



Translating SBIRT to public school settings: An initial test of feasibility

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ABSTRACT

Public schools are not traditional locations where screening, brief motivational counseling intervention and referral to treatment (SBIRT) are provided. This translational research study aimed to test the feasibility of conducting SBIRT in two urban New York schools and to examine its economic sustainability. In Spring 2012, 248 students were screened during non-academic classes: 42% of them ($n = 105$) reported substance use (versus 28% reported in school-wide, paper anonymous survey). All but one of the positively screened students voluntarily accepted one or more brief intervention sessions and two students were referred to treatment. This school-based SBIRT model did not interfere with academic activities, was feasible to implement, and was attractive to students, teachers and administration. The data offer clear indication that further effectiveness testing is warranted and potentially valuable, however the sustainability of this model was not supported due to our lack of obtaining insurance information, authorization and reimbursement.

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1. Introduction

Adolescence is a critical time to identify and effectively treat alcohol and other drug (AOD) use/misuse. Early AOD use in adolescence is a risk factor for adult alcohol and drug abuse/dependence (DeWit, Adlaf, Offord, & Ogborne, 2000; Grant & Dawson, 1997; Hingson & Zha, 2009). Neuroimaging studies have reported that the developing adolescent brain is highly vulnerable to the effects of AOD particularly in the areas of cognition, motivation and impulse control (Squeglia, Jacobus, & Tapert, 2009; Tapert, Caldwell, & Burke, 2004). Perhaps because of this, adolescents who begin drinking before age 15 are four times more likely to develop alcohol dependence than those who begin drinking at or after age 21 (Grant & Dawson, 1997).

Apart from developing alcohol dependence, adolescent AOD use is associated with serious social and health consequences (e.g., automobile accidents, unintentional injuries, cognitive problems, poor academic performance, delinquency, HIV/STDs, and suicide) (Ammon, Sterling, Mertens, & Weisner, 2005; Brown, 2004; Hanson, Medina, Padula, Tapert, & Brown, 2011; Hingson & Zha, 2009; National Highway Traffic Safety Administration [NHTSA], 2012; Substance Abuse and Mental Health Services Administration [SAMSHA], 2002). For all these reasons, early identification and effective treatment are essential for preventing long-term negative health and social outcomes among adolescents.

2. Screening for risky adolescent substance use

Screening, brief intervention and referral to treatment (SBIRT) is an evidenced-based procedure that prevents, but also identifies and reduces problematic AOD use (Vaca & Winn, 2007). Over three decades of SBIRT evaluations, conducted mainly with adults in medical settings, have demonstrated the effectiveness of and cost savings from SBIRT across many behavioral domains (Academic E. D. Sbirt Research Collaborative, 2010; Agerwala & McCance-Katz, 2012; Barnard, 2009; Cherpitel, Bernstein, Bernstein, Moskalewicz, & Swiatkiewicz, 2009; Desy, Howard, Perhats, & Li, 2010; Donovan, 2007; Estee, Wickizer, He, Shah, & Mancuso, 2010; Madras et al., 2009; Vaca & Winn, 2007; Vaca, Winn, Anderson, Kim, & Arcila, 2011). Among college-aged young adults and adolescents, brief interventions (BI) have demonstrated effectiveness in reducing risk of AOD dependence, alcohol consumption, and harmful behaviors (Baer, Kivlahan, Blume, McKnight, & Marlatt, 2001; Borsari & Carey, 2000). However, systematic reviews and meta-analyses with only adolescent populations have yielded inconclusive evidence regarding its effectiveness to reduce risky alcohol use (Dunn, Deroo, & Rivara, 2001; Gates, McCambridge, Smith, & Foxcroft, 2006; Yuma-Guerrero et al., 2012).

Recognizing these benefits, most states have approved Medicaid codes for reimbursement of SBIRT with adolescents, and it is part of the continuum of substance abuse care—deemed “essential services”—required of all health plans as part the Patient Protection and Affordable Care Act (2010) legislation starting in 2014. Adolescent SBIRT is recommended annually by the Society for Adolescent Medicine, the Maternal Child Health Bureau, and the American

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Academy of Pediatrics (Levy & Knight, 2008; Levy, Williams, & Knight, 2008).

