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Integrating Screening, Brief Intervention, and Referral to Treatment (SBIRT) into Clinical Practice Settings: A Brief Review

Suneel M. Agerwala, B.A.[a] and **Elinore F. McCance-Katz, M.D., Ph.D.**[b]

[a]Research Analyst, University of California, San Francisco, Addiction Medicine Research, Department of Psychiatry, San Francisco, CA.

[b]Professor in Residence, University of California, San Francisco, Addiction Medicine Research, Department of Psychiatry, San Francisco, CA.

Abstract

Screening, brief intervention, and referral to treatment (SBIRT) is a public health approach to the delivery of early intervention and treatment services for individuals at risk of developing substance use disorders (SUDs) and those who have already developed these disorders. SBIRT can be flexibly applied; therefore, it can be delivered in many clinical care settings. SBIRT has been adapted for use in hospital emergency settings, primary care centers, office- and clinic-based practices, and other community settings, providing opportunities for early intervention with at-risk substance users before more severe consequences occur. In addition, SBIRT interventions can include the provision of brief treatment for those with less severe SUDs and referrals to specialized substance abuse treatment programs for those with more severe SUDs. Screening large numbers of individuals presents an opportunity to engage those who are in need of treatment. However, additional research is needed to determine how best to implement SBIRT.

Keywords

brief intervention; referral to treatment; SBIRT; screening; substance use disorders

Screening, brief intervention, and referral to treatment (SBIRT) is a public health approach to the delivery of early intervention and treatment services for individuals at risk of developing substance use disorders (SUDs) as well as those who have already developed these disorders. SBIRT is an intervention that can be flexibly applied, so it can be delivered in many clinical care settings. SBIRT has been adapted for use in hospital emergency settings, primary care centers, office- and clinic-based practices, and other community settings, providing opportunities for early intervention with at-risk substance users before more severe consequences occur. In addition, SBIRT interventions can include the provision of brief treatment for those with less severe SUDs or referrals to specialized substance abuse treatment programs for those with higher severity disorders.

The current model of SBIRT is based on the Institute of Medicine (IOM 1990) report, *Broadening the Base of Treatment for Alcohol Problems*. The IOM recommended the development of integrated service systems that link community-based screening and brief intervention to assessment and referral activities. This type of intervention fills the gap between primary prevention and more intensive treatment for those with SUDs. The main goal for SBIRT is to improve community health by reducing the prevalence of adverse

Please address correspondence to Suneel M. Agerwala, San Francisco General Hospital, 1001 Potrero Ave, Suite 7M, Ward 95, San Francisco, CA 94110; phone: 845-893-9171, fax: 415-206-5569, suneel@gmail.com.

consequences of substance misuse, including SUDs, through early intervention and, when needed, referral to treatment (IOM 1990).

In practice, SBIRT comprises three stages: screening, brief intervention, and referral to treatment. Screening involves a rapid assessment of substance use. SBIRT was developed for tobacco and alcohol use disorders, but its use is being expanded to include illicit drug and prescription drug use, although for these latter categories there is no strong research evidence for its effectiveness as yet. If it is determined that a patient's substance use patterns are hazardous, a brief intervention follows. When practitioners first began using SBIRT, the brief intervention utilized brief advice approaches, whereas current U.S. SBIRT efforts focus on motivational interviewing approaches of various lengths (Pringle et al. 2012). Depending on severity, patients may be offered brief treatment (a variable number of sessions, depending on the program and client, focusing on motivating clients to change substance use patterns) or be referred to a substance abuse treatment program. Referral to treatment may be more useful for excessive drinkers, as brief intervention has been shown to have little effect on this population (Beich et al. 2007; Beich, Thorsen & Rollnick 2003; Beich, Gannic & Malterud 2002).

