



Editorial

Filling in the Gaps: Building the Evidence Base for Screening, Brief Intervention, and Referral to Treatment in Adolescents



Substance use disorders (SUDs) most commonly begin during adolescence and are the leading causes of premature death and health problems worldwide [1,2]. Overdose mortality among adolescents has risen dramatically in the wake of the COVID pandemic [3] and alcohol and drugs also contribute to motor vehicle crashes, suicides, and homicides—three of the leading causes of death in adolescents [1,4,5]. SUDs in adolescents are also associated with other adverse physical health outcomes, including transmission of human immunodeficiency virus, hepatitis C virus, and sexually transmitted infections [1,6,7]; mental health problems, such as depression [1,6,8]; and risk for addiction throughout the life course [9,10]. It is therefore imperative to identify adolescents who have begun to use substances and link those needing SUD treatment to care as soon as possible. To accomplish this, the American Academy of Pediatrics recommends Screening, Brief Intervention, and Referral to Treatment (SBIRT), in which adolescents complete a validated instrument to identify substance use (“screening”), receive counseling on minimizing substance use (“brief intervention”), and for those needing more intensive services, get linked to formal SUD treatment (“referral to treatment”) [11].

This supplemental issue of *Journal of Adolescent Health* focuses on the implementation of SBIRT across a range of settings, including not only healthcare facilities (where SBIRT has traditionally been studied) but also schools, communities, and juvenile justice programs. Building a broad evidence base for SBIRT for adolescents is particularly important considering a pair of recent “I” statements by the U.S. Preventive Services Task Force (USPSTF) [12,13]. In these statements, the USPSTF concluded that there was insufficient evidence to balance the potential benefits and harms of screening for drug and alcohol use in adolescents aged 12–17 years. Although the USPSTF is only one of many organizations internationally that assesses the effectiveness of interventions, it sets a high bar for the evidence base needed for its recommendations; in particular, they identified a clear need for more data on the effectiveness of screening and interventions for substance use in adolescents.

The overarching goal of this supplemental issue is to buttress the evidence base for adolescent SBIRT implemented across real-

world settings. Financially supported by the Conrad N. Hilton Foundation, an organization with a longstanding history of investing in youth substance use prevention, the issue opens with a commentary by Eggleston [14], a former Senior Program Officer with the Foundation. Eggleston provides context on the Foundation’s national strategic initiative that aimed to improve substance use identification and intervention and that spurred more than \$81 M in funding to 56 grantees focused on SBIRT. These grantees and their work are featured throughout the supplemental issue.

A second commentary by Levy and Weitzman [15] draws additional attention to the USPSTF “I” statement and lays out a research agenda for SBIRT in adolescents. The authors argue that the evidence base should be built on pragmatic studies carried out in real-world settings; allow for local innovation matched to the needs of the local population, with a focus on optimizing diversity, equity, and inclusion; harness “big data” and incorporate information from the medical record and administrative claims; and measure outcomes beyond the frequency of substance use, including, for example, identification of and treatment for cooccurring mental health diagnoses. Such a research agenda is bold but vital to inform the next USPSTF review, the authors’ state, and the cost of inaction too high.

In the opening original article of this supplemental issue [16], Hunt et al. of Abt Associates, the research consulting firm that led the evaluation of the Conrad N. Hilton Foundation’s \$81 M grant program, provide an overview of SBIRT implementation and outcomes across 1,266 grantee sites. Collectively, grantees screened more than 140,000 youths across settings including primary care, schools, school-based health centers, community-based organizations, community-based behavioral health services, and juvenile justice programs. Intervention implementation and youths’ needs clearly varied enormously across these sites, with only 4%–5% and 1% of youths at primary care and school-based health centers receiving a brief intervention and referral to treatment, respectively; these percentages were as high as 92% and 47%, respectively, at juvenile justice programs. Challenges to implementation included time limitations and difficulties incorporating SBIRT into pre-existing workflows; concerns surrounding confidentiality, particularly in school settings where grantees had to establish local policies surrounding parental notification of positive screens; poor reimbursement for SBIRT in some state Medicaid and private insurance programs; insufficient treatment programs to which to refer youth with

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substance use problems; and the complications of simultaneously addressing other mental health concerns and other related concerns that were identified during SBIRT.

