

**The Applicability of Screening, Brief Intervention, and Referral to Treatment (SBIRT) in  
Dental Settings: A Review of the Literature**

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## **The Applicability of Screening, Brief Intervention, and Referral to Treatment (SBIRT) in Dental Settings: A Review of the Literature**

According to the *2009 National Survey on Drug Use and Health*, almost 21 million Americans age 12 or older were in need of substance abuse treatment and did not receive the help they needed from a specialty facility (Substance Abuse and Mental Health Services Administration [SAMHSA], 2010). While 8.9% of the population met the criteria for substance abuse or dependence, a much larger proportion of the American population reported using alcohol or drugs regularly, if not hazardously. For instance, 59.6 million Americans age 12 or older reported engaging in binge drinking; 21.8 million reported using illicit drugs in the past month, and 7.0 million said they had used prescription type drugs for non-medical purposes (SAMHSA, 2010). The Screening, Brief Intervention, and Referral to Treatment (SBIRT) model is designed to help prevent this larger pool of at-risk substance users from becoming dependent, to help those who are dependent get the treatment they need, and to mitigate the negative consequences associated with substance use.

SBIRT is a public health approach to providing both early intervention and treatment services for at-risk substance users and for those who suffer from substance use disorders (Fleming & Murray, n.d.; SAMHSA, 2011a). The SBIRT model involves *screening* individuals in health care and other community settings to determine their level of risk related to the misuse of alcohol, tobacco, illicit drugs, and/or prescription drugs. Those with positive screens in the low to moderate risk range receive a *brief intervention* (BI), which usually involves motivational interviewing (MI) techniques (Rollnick & Miller, 1995) and is meant to help patients become more aware of their substance use and the risks of their use. Moderate to high risk users might

also receive a brief intervention or *brief treatment* (BT), which involves multiple sessions and a more cognitive behavioral approach. As Babor, McRee, Kassebaum, Grimaldi, Ahmed, and Bray (2007) explain, “while brief interventions focus on motivating clients to change their substance use, brief treatment helps clients develop the skills and resources to change” (p. 17). When a screening indicates that a patient is a high risk substance user, or that the patient abuses or is dependent upon a substance, a *referral to treatment* is made to assist the patient in getting the care that he or she needs. In short, SBIRT involves the integration and/or coordination of prevention, early intervention and treatment services by various health professionals.

While aspects of the SBIRT model have been utilized for decades, predominantly in primary care settings, there has been a relatively recent expansion of its use in the United States (Babor et al., 2007; Davoudi & Rawson, 2010). In 2003, SAMHSA’S SBIRT Initiative was implemented across numerous states and tribal organizations in health care settings. Evaluations of those SBIRT programs suggest they have been effective in decreasing substance use, decreasing the negative consequences associated with use, increasing the percentage of people who receive treatment, and improving the overall health and quality of life of those who receive SBIRT (Office of National Drug Control Policy [ONDCP], 2009). Studies have also shown SBIRT to be cost-effective (Fleming, Mundt, French, Manwell, Stauffacher, & Barry, 2000; Solberg, Maciosek, & Edwards, 2008). As such, primary care practitioners have been urged to implement SBIRT practices (ONDCP; NIAAA, 2003), though a national study found that less than a third of primary care patients reported being asked about their substance use by their primary care physicians (D’Amico, Paddock, Burnam, Fuan-Yue, 2005). Additionally, in 2006 the American College of Surgeons Committee on Trauma mandated that all Level I trauma centers screen and conduct brief interventions for alcohol use; however, “there is a substantial

risk that high quality evidence-based alcohol screening and brief intervention (SBI) procedures may not be broadly disseminated throughout trauma care systems” (Gentilello, 2007, p. 2). There have been recent calls to expand SBIRT services, due, in part, to the accumulating evidence on the effectiveness of the SBIRT model and to the recent passage of the Affordable Care Act (Humphreys & McLellan, 2010; SAMHSA, 2011b).

One potential way to expand SBIRT is to offer it in dental settings. Current use of SBIRT practices in dental settings is limited (Cruz, Ostroff, Kumar, Gajendra, 2005; Neff, Brickhouse, Gunsolley, Lanning, Lynch, and Downs, 2009b), yet dental teams are in a primary position to screen substance users, conduct brief interventions, and make referrals. This literature review will summarize the reasons why dental practitioners can and/or should implement SBIRT. It will then synthesize the research regarding the use of and effectiveness of SBIRT in other health care settings, before turning to the limited, and very recent, research on SBIRT practices in dental settings, followed by a discussion of the barriers to implementing SBIRT in dental settings.