The importance of integrating SBIRT into the clinical setting is becoming increasingly apparent. Problem substance use is highly prevalent in the United States. According to the 2008 National Survey on Drug Use and Health, conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA 2009), 23% of Americans engage in risky drinking, 8% engage in illicit drug use, and 10% meet the criteria for either alcohol or other substance abuse or dependence. The same survey revealed that 90% of people with SUDs do not receive treatment. Of those who do not receive treatment, 95% do not know that they have a problem. The integration of SBIRT into clinical settings attempts to raise awareness of substance use issues among patients and help them to find relevant treatment solutions, where appropriate.

SBIRT HISTORY

The current model of SBIRT was not feasible until the 1980s. It was during this time period that reliable screening tools for alcohol and drug abuse, such as the Michigan Alcohol Screening Test, the CAGE, and the Drug Abuse Screening Test, were developed (Babor & Kadden 2005). These tools permitted the development of rapid methods of screening to be devised.

One early successful demonstration that SBIRT could be a helpful intervention found that brief physician advice helped some to stop smoking tobacco cigarettes, when undertaken in concert with support from a local smokers' clinic (Russell, Stapleton & Hajek 1988). In another study, conducted in Malmo, Sweden, 585 males who engaged in heavy drinking received screening and brief intervention (SBI) and were followed over a two- to six-year period during the late 1970s and early 1980s. The study showed that SBI, in the form of repeated encouragement from a health care provider, was helpful in decreasing overall alcohol consumption, lowered the incidence of negative medico-social consequences, and decreased mortality associated with heavy drinking (Kristenson et al. 1983).

Evidence supporting the effectiveness of alcohol SBI in primary care settings continued to grow. A randomized, controlled clinical trial conducted in 1997 found that for problem drinkers (men consuming more than 14 drinks per week and women consuming more than 11 drinks per week), two 10- to 15-minute counseling visits led to reductions in seven-day alcohol use, episodes of binge drinking, and frequency of excessive drinking at a 12-month follow-up (Fleming et al. 1997).

Upon recognizing the importance of the Malmo study and others, the World Health Organization (WHO) began to focus resources on research to develop an international screening test as well as to evaluate the effectiveness of various brief interventions for at-risk alcohol drinkers (Babor et al. 2007). The screening tool that they developed was the Alcohol Use Disorders Identification Test (AUDIT; Saunders et al. 1993). The organization also conducted a cross-national clinical trial comparing brief interventions among patients who were deemed at risk of alcohol-related problems (WHO Brief Intervention Study Group 1996). This program also began to integrate SBIRT into primary care settings in Europe as well as in developing nations (Babor et al. 1989).

Recognizing the potential of SBIRT, the WHO's focus turned to research investigating how to best implement screening and brief intervention for alcohol problems in primary care settings, and, on a broader scale, how to integrate SBIRT into the health care systems of countries around the world (Babor et al. 2007). In 1997, a program, similar to the above for alcohol, was started to develop a quick and accurate screening test as well as evaluate the effectiveness of brief interventions for illicit drugs and tobacco (WHO ASSIST Working Group 2002). In the United States, the dissemination of SBIRT technologies has been strongly supported by SAMHSA's SBIRT initiative. This program has demonstration sites operating in 11 states (Babor et al. 2007). Other large programs of note are located in Brazil, South Africa, and the European Union (Babor et al. 2007). Currently, most SAMHSA-funded projects use dedicated personnel or "specialists" to deliver SBIRT services. Clinics using specialists have been shown to implement a higher percentage of completed interventions, although clear differences between sites have emerged. Whether the physician or specialist delivery model works best depends on a variety of provider and organizational characteristics (Babor et al. 2005).

SBI in primary care settings has shown significant promise. A summary of evidence taken from 12 controlled trials found that six to 12 months after good quality, brief, multicontact behavioral counseling interventions, participants reduced the average number of drinks they consumed per week by 13% to 34% when compared to controls not receiving the intervention, and the proportion of participants drinking at moderate or safe levels was 10% to 19% greater compared to controls (Whitlock et al. 2004). A systematic review and meta-analysis found that brief alcohol intervention in primary care settings reduced alcohol consumption for both men and women at six- and 12-month follow-ups (Bertholet et al. 2005).