3. Computerized screening

Computerized SBIRT is well suited for a variety of environments because it is brief and flexible in that it can be a standalone service or combined with other treatment approaches; it is interactive; and it can easily be provided in various languages. Computerized SBIRT incorporates motivational interviewing techniques and non-confrontational, patient-centered approaches to discuss sensitive behaviors and is especially appropriate for the adolescent developmental stage (Gates et al., 2006; Tevyaw & Monti, 2004; Vaca, Winn, Anderson, Kim, & Arcila, 2010). These computerized behavioral interventions are reported to require little time to administer, be acceptable to patients, identify at-risk and dependent drinkers, and able to provide effective personalized feedback and brief intervention (Ranney et al., 2012; F. Vaca et al., 2010). A systematic review of 24 studies of online BI found that this mode of treatment could reduce amounts of alcohol consumed by adults and reduce binge drinking among students (Khadjesari, Murray, Hewitt, Hartley, & Godfrey, 2011).

4. SBIRT in school settings

There is reason to think that the individualized SBIRT intervention could have greater benefits in preventing and also reducing emerging student substance use and related problems in a school setting (Burrow-Sanchez, Call, Adolphson, & Hawken, 2009; Burrow-Sanchez, Lopez, & Slagle, 2008; Burrow-Sanchez & Lundberg, 2007; Madras et al., 2009; Wagner, Dinklage, Cudworth, & Vyse, 1999). However, public schools are not traditional locations where SBIRT interventions are provided. Mitchell and colleagues' (2013) review of adolescent SBIRT studies found only 3 of 14 studies were conducted in school settings. Nonetheless, school based interventions are more accessible than general community medical settings for adolescents (Clayton, Chin, Blackburn, & Echeverria, 2010; Wagner, Tubman, & Gil, 2004; Weinstein, 2006) and school health clinics are over 21 times more likely to elicit visits for behavioral health issues than are general community health clinics, particularly for minority and other "hard to reach" adolescents (Juszczak, Melinkovich, & Kaplan, 2003).

While there have been few studies of the effectiveness of SBIRT in middle or high schools (Abuse & Administration, 2009; Dunn et al., 2001), those studies have yielded promising findings. For example, in a delayed feedback control trial with 97 adolescents participating in a school-based motivational enhancement therapy intervention to reduce marijuana use, Walker, Roffman, Stephens, Berghuis, and Kim (2006) found significant marijuana use reductions at 3-month follow-up for the 9th and 10th grade students who were in the preparation/action stage of change category. Similarly, a study of 79, 14–17 year old adolescents referred by school officials for alcohol or marijuana problems, compared assessment only, brief intervention only, or brief intervention plus parental involvement. The brief intervention-plus-parents group had significantly better alcohol use, binge drinking and drug use outcomes than the assessment only group, and fewer days of drinking than the brief intervention-only group (Winters & Leitten, 2007). A multi-site, repeated measures study compared outcomes of 629 New Mexico high school students, who received a range of SBIRT and other support services (Abuse & Administration, 2009). BI was provided to 85.1% of adolescents, while 14.9% received additional brief treatment or referral to treatment (BT/RT). Participants receiving any intervention reported significant reductions in frequency of drinking to intoxication and drug use, but not alcohol use, from baseline to 6-month follow-up. The magnitude of these reductions did not differ based on service variables.

Despite the potential benefit of conducting SBIRT interventions in public schools, there are practical challenges. School settings are quite different from clinical settings and it is not reasonable to think that

SBIRT could simply be "plugged into" an educational setting without appropriate adaptation (Abuse & Administration, 2009; Damschroder & Hagedorn, 2011; Kilbourne, Neumann, Pincus, Bauer, & Stall, 2007; Lundgren, Amodeo, Cohen, Chassler, & Horowitz, 2011; Manuel, Hagedorn, & Finney, 2011; Sorensen & Kosten, 2011). One obvious problem is the need for additional training for school counselors (McCambridge, Slym, & Strang, 2008; Winters & Leitten, 2007). For an SBIRT intervention to be effective, practical, and sustainable in a school setting, it should: (1) engender student trust and honest risk reporting; (2) use counselors specially trained in modern risk reduction and motivational interviewing techniques (Miller, Yahne, & Tonigan, 2003); (3) not interfere with the education of students or the operations of the school; (4) be seen as having value to teachers, school administrators, parents, and students; and (5) have a clear financial plan to sustain the program.