### **Dentistry: The Ideal Setting for SBIRT**

Dental practitioners (including dentists and dental hygienists) are in an ideal role for screening patients for alcohol, tobacco, and drug use, for conducting brief interventions, and for making treatment referrals for several reasons. First, there is a direct relationship between substance use and oral health. This relationship is perhaps epitomized by the methamphetamine epidemic and “meth mouth” phenomenon (American Dental Association, n.d., “Meth Mouth;” Hamamoto & Rhodus, 2009; Shetty, Mooney, Zigler, Belin, Murphy, & Rawson, 2010), although alcohol and other drugs also increase the risk for oral cancers, dental caries, and other oral health problems (D’Amore et al., in press; Friedlander, Marder, Pisegna, & Yagiela, 2003; Reece, 2008; Robinson, Acquah, & Gibson, 2005). Additionally, people suffering from

substance use disorders tend to have poor oral hygiene habits (Barbadoro, Lucrezi, Prospero, & Annino, 2008). As such, dental practitioners are in a position to identify oral health symptoms of substance use or abuse and to talk to patients about behaviors that endanger their oral health (Da Fonesca, 2009; Shetty et al.). Patients seem to be supportive of their dentists talking to them about substance use. A recent study found the majority of patients are in favor of dentists screening and advising on alcohol use (Miller, Ravenel, Shealy, & Thomas, 2006), and according to the American Dental Association (n.d., “Drug Use”), patients expect conversations about the causes of oral health problems.

A second reason dental practitioners are well poised to incorporate SBIRT practices is that the dental industry already has policies and practices that support SBIRT use. The American Dental Association’s (ADA) (2010) *Current Policies* includes several statements on substance use disorders and encourages dentists to ask and advise patients about alcohol and drug use, and to make treatment referrals. Dental teams have long been encouraged to conduct interventions with patients on tobacco cessation involving the so-called “5 A’s,” which are consistent with SBIRT practices: (1) *asking* the patient about tobacco use, (2) *advising* the patient to quit, (3) *assessing* his or her willingness to quit, (4) *assisting* in the patient’s attempts to quit, and (5) *arranging* a follow-up appointment (ADA, 2010; Neff, Brickhouse, Gunsolley, Lanning, Lynch, & Downs, 2009a, 2009b; U.S. Department of Health and Human Services, 2008). Dentists have an inherent opportunity to follow up with patients given the fair regularity of dental check-ups; follow-ups have been demonstrated to enhance the effectiveness of interventions to reduce patient substance use (Tufts Health Care Institute [THCI], 2010; Whitlock, Polen, Green, Orleans, & Klein, 2004).

The importance of dental practitioners identifying patients who abuse substances and/or are substance dependent is underscored by the nation's increasing opioid and prescription drug abuse problem (DuPont, 2010; Garvin, 2011; Lessinger & Feinberg, 2008; Soderlund, 2010b). Dentists and oral surgeons prescribe approximately 12% of all opioid based prescription medications in the United States (Garvin, 2011; THCI, 2010). In a recent survey, 88% of dentists in West Virginia reported prescribing opioid medications in the previous year, and many felt they had patients who faked pain to get a prescription or who lied about having a prescription stolen (THCI). A related problem is that many dentists prescribe too many tablets of pain medication, with instructions to take the pills as needed (Soderlund, 2010a; THCI). As such, dentists need to be aware of the signs of prescription drug abuse. Given the risk of medication interactions with alcohol and other drugs, and the need for alternative pain management treatment plans for SUD patients, dental practitioners' incorporation of SBIRT practices and knowledge of substance use disorders is imperative (ADA, 2010; Crossley, Jones, & White, n.d.; Friedlander et al.; Newman & Bolton, 2003; THCI).

With the nation's pending health care reforms, it is expected that more doctors and other health care professionals, including dentists, will be seeing more patients with substance abuse issues. Humphreys and McLellan (2010) explain:

Finally, the extension of Medicaid coverage to many long uninsured individuals with substance use problems will increase their access to other health services (e.g., psychiatric care, *dental care* [emphasis added]) of which they are often in need. The combined effect of parity regulations and the health care reform law will be to increase the proportion of individuals with substance use disorders (or those whose child or

spouse has a disorder) who have health insurance, and, the generosity of the substance use disorder treatment benefits covered under such insurance. (p. 281)

The current White House administration supports the expansion of SBIRT to meet these new patients' needs (Humphreys & McLellan). Additionally, as part of its most recent Strategic Initiatives on Health Care Reform and Health Information Technology, SAMHSA (2011b) has called for the expansion of SBIRT practices, particularly in Federally Qualified Health Centers (FQHCs) and Community Health Centers (CHCs), many of which offer dental services.