Next, Sterling et al. [17] report the 7-year follow-up results of a pragmatic randomized clinical trial of SBIRT in more than 1,800 adolescents. The trial was conducted by pediatricians at a single site in Kaiser Permanente Northern California and randomized adolescents aged 12–18 years to one of three interventions: (1) SBIRT delivered entirely by pediatricians; (2) SBIRT delivered by pediatricians with referral if indicated to an embedded behavioral clinician for brief intervention and further management; and (3) usual care in which pediatricians screened adolescents but had no training in SBIRT. Because an analysis of the trial's earlier follow-up data suggested that both SBIRT interventions were more effective than usual care, they were combined together in analysis. Outcomes were ascertained from the medical record and at 7 years postintervention, in the SBIRT intervention groups; the odds were significantly lower of a diagnosis of alcohol use disorder and of any SUD (other than alcohol); odds were also significantly lower of cannabis and nicotine use disorders and of utilization of primary care, psychiatry, and addiction medicine. The persistence of these outcomes well into young adulthood is promising and deserves replication in other healthcare systems.

Weitzman et al. [18] report the findings of a randomized clinical trial of 'Take Good Care', a psychoeducational intervention for 418 adolescents aged 14–18 years with chronic medical conditions (type 1 diabetes mellitus, juvenile idiopathic arthritis, systemic lupus erythematosus, and inflammatory bowel disease) receiving care in subspecialty clinics at Boston Children's Hospital. The intervention was not explicitly an SBIRT intervention and instead aimed to provide all adolescents with health education highly relevant to their specific medical condition to reduce alcohol use. The intervention was self-administered on an electronic tablet in the waiting room, typically lasting less than 5 minutes in total; controls received usual care (i.e., no specific education). At the 6-month follow-up, perceptions of the risks of alcohol were significantly lower among adolescents receiving the intervention. The number of days of past 3-month drinking was significantly lower among adolescent girls but not boys. Notably, drinking rates in the overall sample were relatively low, with fewer than one in four participants reporting past-year use at baseline; the study's findings are promising and may yield statistically significant changes in alcohol use in larger samples or in samples with higher baseline drinking rates.

Mitchell et al. [19] report on the results of a stepped-wedge cluster-randomized trial of adolescent SBIRT conducted across two rural federally qualified health centers in New Mexico and Tennessee. Twenty nine clinicians were cluster-randomized in groups of three or four to either an intervention or usual-care arm and oversaw the care of more than 1,100 adolescents aged 12–17 years recruited to the study. In the intervention arm ($n = 15$), clinicians received formal, one-on-one SBIRT training across six video teleconference sessions, and in the usual-care arm ($n = 14$), clinicians received no formal training and carried out their usual clinical activities. Adolescents seeing intervention-arm clinicians received simple anticipatory guidance if they had no past-year substance use, an abbreviated brief intervention if they had used substances once or twice in the past year and a more extensive intervention if they had used substances monthly or more in the past year. At the 3-month follow-up, however, the SBIRT

intervention was not associated with reduced substance use compared to treatment as usual. Only one in five adolescents used substances at baseline; it is again possible that repeating the study in a larger sample or a sample with more prevalent substance use would yield significant findings.

Levy et al. [20] report the results of a national survey of 142 pediatric endocrinologists and 83 pediatric rheumatologists on their substance use screening practices of adolescents in subspecialty care. The survey was distributed by email to professional society members and had a 15% response rate, which is typical (if not good) for electronic survey recruitment [21]. The authors found that only one in three clinicians screened adolescents for substance use at least annually, although most (80%) were concerned about the impacts of adolescents' substance use on their chronic disease management. Other concerns included the potential interaction of drugs and alcohol with medications, impact on medication adherence and effectiveness, and worsening of disease symptoms. Principal barriers to screening included a lack of time, support services, and education on how to respond to positive screens. Nonetheless, three-quarters of clinicians agreed that adolescent substance use screening fell within their clinical purview. The authors' findings suggest that support and training may be welcomed and needed among pediatric subspecialists.