With this as background, we now describe an 18-month effort to adapt and integrate an SBIRT protocol into two urban schools in New York. It should be clear that this translational research project did not seek to test the effectiveness of a school-based SBIRT program using a controlled trial; we felt that would be premature. Instead, this paper describes the development of a school-based SBIRT program and examines if such a program is feasible and sustainable. We saw this as a necessary first step toward a proper prospective evaluation of a well-functioning school-based SBIRT intervention.

5. Materials and methods

5.1. Study design

This project grew out of a request from the school district's superintendent to Phoenix House (www.PhoenixHouse.org)—a well-known provider of substance abuse services—for assistance in addressing the escalating substance use problem in their middle and high schools. Phoenix House (PH) was eager to develop potent prevention and early intervention services; and had well-trained counselors capable of providing those services. To help with the SBIRT adaptation and to perform a formative evaluation of that adaptation, they contacted researchers at the Treatment Research Institute (TRI, www.tresearch.org). PH obtained an operating certificate from the New York State Office of Alcohol and Substance Abuse Services (OASAS) to develop an in-school health clinic devoted to preventing and intervening early with student substance use problems. All costs to construct and equip a licensed clinic in each of the two schools (~\$50,000) were borne by Phoenix House. Data collection for the feasibility phase began in February 2012 and ended in June 2012.

Because this project was a preliminary investigation of the feasibility and sustainability of using SBIRT in a school setting, all students received the same intervention (i.e., there was no control group). School administration and teachers agreed to allow SBIRT sessions during non-academic classes. Counselors notified teachers the day before a scheduled screen. At that time, the counselor met the student at the classroom and walked him/her to the clinic, discussing the general protocol, and the confidentiality provisions. At the clinic, students were supplied earphones, logged into the computer and given time to finish the screening questions—typically 15–20 minutes. Following the computer screening, each student was offered an opportunity to discuss their answers privately with a counselor during a 10–30 minute counseling session. Following the sessions, the counselors escorted the students back to their classrooms. The SBIRT program was provided in English and Spanish and both clinics were equipped with a Spanish-speaking counselor.

5.2. Participants

All 6th- to 12th-grade students in the middle and high schools who were enrolled in school during the 16-week feasibility testing period

(n = 998) were eligible to participate if their parent had not declined. Thus, the study involved the full range of students attending these two schools. Students and parents were notified of the program via flyers, announcements, promotions, and advertisements that were mailed home.

5.3. Web-based screening

The screening instrument recommended within the New York OASAS was the six-item CRAFFT (Knight et al., 2002; Knight et al., 1999), a widely-used and well-validated screening tool for use with adolescents recommended by the American Academy of Pediatrics' Committee on Substance Abuse. Analytic Works (www.gamingsmarter.com) created a computer-administered screener and tailored program. The program allowed for tailoring on age, gender, ethnicity and language preference (e.g., Spanish) with the option to have the materials read aloud. The resulting program consisted of:

- an interactive Web-based screening tool that included the CRAFFT and additional measures of risky and protective behaviors, mental health, school achievement, and attitudes toward substance use;
- individualized substance use feedback for the student;
- tailored animated short videos (1–2 minutes) on blood alcohol poisoning, the effects of alcohol and marijuana, and peer pressure; and
- an animated blood alcohol calculator that was customized using age, gender, and weight specific formulas.

The presentation of the content used a “video game style” to be more engaging and interactive. The animated short videos encouraged skill building, self-monitoring, and self-efficacy. Following the computer screening process, a counselor feedback report was forwarded to the Phoenix House counselor using Analytic Works Web-based clinic practice management system. This counselor feedback report contained the student ID number, CRAFFT score, risk level, discussion prompts (e.g., ‘I see you play football’), and suggested one of three

possible types of brief, motivational interviewing (MI) sessions (described below) based on the student’s risk level (Fig. 1).