### **Utilization and Effectiveness of SBIRT in Health Care Settings**

Over the last several decades, a large body of research has been conducted on SBIRT practices, particularly in regards to alcohol use. Much of that research has investigated the effectiveness of interventions; thus, this section will focus on key studies regarding the effectiveness of brief interventions in decreasing alcohol and drug use, and in getting substance users the treatment they need. The synthesis of the brief intervention research is preceded by a discussion of screening, the first step in the SBIRT process.

### **Screening**

In an effort to help ensure that patients' level of substance use or abuse is identified correctly, it is important to use accurate screening instruments (Babor et al., 2007). Screening instruments measure the frequency of substance use, the quantity of substance use, and/or the negative consequences experienced as a result of one's substance use. Screening questionnaires often differ by focus and target group. For instance, the Alcohol Use Disorders Identification Test (AUDIT) focuses on alcohol and was designed initially for adults, with later versions designed for the general population (Babor et al.). The Adolescent Alcohol Involvement Scale (AAIS) focuses, as its name implies, on adolescents' drinking. While the majority of available screening instruments are specific to alcohol, some, such as the DAST-10, do focus on drugs,

and others, screen for multiple substances. The Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST), developed by the World Health Organization, screens for tobacco, alcohol, cannabis, opioids, cocaine, and other drugs (Humeniuk et al., 2008). In their review of SBIRT initiatives in California, Davoudi and Rawson (2010) note that “the ASSIST has gained prominence and considerable usage due to the relative short screening time and the fact that it screens for both alcohol and illicit drugs” (p. 241). The ASSIST has been found to demonstrate concurrent validity, construct validity, and discriminative validity, differentiating between those who use substances, those who abuse substances, and those who are substance dependent across a variety of cultures (Humeniuk et al., 2008).

The focus and target group of the screening instrument, as well as whether or not a screening instrument has demonstrated reliability and validity, are just some of many factors that SBIRT program developers should consider when choosing a screening test (Babor et al., 2007). For instance, some instruments more accurately detect at-risk substance use, whereas others more accurately identify abuse or dependence (Fiellin, Reid, & O’Connor, 2000). Another important issue is the length of the instrument and the amount of time required to administer it. Several recent studies examining the effectiveness of single-item screening tests in primary care settings support their use, though more research is needed (Dawson, Pulay, & Grant, 2010; Smith, Schmidt, Allensworth-Davies, & Saitz, 2009,2010). In addition to the length and time of the screening instrument, practitioners should consider the staff needed to administer the screening test and the cost (Babor et al.). Related to these issues is the question of how the screening questionnaire will be administered: written form, electronically, or face-to-face. Some agencies and researchers also use blood alcohol content (BAC) measures, either alone or in combination with self-report questionnaires, to screen patients (i.e., Gentilello et al., 1999).

Another factor to consider when choosing a screening instrument is cultural sensitivity and/or whether or not the screening instrument needs to be generalizable across various groups (Babor et al.). A patient's score on the screening instrument determines whether he or she should receive a brief intervention or brief therapy.

### **Brief Interventions and Alcohol Use Outcomes**

Generally, the research on the impact of brief interventions in health care settings on patient's alcohol use supports their use for a variety of patient populations, with some exceptions. For example, in their oft cited meta-analysis, Moyer, Finney, Swearingen and Vergun (2002) examined 54 brief intervention studies conducted in various health care settings, such as primary care, hospitals and trauma centers, specialty health care, and counseling and therapy. When considering both alcohol consumption and a composite of drinking-related outcomes at various follow up points, there were significant differences between non-treatment seeking participants who received a brief intervention and the non-treatment seeking control participants. With small to medium effect sizes (0.14 to 0.67), the results indicated that brief interventions can significantly improve drinking outcomes. However, the longevity of those improvements is somewhat questionable, as the strongest effect sizes occurred at the earliest follow-ups of three months or less. It is also important to note that when alcohol outcomes were examined at the three to six month mark, brief interventions were no more effective than controls unless participants with severe alcohol problems were excluded from the analysis. When comparing brief interventions to extended treatment in treatment-seeking participants, there were few significant differences. An exception was the effectiveness of extended treatment in decreasing patients' level of alcohol consumption at the three to six month follow up point, with an effect size of .42. Moyer et al. point out that the lack of significant differences between the

effects of extended treatment and brief interventions could be due to the lack of differences between the two, as the so-called “brief” interventions with treatment-seeking patients often were relatively intensive and involved multiple sessions. Overall, the results of Moyer et al.’s meta-analysis are consistent with an earlier, similar review supporting the use of SBIRT (Bien, Miller, & Tonigan, 1993).