INTRODUCTION TO SBIRT IN MEDICAL SETTINGS

Self-report screening tests are simple and can be given in a variety of settings. They are often administered as part of a clinician interview, via a questionnaire, or they may be completed by patients given access to a computer. Automated telephone screening, where clients respond via touchtone keypads to telecomputer-administered versions of the CAGE and AUDIT screening assessments, has been shown to be comparable to clinician-administered screening (Dyches et al. 1999). Internet websites have also been found to be effective as screening tools when they are well publicized and easily accessible. Many users screened in this way who drink excessively have sought referral information (Saitz et al. 2004). Some single-question screens for risky drinking and alcohol use disorders have been developed and validated (Dawson, Compton & Grant 2010; Dawson, Pulay & Grant 2010; Seale et al. 2006; Williams & Vinson 2001) as has a single-question screening test used in primary care settings for illicit drug use and abuse of prescription drugs (Smith et al. 2010). See Table 1 <TQ>first mention of table 1</TQ> for a summary of SBIRT screening tools.

SBIRT IN EMERGENCY DEPARTMENTS

Emergency departments (ED) across the United States are part of the health care safety net and, by default, become the point of primary care for millions of Americans. Forty percent of ED visits are due to trauma, and of these, between 40% and 50% are alcohol related (Nilsen et al. 2008). As of 2006, the Committee on Trauma of the American College of Surgeons has recommended that all Level I and II trauma centers be equipped to use SBIRT screening tools and that Level I centers offer a brief intervention when necessary (Soderstrom et al. 2007). Recent studies have shown mixed results regarding the effectiveness of SBI delivered in EDs (Academic ED SBIRT Research Collaborative 2010). A systematic review and meta-analysis did, however, find that SBI reduced ED utilization (Bray, Cowell & Hinde 2011).

In the ED, a physician, nurse, or specially trained health education paraprofessional may administer SBIRT. The process involves administration of screening questions to ED patients. When at-risk drinkers are identified, brief advice, motivational interviewing (MI), or a brief negotiated interview (BNI) is administered. BNI attempts to integrate the early approach of offering brief advice with the more current approach of using MI (D'Onofrio, Bernstein & Rollnick 1996). If the patient expresses interest in reducing consumption, the provider helps to establish alcohol use reduction goals and follow-up plans. In a recent study, those patients receiving a brief intervention (BI) were more likely to enter into substance abuse treatment in the year following BI. This was particularly true of patients who had no substance abuse treatment in the past two years (Krupski et al. 2010).

Using computers as a means of screening has been in evolution for two decades (Davis & Morse 1991; Barry & Fleming 1990), and recent studies have shown promise for this method (Heron & Smyth 2010; Kypri et al. 2008; Linke et al. 2008; Riper et al. 2008). One such study evaluates the administration of SBIRT in the ED via a Computerized Alcohol Screening and Intervention (CASI). The CASI takes less than five minutes to administer, can be conducted in many languages, and includes the AUDIT. It undertakes a BNI, prints a personalized alcohol reduction plan, and provides treatment referral information. A six-month follow-up found that 47% of at-risk patients who received the CASI-administered BNI were no longer drinking over the National Institutes of Alcohol Abuse and Alcoholism (NIAAA) low-risk limits, defined as no more than four drinks in a day or no more than 14 drinks in a week for men aged 64 years and younger and no more than three drinks in a day or no more than seven drinks in a week for women and for men age 65 years and older (Vaca et al. 2011).