Counselors signed into a secure Website to view daily workflow, pull counselor feedback reports, and create and complete treatment notes. The practice management system also electronically completed billing forms and allowed the counselor to email or save the electronic treatment notes and bills to their existing internal or external biller.

5.4. Brief intervention utilizing a structured counseling protocol

The brief intervention (BI) had two distinctive features: motivational interviewing and a computer-assisted counseling protocol. Motivational interviewing is a client-centered style of counseling that helps clients explore and resolve ambivalence about changing (Miller, 1996). While using client-centered techniques to build trust and reduce resistance, the counselor focuses on increasing readiness for change, self-efficacy, and perceived discrepancy between actual behavior and ideal behavior (Rollnick & Miller, 1995). Specifically, the counselors asked open-ended questions, listened reflectively, offered encouragement, summarized the student’s views, elicited self-motivational statements, recognized and addressed resistance, recognized readiness for change, and identified discrepancies while following treatment recommendations based on the counseling protocol.

Detailed counseling protocols defined goals for each session and standardized counseling techniques while permitting flexibility and individuality. The computer-assisted counseling protocol was developed in conjunction with the Phoenix House Clinical Director and used the CRAFFT score, risk indicators, protective factors, and probabilities of substance abuse and dependence to recommend to the counselor one of three treatment sessions (Fig. 1). SBIRT programs that focus on early intervention have generally adopted a broad definition of screening and brief intervention (Babor et al., 2007). Screening for prevention and early intervention encompasses the full spectrum ranging from risk of negative consequences related to substance use to substance use disorders. Prevention and early intervention BIs are normally short and provide information and advice, increase motivation to avoid substance use, and teach

CRAFFT Score	Risk Score	Probability of Substance Abuse or Dependence Diagnosis(Knight et al., 2002; Knight et al., 1999)	Treatment Recommendation
0	No or Very Little Risk	0%	Students with no use (or very low levels of past use) were given fact-based encouragement to reinforce the positive behaviors they were already exhibiting.
1 2	Some Risk	30% to 50%	Students reporting they had begun to use, were offered a standard motivational interview of 15 – 30 minutes. Additional sessions were recommended based on results from the initial session. If no change or increases in use or risk was detected, the counseling session developed into a “Significant Risk” session (see below).
3 4 5 6	Significant Risk	70% to 90%	Students who reported significant levels of substance use (and those with continued or escalating use) were provided a brief intervention designed to help the student recognize the severity of their use; and telephone notification of parents. With their agreement students were offered formal treatment options.

Fig. 1. Motivational Interviewing Algorithm—based on the CRAFFT score.

Table 1
Participation in screening by race, gender and school.

Variable	Enrolled in school	Screened sample	
	n (%)	n	(% of enrolled)
Total	998	248	(24.8%)
School			
Middle	468 (47)	113	(24.1%)
High	530 (53)	135	(25.4%)
Race/ethnicity ^a			
African American	710 (71)	149	(21.0%)
Hispanic	288 (29)	92	(31.9%)
Gender ^a			
Female	507 (51)	126	(24.9%)
Male	491 (49)	112	(22.8%)

^a Demographic data were not collected for seven students receiving paper screens.

behavior change skills that will reduce substance use as well as the chances of negative consequences.

- No or low risk MI sessions—A student's report of no, or low-level past use led to an encouraging preventive/early "discussion with counselor" session during which the counselor provided the student with additional factual information designed to strengthen already positive behaviors.
- Moderate risk MI sessions—Recent substance use and/or concerns about potential use led to a standard motivational interviewing BI session designed to promote self-awareness of the disparity between the student's aspirations and their use of substances; and to promote student ideas about how they would reduce use and risks. Additional voluntary MI sessions were offered when a student remained ambivalent or unsure. Subsequent sessions repeated the motivational message but also assessed progress. If no change or increased use/risk were detected, the counseling session developed into a 'significant risk' session.
- Significant risk MI sessions—Higher levels of use, injection drug use or significant risks (e.g. driving while intoxicated, thoughts of suicide) led to a BI session where the student was brought to understand the severity of the situation and the need to contact the parent. A supportive phone contact with the parents was then arranged with the goal of thorough assessment and probable referral to treatment.