While Moyer et al.’s (2002) meta-analysis included brief intervention studies conducted in a variety of health care settings, other, more narrowly focused, reviews have also found the interventions to be effective with at-risk drinkers. Ballesteros, Duffy, Querejeta, Arino and Gonzalez-Pinto (2004) conducted a meta-analysis of 13 studies involving primary care practitioners’ use of brief interventions for drinkers. Ballesteros et al. concluded that brief interventions and extended brief interventions were more effective than no intervention or minimal interventions, “with an improvement of 11% in the success rate” (p.612). Brief interventions were particularly effective with heavy drinkers over moderate drinkers, and with patients who were not seeking treatment as opposed to those who were. Using some of the same studies that Ballesteros et al. included in their meta-analysis, Whitlock, Polen, Green, Orleans and Klein (2004) reviewed and rated the quality of twelve brief intervention studies involving controlled trials of at-risk drinkers in primary care settings. The highest quality studies under review found reductions in weekly alcohol consumption that were significantly higher in the brief intervention groups, between 13 and 34 percent higher, than in the control groups. The high quality studies also revealed that, compared to controls, a larger percentage of brief intervention participants, between 10 and 19 percent more, were engaging in safe or moderate drinking. Results regarding the effectiveness of brief interventions on binge drinking were inconsistent.

Whitlock et al. also found that interventions involving just one patient session and/or interventions lasting no more than five minutes were less effective.

Brief intervention studies conducted in emergency departments and trauma centers also provide evidence for the efficacy of the SBIRT model in reducing patients' alcohol consumption and alcohol-related negative consequences. Gentilello et al. (1999) screened patients in a trauma center and randomly assigned those who screened positive to a control group or an intervention group. Participants in the latter group engaged in a 30 minute motivational interview and received a letter one month later summarizing the intervention session. Patients were interviewed about their alcohol use six months and twelve months later. Both those in the control group and the brief intervention group showed a reduction in drinking at the six month follow up. However, the control group's consumption eventually increased, whereas the intervention group's consumption continued to decrease. At the twelve month follow up, the intervention group's weekly alcohol consumption had decreased by almost 22 drinks, and the control group's weekly consumption had decreased by almost seven drinks per week. The intervention was most effective in decreasing alcohol consumption with more moderate drinkers. Patients whose screening scores indicated severe drinking or dependence did not benefit from the intervention. A review of patients' medical, police, and motor vehicle records also revealed that participants assigned to the brief intervention had fewer new injuries, fewer arrests, and fewer traffic violations. Similar results were found in Monti et al.'s (1999) study involving late adolescents in a hospital emergency department. Compared to patients who received standard ER care, those in the motivational interviewing group were less likely to report drinking and driving, traffic violations, alcohol-related injuries, and alcohol-related problems with police, school, or their

personal relationships. Alcohol consumption decreased significantly over time for both groups, and there were no significant differences between the two.

Monti et al.'s (1999) and Gentilello et al.'s (1999) findings were underscored in Nilsen, Baird, Mello, Nirenberg, Woolard, Bendtsen, and Longabaugh's (2008) more recent review of fourteen studies involving brief alcohol interventions with injury patients in emergency care or trauma center settings. Overall, brief intervention patients tended to report stronger decreases in alcohol consumption, negative consequences related to alcohol use, injuries, and risky drinking behaviors than control group patients, though both groups tended to see decreases in at least some of these outcomes. Five of the studies under review did not find significant differences between the control group patients and brief intervention patients on at least one of the outcome variables. Nilsen et al. posited that the improvements in both groups could have been the result of patients developing increased awareness of their drinking through the screening questions or due to landing in the emergency room.