The Academic Emergency Department SBIRT Research Collaborative has studied the implementation of SBIRT in EDs. As part of this multisite study, 14 sites participated in training ED staff in SBIRT. This included a total of 402 doctors, nurse practitioners, physician assistants, nurses, social workers, and emergency medical technicians. Of these health practitioners, 74% reported less than ten hours of alcohol education during graduate or post-graduate education, and 78% reported less than two hours of alcohol education in the previous year. Training in SBIRT involved either a two-hour interactive workshop with case simulations or a web-based program. At three months post-training, practitioners reported a small but significant increase in the belief that SBIRT would make a difference for patients receiving the intervention. Seventy-two percent reported delivering at least one SBIRT intervention in their clinical practice, and trainees were more likely to use SBIRT. At 12 months after the training, health practitioners had increased confidence in their ability to perform SBIRT and a greater sense of responsibility to screen. Identified barriers included a lack of belief in the effectiveness of SBIRT, a lack of role models among faculty, a concern for angry responses from patients, lack of reimbursement, and lack of referral sources. These

barriers underscore the need for institutional support, the continued supervised clinical practice of SBIRT, and system-wide change that supports the intervention (Academic ED SBIRT Research Collaborative 2007a).

A companion study conducted by the same collaborative evaluated the effectiveness of SBIRT on ED patients. In this study, 7,751 patients were screened. Of those, 2,051 exceeded the NIAAA low-risk drinking limits. Over 1,100 patients consented to participate in the study, in which patients were randomly assigned to receive either SBIRT/BNI or a control intervention that consisted of written advice and a referral list from providers. At three months, those who received a brief intervention reported significantly fewer drinks per week and were more likely than controls to report alcohol use that was below the NIAAA low-risk limit. This study shows the potential for an ED intervention to directly benefit patients, as evidenced by reduction in alcohol consumption, alcohol-associated morbidity, mortality, and healthcare costs (Academic ED SBIRT Research Collaborative 2007b). However, a follow-up study showed that the effects associated with SBIRT/BNI observed at three months were no longer significant at six and 12 months (Academic ED SBIRT Research Collaborative 2010).

Other models of SBIRT in the ED have also shown promise. In a study of nurses delivering SBI in an ED, decreases in alcohol consumption determined by quantity as well as frequency were reported. SBI was also associated with a decrease in recurring ED visits when compared to the usual care group (Desy et al. 2010). Another approach, which addresses the time constraints and the lack of referral experience among ED providers, involves the use of health promotion advocates (HPA) who have experience in the recognition and treatment of SUDs and function as physician extenders. These advocates see all patients to assess general health, safety, and substance abuse issues. If a patient has substance abuse issues, the HPA will assist in making a referral to treatment. Important contributions of ED HPAs have included improving patient flow and community relations, as well as reducing the need for security involvement and success in finding detoxification placements (Bernstein et al. 2009c).

Not all SBIRT research outcomes have been positive. Some ED SBIRT studies show little difference in drinking results between people who have received SBIRT and controls (D'Onofrio et al. 2008; Daeppen et al. 2007). The traumatic event that led to admission to the emergency department may act as a motivating factor for patients, regardless of whether they receive SBIRT. A follow-up SBIRT session with a trained interviewer at a date six to 12 months after the initial emergency room visit may help individuals to reassess their motivation to change (Korcha et al. 2012). In addition to multicontact interventions, active referral to primary care providers offers another opportunity to increase the effectiveness of ED interventions (Academic ED SBIRT Research Collaborative 2010).

There are challenges that may hinder the integration of SBIRT into EDs. Up to 75% of patients screened will not be at risk for SUDs, and the time spent to screen all patients in the ED when the yield is expected to be 25% or less (Madras et al. 2009) may discourage the use of SBIRT among ED staff. Screening plus BNI lasts approximately ten minutes, which in ED settings is a lengthy period that some clinicians may not find to be the best use of ED time. The comfort level of the ED staff is important as well. Effective training is needed before SBIRT becomes routine and staff can administer it efficiently (Bernstein et al. 2009c). There is also a general lack of referral sources, which points to a larger systemic problem.

There also are reimbursement issues surrounding SBIRT. Although SBIRT is being reimbursed by Medicare and at least three major U.S. insurance carriers, a study found that

implementation of billing codes was insufficient to promote utilization of SBI (Fussel, Rieckmann & Quick 2011). Ongoing challenges include a low reimbursement rate, a minimum 15-minute length of service requirement for billing, and the availability of reimbursement only for licensed healthcare providers delivering the intervention.