5.5. Feasibility and sustainability assessment

Because the study was a feasibility study and not designed to detect changes over time, formal statistical analyses are not presented. Using non-identifiable patient data we were able to conduct a formative evaluation that focused upon four fundamental questions:

- 1) Overall fit of the intervention—Were we able to implement the intervention without inconvenience, loss of confidentiality, or other unforeseen problems?

Table 2
Demographics and CRAFFT score.^a

CRAFFT score	Males	Females	African Americans	Hispanics	High school	Middle school
	n = 112	n = 126	n = 149	n = 92	n = 135	n = 106
0	63%	63%	62%	64%	46%	85%
1	10%	10%	10%	8%	14%	3%
2	10%	10%	11%	9%	16%	3%
3	6%	8%	9%	4%	9%	5%
4	6%	6%	5%	9%	10%	2%
5	4%	4%	3%	7%	6%	3%
6	0	0	0	0	0	0

^a Demographic data were not collected for seven students receiving paper screens.

- 2) Screening acceptability and detection rates—What proportion of students revealed substance use problems?
- 3) Counseling acceptability—Did students who screened positive return for additional counseling sessions?
- 4) Sustainability—Were there organizational, procedural, or financial barriers to sustaining the intervention?

6. Results

6.1. Overall fit of the intervention

During the 16-week feasibility testing period, there were approximately 13 weeks we were allowed to conduct SBIRT due to school-wide testing, in-service trainings and school closings and the end of the school term. During those weeks, four to five students per day from grades 6–12 were recruited randomly; all during non-academic class periods (e.g., gym, study hall). A total of 248 students were recruited (see Table 1); 138 from the middle school and 110 from the high school with approximately equal numbers of boys and girls. A disproportionately high number of Hispanic students were included. Due in large part to the regular supervision of counselors, emphasizing the importance of privacy and confidentiality of student information, there were no confidentiality breaches throughout the feasibility phase.

6.2. Screening acceptability and substance use detection

Table 2 reports demographics by CRAFFT score for the sample of students who received a computerized screen. One hundred five of the 248 students screened (42%) reported use of alcohol or some other drug in the previous year on the computerized screener. By way of comparison, a standard, anonymous paper and pencil report of substance use, required by New York State, had been completed by the school in the prior year, in which only 28% of students self-reported alcohol or drug use.

Based on student self-reports during screening, approximately 58% (143) of all screened students scored in the no or low risk group, 25% (62) scored in the moderate risk level, and 18% (43) indicated levels of use deemed significant (see Fig. 2). Alcohol use was the most widely reported substance used with 92 students (37%) reporting drinking an alcoholic beverage in the prior 12 months (75 high school, 17 middle school). Ninety-seven students (39%) reported they had ridden in a car driven by someone who had been drinking alcohol or using drugs. "Binge" drinking (i.e., four or more drinks in a row within the last 30 days) was reported by 27 high school students (20%) and 8 middle school students (6%).

Sixty-two students (25%) reported marijuana use and 18 students (7%) reported using a drug other than alcohol or marijuana in the previous 12 months. In comparison, the national average for 8th, 10th, and 12th grade students reporting marijuana use is 25% (Johnston, O'Malley, Bachman, & Schulenberg, 2012). Among the 105 students who reported alcohol or drug use, 45% reported using