### **Brief Interventions and Illicit Drug Use Outcomes**

Relative to its use among individuals with displaying alcohol use disorders, far less systematic research on the effectiveness of SBIRT practices with drug using individuals has been published to date. Madras, Compton, Avula, Stegbauer, Stein, and Clark (2009) analyzed GPRA data from SAMHSA'S SBIRT Initiative, a program that was implemented in a number of states and tribal communities in various health care settings beginning in 2003. Approximately 70% of the more than 100,000 individuals who screened positive for heavy alcohol use, illicit drug use or both received a brief intervention, 14% received brief treatment, and 16% were provided a referral for specialty treatment. Significant reductions in both illicit drug use (67.7%) and alcohol use (38.6%) were reported six months after the screening and interventions. Patients who

received the brief treatment and referral to specialty treatment also reported significant improvements in health, employment, housing, and criminality. Similar results have been reported at the state level. The SBIRT Colorado initiative (2011) recently reported that patients' who received an intervention decreased their days of alcohol use by 47% and their use of illicit substances by 44% at the six-month follow up. More specifically, days of cannabis use decreased by 43% and days of cocaine use fell by 88%. In New Mexico, comparable reductions in illicit drug use and alcohol use were reported at six-month follow ups (Gryczynski, Mitchell, Peterson, Gonzales, Mosely, & Schwartz, in press). The decreases in alcohol use were significantly stronger for those who received brief therapy and referral to treatment than for those who only received a brief intervention. There was no significant difference in drug use outcomes based on the type of intervention received. These program evaluation reports have shown that those who undergo brief interventions do decrease their drug use; however, when comparing intervention groups with control groups on illicit drug outcomes, the research is less consistent.

The effectiveness of peer educators conducting a motivational interview with adult cocaine and heroin users who were not in treatment was recently evaluated (Bernstein, Bernstein, Tssaiopoulos, Heeren, Levenson, & Hingsen, 2005). Participants were screened in a medical setting and randomly assigned to a control group, where they received a handout of treatment resources, or to an intervention group, where they received the hand out and a motivational interview, as well as a follow-up call ten days after the MI. Comparisons of drug use patterns at baseline and at 6 months indicated that both groups of participants reduced their drug use over time or were abstinent. Those in the intervention group were more likely to be abstinent than those in the control group, with abstinence rates that were 5.4% higher for cocaine, 9.6% higher for heroin, and 4.6% higher for both drugs. However, the only significant difference was for

cocaine use. For heroin and other drugs, the p values hovered at or slightly above .05. When considering reductions in drug use (as opposed to abstinence), again, the improvement was stronger in the intervention groups, but not at significant levels. Similar results were found in Marsden, Stillwell, Barlow, Boys, Taylor, Hunt, and Farrell's (2006) study involving late teen and young adult ecstasy, cocaine, and crack cocaine users in England. After completing the baseline assessment, participants were randomly assigned to a control condition or an intervention condition. Those in the control condition received a handout about the health risks of excessive alcohol consumption and of using stimulants. Those in the intervention group received the same handout, and a 45-60 minute motivational interview conducted by a member of the research team or by an employee of the participating community-based drug counseling agency. Follow-up data was collected six months later. Both groups reported decreases in the number of drug use days, and there were no significant differences between the two groups. Marsden et al. suggest that the failure to find a significant effect for the intervention condition was due, in part, by the baseline assessment inducing behavior change. In the intervention condition, almost 20% of the participants felt the initial assessment of their drug use, or the combination of the assessment and the intervention, caused them to change their drug behavior. It is also worth noting that unlike the other SBIRT studies discussed thus far, this study was not initiated in a medical setting—participants were recruited, and the interventions were conducted at community organizations offering “youth-orientated counseling and detached outreach services” (p. 1015). Despite these questionable findings, Babor et al. (2007), in their review of the SBIRT literature, note several other SBIRT control studies that have found brief interventions can help reduce amphetamine use (Baker, Lee, Claire, Lewin, Grant, & Pohlman, 2005) and benzodiazepine use (Bashir, King, & Ashworth, 1994; Cormack, Sweeney, Hughes-Jones, & Foot, 1994) in patients.