Mullaney et al. [22] report on the findings of a middle school-based SBIRT intervention in King County, Washington. Participating schools conducted universal substance use screening in all students in a grade, or in some cases, the entire school. Schools selected from among counselors, other student support staff, or staff from community-based organizations to serve as an interventionist to lead at least one session of motivational interviewing with adolescents with a positive screen. Among the 3,253 students receiving this brief intervention, 116 completed a postintervention survey and 26 participated in a focus group to assess the acceptability of the SBIRT program. Nearly all students rated their experience as "good" or better and reported a stronger connection to their school following the intervention. Focus groups revealed that students were comfortable with SBIRT being carried out at school, although highlight some concerns around confidentiality and information-sharing with individuals both inside and outside the school setting. The findings should be informative to other schools and districts looking to implement SBIRT for this age group.

Ozechowski and Wilson [23] share results from SBIRT conducted among 1,077 high school students in three school-based health centers in Albuquerque. Students presenting to the school-based health centers completed a health questionnaire that included a formal substance use screen and questions about depressive symptoms, suicidality, physical activity, diet, screen time, sleep, sexual activity, and relationships with family, friends, and teachers. Among the approximately one in five high school students with a positive substance use screen, the authors identified those who received follow-up within the subsequent 8 weeks using the electronic health record. For nearly every health-related risk factor examined, the authors found significant differences between students screening positive for substance use and those screening negative. Students who used substances were most likely to engage in a follow-up if they had contact with a behavioral healthcare provider within 2 weeks of their positive screen. The findings suggest that SBIRT carried out in school settings might additionally benefit from also screening for other adverse health outcomes simultaneously and ensuring

that a clinician intervenes in a timely way on positive screens to maximize students' engagement in follow-up services.

Brolin et al. [24] describe the outcomes of a community-based SBIRT program for adolescents and young adults aged 16–24 years participating in YouthBuild, an organization providing educational and job-skills training for youth who are not enrolled in school or employed. Youth were screened using the Alcohol Use Disorders Identification Test and Drug and Alcohol Screening Test 10. YouthBuild staff provided youth who screened positive received a brief intervention with psychoeducation and motivational interviewing; youth with high scores were referred to formal SUD treatment. The SBIRT program was implemented in 62 programs serving more than 1,400 youth; the authors report findings from 32 of the programs serving 500 youth. A large percentage of youth needed brief interventions (17%) or referral to treatment (47%), thus highlighting the need for substance use–related services in this population. Implementing an SBIRT study across community-based programs revealed real-world challenges, including variable fidelity to the intervention, with some youth not receiving the services their screening results dictated; missing data from some programs; and aggregated rather than individual-level data reporting. Nonetheless, the study should inform others seeking to provide SBIRT in community settings and highlight that youth out of school and work may be an especially important population to support.

In the final article of the supplemental issue, Reif et al. [25] provide a narrative review assessing how SBIRT programs are paid for across healthcare and school settings, with an eye to determining how SBIRT can be financially sustainable. Using rapid scoping review methods and a search of the gray literature, the authors found that data on SBIRT outside healthcare settings were sparse. They determined that SBIRT in healthcare settings and schools is commonly funded through grants and public health insurance; private health insurance is an additional revenue source in some healthcare settings and other public funding sources sometimes support school-based SBIRT. The authors recommend that those implementing SBIRT routinely and transparently describe how their programs are funded and otherwise note that the field is evolving because of expanding insurance coverage and dissemination of SBIRT to settings outside of healthcare.

This series of articles highlights at once the successes and challenges of implementing adolescent SBIRT in the real world. Notably, some of the carefully conducted trials described in this supplemental issue had null findings; in these studies, the percentage of adolescents using drugs or alcohol was often low, potentially limiting the power to detect statistically significant differences between the intervention and control arms. Lessons from other studies showed that other settings, including, for example, juvenile justice programs, behavioral health clinics, and community-based organizations, may serve youth with a higher prevalence of substance use (especially when they serve young adults). A key lesson, therefore, is that looking beyond traditional healthcare settings offers critical opportunities to support youth who need substance use–related and SUD-related services. However, rigorous research and careful funding strategies will be needed to further strengthen the evidence base for SBIRT inside and outside healthcare and to ensure financial sustainability. Doing so is imperative, not only to address the USPSTF 'I' statement but to mitigate the

enormous and rising harm associated with SUDs in young people.

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