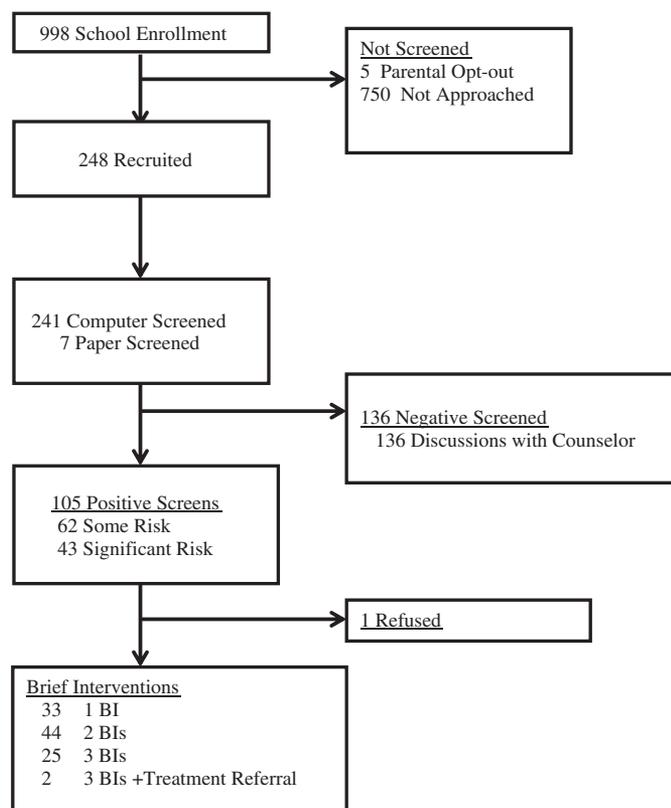


Fig. 2. Screening, brief interventions and referral to treatments.

those substances to relax, feel better about themselves or to fit in. Four students (40%) reported using a substance while they were alone and nearly 32% of substance using students reported forgetting things they did while using alcohol or drugs. Twenty-five percent of substance using students reported a family member or friend telling them they should cut down on their alcohol or drug use and 19% reported getting into trouble while using alcohol or drugs.

6.3. Counseling acceptability

All students were offered the opportunity to talk to a counselor following their computer screening regardless of risk. Of the negative screens ($n = 136$), 100% of the students spoke with the counselor for a preventive/early session. Of the positive screens ($n = 105$), only one student refused a BI. Among students reporting some risk ($n = 62$), 33 (53%) received one BI and 28 (45%) received two BIs. Of the students reporting significant risk ($n = 43$), 16 (37%) received two BIs and 27 (63%) received three BIs with two being referred to treatment (Fig. 2).

6.4. Sustainability

Although the SBIRT procedure had been a New York Department of Health-approved prevention practice, we found many barriers to reimbursement for these approved services through the State Medicaid system. The Department of Health regulations specifically permitted SBIRT without parental/guardian permission (as is true of virtually all prevention services). However, billing for that service through Medicaid required submission of student insurance information which was held by the parents or guardians. For this reason, prior to the start of this project, all parents and guardians were notified by mail about the project—that it would be conducted by trained Phoenix House counselors, that their child's information would not be shared with the school, that neither the parents/guardians nor the child would be charged for these services (not even a co-pay), and that parents/guardians could keep their child from participating by returning a signed opt-out form.

Perhaps because of the numerous presentations to school board, teachers, parent organizations and parents in general at school open houses or because of the “opt-out” parental consenting, there were only five parents who refused participation by their child. However, among the students who were screened, only 40% of parents and guardians returned insurance information to permit reimbursement for the services provided regardless of whether the insurance was government (CHP, Medicaid) or private (Table 3).

7. Discussion

Because adolescence is an important time to address alcohol and drug use and because substance use problems are often a particular impediment to student education and healthy development, schools could be among the best locations to deliver evidence-based substance use prevention and early intervention. Consistent with decades of research showing the value and benefits of SBIRT in medical settings, our experience demonstrates that integrating this evidence-based procedure into school settings is both feasible and desirable—but not easy. This feasibility study by Phoenix House and the Treatment Research Institute has shown that many factors determine whether the procedure will be adopted, implemented, and sustained. Extending research on the feasibility, acceptability, and efficacy of computerized screening and provider brief intervention (Harris et al., 2012), this computerized SBIRT program appears promising for identifying substance use and risky behaviors among adolescents in school settings.