However, several studies indicate that SBIRT may decrease health care costs. In a Washington State Medicaid cost analysis study, SBIRT was delivered by substance abuse counselors to working-age disabled Medicaid patients in nine hospital ED units. Patients receiving SBIRT were found to have significant reductions in need for health care services in the year following the SBIRT intervention, with a reduction in Medicaid costs per month per member of $366 (Estee et al. 2010). Similarly, Gentilello and colleagues (2005) reported a $3.81 reduction in health expenditures for every $1.00 spent on screening and intervention in trauma patients. If applied nationwide, this was estimated to potentially produce a net savings of $1.82 billion annually. Another study has suggested that a $43,000 reduction in future health care costs would be realized for every $10,000 invested in early intervention (Fleming et al. 2002).

SBIRT use in trauma centers also shows some promise. At a 12-month follow-up, those receiving a brief intervention decreased alcohol consumption by 21.8 drinks per week. The most significant drop in consumption was seen in mild to moderate drinkers. In addition, trauma recidivism, measured using a statewide database of all ED and hospital discharges over the subsequent three years, was reduced by 47% in those receiving SBIRT (Gentilello et al. 1999). This study contributed to the recommendation by the Committee on Trauma of the American College of Surgeons that all patients seeking treatment for trauma in Level I EDs receive SBIRT. Another study showed that two brief interventions, personalized motivational intervention and brief information and advice results in decreases in alcohol consumption and fewer negative consequences from drinking in trauma center patients receiving SBIRT at six- and 12-month follow-ups (Sorderstrom et al. 2007).

SBIRT IN PRIMARY CARE

Evidence supporting the use of SBIRT in primary care is quite strong (Kaner et al. 2007). Numerous studies show that alcohol screening and brief counseling interventions reduce unhealthy alcohol use in primary care patients (Williams et al. 2011; Babor et al. 2007; Kaner et al. 2007). Gryczynski and colleagues (2011) evaluated SBIRT implementation in rural New Mexican primary health care settings including Federally Qualified Health Centers, public health offices, and Indian Health Service clinics. This study is one of a limited number of studies to describe use of a full SBIRT model in primary care, with services provided by dedicated SBIRT providers. The AUDIT was used to screen for at-risk alcohol consumption, and those identified with hazardous drinking (AUDIT score > 8) were referred to behavioral health counselors (BHC). To screen for illicit and nonmedical prescription drug use, a yes/no questionnaire about past-year use was also administered. Any patient who answered in the affirmative to a screening question was referred to a BHC. The counselors were licensed psychologists, clinical social workers, or substance abuse counselors. These staff received 80 hours of initial training as well as additional booster trainings by supervisors. At the six-month follow-up, brief intervention and brief therapy were associated with a decreased frequency of illicit drug use, alcohol use, and alcohol intoxication in patients who received the intervention. Brief therapy and referral to treatment was associated with the greatest reductions in alcohol and illicit drug use. It is important to note that this study included no control group (Gryczynski et al. 2011).

SAMHSA has developed and funded the creation of SBIRT Medical Residency Programs (MRP). In these programs, medical residents are taught SBIRT skills and how to incorporate

SBIRT into their practices (Seale, Shellenberger & Clark 2010). Some have suggested that a team-based learning approach would help residents to learn and implement SBI better than education through a traditional lecture format (Shellenberger et al. 2009). However, barriers to implementation of SBIRT in primary care settings mirror those in the ED: lack of substance use disorder knowledge, lack of time, reimbursement issues, and lack of faculty mentors (Pringle et al. 2012; Chossis et al. 2007). SBIRT training may also be useful as a platform to teach medical residents about pharmacotherapy treatments for substance use disorders, which can be provided by primary care providers. Two recently completed studies show the effectiveness of the use of a SBIRT curriculum and the reinforcement of skills taught in SBIRT curriculum through the use of standardized patients (Satre et al. In press; Satterfield et al. In press).

