use?" with responses including, "never," "former," "every day," "some days," and "unknown"), but this question was not included in the assessment of screening rates for the purposes of the present study.

Results

During the 13-month implementation period of the study, there were 6346 visits by 3475 unduplicated patients (see Figure 1). Of this total number of visits, adolescents were not screened with the CRAFFT at 23.4% of visits ($n=1481$).

Of the total number of visits recorded during the implementation period, 95.1% of adolescents completed the screener when seen during an annual well-child visit (2750 of 2891 adolescents). However, only 61.2% of adolescents were screened during an acute-care visit (2115 of 3455 adolescents).

Within the 2,750 completed screenings that occurred during well-child visits, 9 percent screened positive, accounting for 248 screens involving 245 unduplicated patients. Within the 2115 screenings that occurred during acute-care visits, 7.8% screened positive, accounting for 164 screens involving 126 unduplicated patients.

Of the adolescent patients screened during acute-care visits, most were also screened during well-child visits at some other point during the observation period. However, 604 screenings (involving 469 unduplicated adolescents) occurred *only* during acute-care visits, i.e., with patients that did not have a corresponding well-child visit during the implementation period. Screening at these acute-care visits resulted in positive screens involving 40 unduplicated patients. These patients would not have been identified if screening occurred during well-

child visits only. In the aggregate, this represents 10.8% of the total adolescents identified as being in need of substance use intervention during the 13-month observation period.

Discussion

Following the implementation of SBIRT across seven sites of a large FQHC in Baltimore MD participating in an SBIRT implementation trial (36), ATOD screening rates using the CRAFFT substance use items were high throughout the implementation phase, resulting in self-report screening occurring at over 95% of well-child visits. Although the study protocol required clinics to screen universally at every adolescent visit, screenings were completed at less than two-thirds of acute-care visits. This is perhaps not unexpected given the provider's need to focus on the issue causing the acute-care visit, and the typical press for time experienced in primary care. Despite this disparity, positive screen rates on the CRAFFT positive use items at both well-child and acute-care visits were fairly similar, just under 10%.

If all patients screened during acute-care visits had already been identified as screen positive during their prior well-child visits, one could argue that it might not be worthwhile to screen at acute-care visits. However, the current study found that forty (8.6%) adolescents with positive screens would have been missed if clinics had only completed screenings during well-child visits. These results point to the potential benefits of screening adolescents at every primary care visit to better detect and intervene with adolescents concerning substance use.

Study findings are consistent with other adolescent screening rate analyses. Although their positive screening rate was higher (14.8%) than in this study, Knight and colleagues (39) discovered that positive screening rates were higher at acute-care visits (23.2%) compared to well-child visits (11.4%). It should be noted that this 2007 study occurred in a variety of clinic settings (school-based health centers, rural family practice, adolescent clinic, health maintenance organization, and a pediatric clinic), and the authors found significant variation in positive screening rates by clinic type. School-based health centers had the highest positive screening rates (29.5%), which the authors attribute to participants being generally older, and because these health centers also offer other confidential services related to family planning, may be well-suited to identify adolescents that are in need to substance use interventions. Regardless of clinic setting type, these findings accord with ours in suggesting that universal screening within a primary health care setting may produce a greater number of positive screens from adolescents than if screening is only completed during well-child visits.

In further support of the utility of screening at acute-care as well as well-child visits, an analysis of insurance claims data from a large health plan in Minnesota revealed that, over the course of just under a decade, one-third of 13-to-17-year-olds did not have a well-child visit (40). An additional 40% had only a single well-child visit during the same period. However, nonpreventative care visits were more frequent across all ages in the study, suggesting that when feasible, select preventative services (including substance use screening) should be offered to all patients at all visits. Screening for alcohol, tobacco, and

substance use would fit these criteria. Given the often busy schedules at most clinics, findings suggest daily pre-visit planning, utilization of EMR systems as reminders, and utilizing nurses or other allied health professionals to provide SBIRT services as potential solutions to small visit windows.

An additional benefit to universal screening of adolescents within a primary health care setting at all visit types is that providers are no longer in a position of having to use discretion to determine which of their patients may be at high risk for alcohol or substance use. Given the high volume of patients that many providers see over the course of the year, and the limited time they have to conduct a visit, making this determination can be difficult for even the most well-intentioned health care providers. A study of providers' impressions of alcohol or substance use among 14–18-year-olds found that, while providers were able to identify 63% of adolescents with any use, their impressions had a low sensitivity to more severe use patterns (27). The providers in this study were only able to identify 10% of adolescents with substance use disorders, and no adolescents who screened positive for dependence under DSM-IV criteria. This finding would suggest that universal screening of adolescent patients within a primary health care setting would be useful to identify those adolescents with problems related to substance use in order to provide an intervention on-site and/or make a referral for specialized care.

Although the results of this analysis indicate that universal screening would be ideal to discover greater incidents of adolescent substance use in primary care, which could ultimately improve prevention and intervention efforts, clinical feasibility is still a major concern for busy clinics and providers. How screening occurs in these settings continues to be an area in need of greater research, since screening instruments can be administered on paper, verbally by a medical staff member, or virtually through tablet or smartphone. Each of these methods has strengths and weaknesses related to overall cost, staff time, and patient comfort and confidentiality.

Conclusion

Overall, our findings support the recommendations of the AAP that adolescent patients should be screened universally within a primary health care setting, at both well-child and acute-care visits. If screenings are only completed during well-child visits, this study indicates that adolescent patients with substance misuse problems will be missed if they only come to acute-care visits. Due to the relatively brief visit time allotted to acute-care visits, future research should test novel screening strategies that allow adolescents to electronically self-administer validated screening tools, prior to being seen by a provider. Such an electronic self-administered process could further streamline the screening process, and potentially remove the time limitation barrier for the medical assistant. acute-care visit

The present study had several limitations. First, the parent study of this analysis only included seven study sites in one US city. Second, all clinic sites were FQHCs, which could have an impact on the generalizability of the findings, especially given the clinic-level variability noted by Knight et al.(40). Third, longitudinal research follow-ups were not conducted with adolescent patients, so the impact of the screening implementation on patient

outcomes is unknown. Finally, data collection for this analysis was limited by the information contained in the clinics' EMR. However, these limitations were balanced by some strengths of our study, including the implementation of a uniform screening protocol, and gaining buy-in for the implementation of SBIRT from all FQHCs asked to participate in the study. Future research should include additional clinic settings to bolster generalizability of these and similar findings, which provide important guidance for providers and clinic administrators regarding adolescent screening frequency.

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Abbreviations:

SBIRT	Screening, Brief Intervention, Referral to Treatment
FQHC	Federally Qualified Health Center
ATOD	Alcohol, Tobacco, and Other Drugs
EMR	Electronic Medical Record
CRAFT	Car, Relax, Alone, Forget, Friends, Trouble
MA	Medical Assistant

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Figure 1:
Screening rates at adolescent well-child versus acute visits