After two semesters of site preparation, training, community discussion, and a 16-week pilot test, it is possible to say that the computer screening followed by the brief motivational interviewing sessions, were acceptable to all members of the community (e.g., school administration, school board, teachers, teachers union, parents, and students). We believe the acceptance and general “fit” of the procedure was due to our decisions to: (a) provide SBIRT by non-school personnel; (b) use a computerized SBIRT program; (c) ensure

Table 3
Obtaining insurance information.

Variable	Middle school $n = 122$		High school $n = 135$		Total $n = 247^a$	
	<i>N</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
Billable	36	30	63	47	99	40
In-network	10	8	25	19	35	14
Medicaid	26	21	38	28	64	26
Not billable	76	62	72	53	148	60
Out-of-network	9	7	6	4	15	6
Not insured	2	2	3	2	5	2
Insurance information not provided	65	53	63	47	128	52

^a One student refused services.

private and confidential procedures; and (d) provide services during non-academic periods.

We undertook this study in part because of favorable research findings from earlier SBIRT studies in schools (Clayton et al., 2010; Wagner et al., 2004; Weinstein, 2006; Winters, Fahnhorst, Botzet, Lee, & Lalone, 2012; Winters & Leitten, 2007). Also, there were favorable clinical and financial regulations in place within the test schools which offered the potential for sustaining the school-based SBIRT procedure through approved health insurance reimbursement and a relationship with a substance abuse treatment center. Indeed the approved and published Medicaid reimbursement rates for SBIRT in New York are adequate to support and sustain a part-time supervisor and two counselors to provide these services for an enrollment of over about 600 students. However, parental willingness to provide insurance information is key to financial stability and over half of the parents were unwilling to provide the information that would permit reimbursement for SBIRT services. At this writing, negotiations are under way to better understand and streamline reimbursement procedures for SBIRT by both government and commercial insurers.

SBIRT is one important element of the prevention efforts described within the Patient Protection and Affordable Care Act (2010). Approved prevention practices are intended and expected to be widely implemented to both improve public health and to reduce burden of disease and cost. However, findings to date suggest that there are organizational and procedural barriers that may produce barriers to the intended broad implementation of SBIRT. For this study, we worked with a well-established substance abuse treatment provider that was independent of the school. We believe this was a paramount feature of our program and cannot speak to the barriers of implement a school based SBIRT program with school counselors or nurses.

In the state of New York, certified school counselors are eligible to perform SBIRT and submit for Medicaid reimbursements. National surveys of middle and high school counselors conducted by Burrow-Sanchez and colleagues (2008; 2009) have reported school counselors indicating they have very low levels of training in providing comprehensive screening and assessment of substance use and effectively working with students with substance abuse problems. In addition, school counselors indicated they do not have time or training to provide interventions for students with substance abuse problems (Burrow-Sanchez & Lopez, 2009).

Parental provision of insurance information is a barrier for both government and commercial insurance reimbursement. In addition, commercial insurers may require an “explanation of benefits” and perhaps details of the screening results which could become part of a student's health record, possibly reducing student trust and acceptance. This problem remains to be solved and will be important for efforts to bring evidence-based clinical practices to broader scale.

7.1. Limitations

It is important to stipulate important limitations of this feasibility trial. First, although we used the NY State approved and research-validated CRAFFT instrument, we do not yet know the sensitivity and specificity of its use within the computer screening program. We have no reason to believe test parameters will differ in the computer format but this will require further testing. In addition, and for many reasons, this project did not attempt to validate the results of the self-reported screening results through urine testing or other biological confirmation. With regard to honest reporting it is encouraging that 42% of the students recruited in this test reported some substance use in the last year. In future trials it will be important to test whether substance use and other risky behaviors are accurately reported among the students; as well as whether and for how long prevention and early intervention effects are sustained in this setting.

The most important limitation of this translational research effort is that we have not yet tested school-based SBIRT for its major intended role in reducing substance use and substance use-related impediments to education, health and social development. This type of prospective study now seems not only possible to design, but also worthy of consideration given the likelihood that the present SBIRT intervention may be feasibly and economically implemented. Despite the noted limitations of this early study and the remaining work yet needed, we believe school-based SBIRT will be an effective and practical method to delay onset and reduce the severity of early-onset substance use among middle and high school students.

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