The importance of the availability of mentors who can provide faculty and residents with ongoing advice and encouragement is underscored by the current lack of a structured system of identification and treatment of substance abuse issues in medical settings. Single trainings of medical providers will not be sufficient to adequately establish this intervention (Chossis et al. 2007). Ongoing support, training, and the addressing of questions regarding the appropriate identification and treatment of patients with need for substance abuse treatment interventions is necessary (Pringle et al. 2012).

SBIRT FOR CHILDREN AND ADOLESCENTS

Alcohol and drug use is a leading cause of injury and death in children and adolescents. The National Survey on Drug Use and Health reported that 16% of 12- to 17-year-olds reported drinking in the past 30 days (US DHHS 2008). Binge drinking, defined as consuming more than five drinks on one occasion, is also a growing concern among adolescents, with 8% of eighth graders and 19% of twelfth graders reporting an episode in the past 30 days (Office of the Surgeon General 2007). Approximately 47% of adolescents try an illicit drug by the time that they graduate from high school (Johnston et al. 2009). This information is important because the use of drugs and alcohol before the age of 15 has been shown to be a predictor of SUDs in adulthood (Grant & Dawson 1997).

A survey was conducted to assess implementation of SBIRT in the 12- to 17-year-old population seeking treatment in EDs (Schweer 2009). Of 242 hospitals that responded to the survey, 18% reported screening all adolescents in the ED, and 26% screened adolescents admitted to trauma service. Blood alcohol concentration (BAC) was used by 52% of ED units as an indicator of whether to screen or not. The problem with this, however, is that it is the clinician who decides which patients are tested for BAC. This means that health care professionals decide who is at risk, and they may miss many adolescents who are likely to be engaged in at-risk behaviors (Schweer 2009).

Another study conducted at the Children’s Hospital of Philadelphia evaluated SBIRT implementation by trauma advanced-practice nurses for patients aged 12 to 18 years old. Nurses used the CRAFFT screener, a six-question instrument that queries about problem alcohol and drug use, with all adolescent trauma patients to determine if substance misuse was a problem for them (Knight et al. 2002). This screening tool was chosen for ease of use, age appropriateness, and its ability to address both risky alcohol and drug use. A positive response to any of the six screening questions led to a referral to a social worker or trauma advanced-practice nurse for further assessment. A specialty treatment referral was made if necessary. Nurses expressed concern about confidentiality issues and therefore created a “Specially Protected Information” section of the medical record for information about participants’ substance use. Of 115 adolescent trauma patients, 25% screened positive

(Robinson 2010). Although preliminary studies show some promise, currently there is insufficient evidence to indicate the efficacy of SBIRT for adolescents.

Brief motivational interviewing has been associated with reduced young adult (18- to 24-year-olds) alcohol consumption at six- and 12-month follow-up (Monti et al. 2007). This intervention has also shown a reduction in the incidence of alcohol-related injury, traffic violations, and driving after drinking among 18- and 19-year-olds, although this particular study showed no significant differences in reduction of alcohol consumption between brief intervention and standard care (Monti et al. 1999).

SBIRT IN EMPLOYEE ASSISTANCE PROGRAMS

In one of the only studies of SBIRT outside of medical settings, a telephone-based intervention was tested with employees who either self-referred or were manager-referred to the company's employee assistance program (EAP). The telephone interview offered an AUDIT screening. If the interviewee screened positive for hazardous alcohol use, they were given feedback including alcohol education, simple advice, a discussion of the pros and cons of alcohol use, the importance of cutting back, and a referral to outside care, when appropriate. Over a five-month period, 295 people were offered screening, of which 93% participated. Common reasons for contacting the EAP were stress/anxiety/panic (38%), depression (19%), alcohol use (6%), and other drug issues (1%). Forty percent of those who consented were found to have a positive screen by the AUDIT, and of those, 52% scored at moderate to high risk. An overall rate of approximately 8% for alcohol disorders approached that of the general population in the United States. Of those who had a positive screen by the AUDIT, 72% contacted the EAP clinician for the recommended appointment to begin to address problem alcohol use (McPherson et al. 2010). This study shows the potential usefulness of screening and brief intervention in settings outside of health care systems and the wide applicability of this intervention. Limitations of this approach include limited participation rates by employees and patient concerns about confidentiality.

ONGOING QUESTIONS REGARDING SBIRT

SBIRT research has focused mainly on alcohol use. There is little data on effective screening tools and usefulness of SBIRT interventions in illicit drug users. Recently, however, the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) has been developed, validated, and used as the screen for a randomized controlled trial of a brief intervention for illicit drugs. The study found that those receiving BI had significantly reduced scores for all ASSIST measures (Humeniuk et al. 2012). Also, a study attempting to reduce marijuana use among teens and young adults in a pediatric ED setting using SBI found that intervention participants were more likely to be abstinent for the past 30 days and showed a reduction in days of substance use at 12-month follow-up (Bernstein et al. 2009b). More research is needed to explore the effectiveness of SBIRT for those who engage in at-risk drug use behaviors. Further, most SBIRT studies have focused on short-term effects (up to one year after the initial intervention). One study did, however, find that brief physician advice was associated with sustained reductions in alcohol use four years after the intervention (Fleming et al. 2002). Moving forward, it will be important to conduct more long-term studies to examine the durability of the effects of SBIRT and to explore the most useful forms of SBIRT intervention. Such studies could evaluate the impact of SBIRT in the larger community and society as a whole.

The United States Preventive Services Task Force (2004) has given SBIRT in the primary care setting a "B" recommendation. This means that there is fair evidence that the benefits outweigh the harms. They reached this conclusion after considering research that suggested participants reduced their average number of drinks per week by 13% to 34% more than did

controls who did not receive a SBIRT intervention, and the proportion of participants drinking at moderate or safe levels was 10% to 19% greater as compared to controls (Bernstein et al. 2009a; Whitlock et al. 2004). More research will be needed to determine whether SBIRT should be required in all health care settings.

Some experts believe that the scope of SBIRT should be expanded to include tobacco misuse and possibly depression screening due to the high prevalence rates of these disorders. Benefits of routine screening for these issues include improved health outcomes as well as cost savings. Further cost savings could be realized by training individuals with bachelor's degrees to dispense SBIRT services (Brown 2011). It should also be noted that SBIRT in its current form is still not entirely an evidence-based practice. While studies do indicate that alcohol and drug use decrease at six months after service delivery, some of these studies lack control groups. Future studies should focus on a randomized clinical trial approach to demonstrate efficacy.

SUMMARY

SBIRT is increasingly used in medical settings in the United States and internationally. In a large study of SBIRT outcomes, at six-month follow-up, illicit drug use was 68% lower and heavy alcohol consumption was 39% lower among individuals who had screened positive for hazardous drug and alcohol use. Those same individuals reported improvements in general health, mental health, employment, and housing, as well as decreased criminal activity (Madras et al. 2009). Although this cohort study is promising, follow-up occurred at six months after baseline, making its findings less conclusive than aforementioned studies with longer follow-up times.

SBIRT shows promise in many medical settings in facilitating early identification of risky substance use. Screening large numbers presents a greater opportunity to engage those individuals who are in need of treatment. SBIRT can also be used as an opportunity to teach medical staff about substance use disorders and their treatment, including pharmacotherapies that can be implemented in primary care. However, additional research is needed to determine how best to implement SBIRT and to assure its routine use in primary care settings. Recent studies have begun to explore new approaches to understanding SBIRT and how best to implement the intervention to achieve the greatest positive results. For example, how the sequence of "change talk" within a brief motivational intervention relates to alcohol consumption is being explored (Bertholet et al. 2010), the use of motivational enhancement therapy to increase resident physician engagement in substance abuse education is being studied (Hettema et al. 2009), text-message-based drinking assessments and brief interventions are being explored (Suffoletto et al. 2011), and identification of behavior change techniques that will reduce excessive alcohol consumption that might be implemented in the SBIRT model are being researched (Michie et al. 2012). Further, studies of curriculum development and innovative approaches to teaching SBIRT using interventions such as medical resident interactions with standardized patients have been developed (Satre et al. In press; Satterfield et al. In press). While these studies show some promise, future studies are needed to fully evaluate their effectiveness.

Further evaluation of what training is most effective in improving the SBIRT skills of medical staff and to increase the receptivity of health care providers to use SBIRT with their patients is needed (Whitlock et al. 2004). One meta-analysis did find, however, that promising programs are those that have a specific focus on alcohol and those that are multi-component (Anderson et al. 2004). Equally important is continued exploration to determine what types of supports are needed for patients to maintain gains in reductions in hazardous substance use that result from SBIRT interventions. Finally, although there is some evidence

to support the efficacy of SBIRT for illicit drug use (Bernstein et al. 2005), cautionary notes have been raised about extrapolating what works in SBIRT for alcohol problems to SBIRT for illicit drug use (Saitz et al. 2010). Future studies focusing on the effect of SBIRT interventions in identifying and altering drug misuse and abuse will help to clarify these issues.

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TABLE 1

Screening Tools

Tool (Positive)	Questions
CAGE (two or more "yes" answers)	Have you ever felt you should *cut* down on your drinking? Have people *annoyed* you by criticising your drinking? Have you ever felt bad or *guilty* about your drinking? Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (*eye*-opener)?
CRAFFT (two or more "yes" answers)	Have you ever ridden in a *car* driven by someone (including yourself) who was "high" or had been using alcohol or drugs? Do you ever use alcohol or drugs to *relax*, feel better about yourself or fit in? Do you ever use alcohol or drugs while you are by yourself, or *alone*? Do you ever *forget* things you did while using alcohol or drugs? Do your *family* or *friends* ever tell you that you should cut down on your drinking or drug use? Have you ever gotten into *trouble* while you were using alcohol or drugs?
AUDIT (all questions ranked on a severity scale from 0 to 4—total score of ≥ 8 indicates a positive screen)	How often do you have a drink containing alcohol? How many standard drinks do you have on a typical day when you are drinking? How often do you have six or more standard drinks on one occasion ? How often during the last year have you found that you were not able to stop drinking once you had started? How often during the last year have you failed to do what was normally expected of you because of drinking? How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session? How often during the last year have you had a feeling of guilt or remorse after drinking? How often during the last year have you been unable to remember what happened the night before because you had been drinking? Have you or someone else been injured because of your drinking? Has a relative, friend, doctor, or other health care worker been concerned about your drinking or suggested you cut down?
ASSIST (administration and scoring is more complicated)	Which substances have ever been used in the patient's lifetime? What is the frequency of substance use in the past three months? What is the frequency of experiencing strong desire or urge to use each substance in the last three months? What is the frequency of health, social, legal or financial problems related to substance use in the last three months? What is the frequency with which use of each substance has interfered with role responsibilities in the past three months? Has anyone ever expressed concern about the patient's use of each substance? How recently has that occurred? Has the patient ever tried and failed to cut down or give up their use of each substance? How recently has that occurred? Has the patient ever injected any drug?
Maximum Drinks Screener (≥ 4 drinks)	During the last 12 months, what was the LARGEST number of drinks that you drank in a single day?

Tool (Positive)	Questions
Frequency of 5+/4+ Drinking Screener (≥ once per year)	During the last 12 months, about how often did you drink FIVE OR MORE drinks in a single day? (for men) During the last 12 months, about how often did you drink FOUR OR MORE drinks in a single day? (for women)
Single-Question Screening Test for Drug Use in Primary Care (any use)	How many times in the past year have you used an illegal drug or used a prescription medication for nonmedical reasons?