### **Brief Interventions and Treatment Outcomes**

Several brief intervention studies have also examined admission to treatment or treatment retention as the primary outcome variable for patients with alcohol and/or drug use disorders. The findings have been somewhat inconsistent. Whereas some studies have failed to find brief interventions and/or motivational interviewing to be associated with increased treatment admissions (Rapp, Otto, Lane, Redko, McGatha, & Carlson, 2008; Saitz et al., 2007), others have obtained different results. A recent study involving emergency department patients in Seattle compared SUD (alcohol and/or drug) patients who received brief interventions to those who had received brief treatment as well as a brief intervention, and to those patients who were believed to have an SUD but who received neither a BI or BT (Krupski et al., 2010). The brief interventions, which lasted between five and ten minutes, and the brief treatments, which involved between four and twelve sessions, were both based on motivational interviewing techniques and were conducted by trained chemical dependency counselors. During the year after the emergency room visit screening occurred, the BI group had significantly higher rates of treatment admissions-- be it inpatient treatment, outpatient treatment, or "opiate substitution treatment" (p. 131)-- than comparable patients who had not received a BI. Of the patients referred to brief treatment, those who actually received BT had significantly higher rates of treatment admissions than those who had not received the BT.

Rather than examining admission to treatment as the primary outcome variable, Carroll and colleagues (2006) focused on treatment retention. Participants were alcohol and/or drug users entering an outpatient treatment facility who were randomly assigned to the usual intake and evaluation session or to an intake and evaluation session in which the clinician implemented motivational interviewing techniques. At the one month follow up, patients who received

motivational interviewing were significantly more likely to still be enrolled in treatment at the clinic than those who had not received motivational interviewing during their initial intake session. At the three month follow up, 61.5% of the MI patients were still enrolled in treatment compared to 56% of those assigned to the control condition; however, this was not a statistically significant difference. When examining days of substance use as the outcome variable, there were no significant differences between the two groups at either follow up point. More research is needed to determine the effectiveness of brief interventions in increasing treatment admissions and/or retention.

### **Common Findings and/or Issues in the Intervention Literature**

Taken as a whole the SBIRT literature reviewed thus far supports the effectiveness of brief interventions, particularly in decreasing alcohol use and consequences. The impact of the intervention does not seem to vary by gender (Madras et al., 2009; Monti et al., 1999; Moyer et al., 2002; Whitlock et al., 2004) or age (Madras et al.; Whitlock et al.). However, several studies have found the interventions are less effective with patients who have more severe drinking problems and/or with patients who are seeking alcohol or drug treatment (Ballesteros et al., 2004; Gentilello et al., 1999; Miller, Yahne, Tonigan, 2003; Moyer et al., 2002; Rapp et al., 2008; Saitz et al., 2007). In fact, after reviewing 16 studies, Saitz (2010) concludes there is “no evidence to support alcohol screening and BI efficacy among primary-care patients with very heavy drinking or dependence” (p. 633). It is also important to point out that the definition of “brief intervention” can vary widely both conceptually and in practice (Moyer, Finney, Swearingen, & Vergun, 2002), and the effectiveness of an intervention can depend on how it is conducted (Leontieva, Horn, Helmkamp, Furbee, Jarrett, & Williams, 2009; Moyer et al., 2002; Whitlock et al., 2004). In their review Whitlock et al. pointed out that “all interventions that

showed statistically significant improvements in alcohol outcome of any intensity included at least 2 of 3 key elements—feedback, advice, and goal-setting. Since most interventions were multi-contact ones, they also provided further assistance and follow-up” (p. 563). Leontieva et al. (2009) examined the relationship between specific elements of brief interventions used with emergency department patients and the patients’ alcohol behaviors three months later. Discriminant function analysis revealed that making a referral, patient goal setting, and discussing intentions to quit were the strongest predictors of decreases in alcohol consumption, harm, and dependence.

### **The Research on SBIRT in Dental Settings**

Some studies have shown that brief interventions conducted in dental settings for tobacco cessation can be effective (Dyer & Robinson, 2006; Gordon, Andrews, Alberts, Crews, Payne, & Severson, 2010; Stevens, Severson, Lichtenstein, Little, & Leben, 1995). However, a review of the SBIRT literature and the dentistry literature failed to reveal any studies examining the effectiveness of SBIRT practices in dental settings on patients’ alcohol or drug use. Several studies have examined the degree to which dental practitioners currently use various SBIRT practices and/or their attitudes toward SBIRT. A summary of those studies is provided next.

Based upon available reports, a minority of dental practitioners regularly screen for substance abuse among their patients. Slightly less than one-half of all dentists self-reported that they ask their patients about their alcohol use (46%) and illicit drug use (47.6%) according to a recently released report by the American Dental Association’s (2008) *2007 Survey of Current Issues in Dentistry*. In contrast, 36% of dentists in West Virginia self-reported asking new patients about their substance use history (Tufts Health Care Institute, 2010) while 33% of

dentists and 17% of dental hygienists in New York self reported asking patients about alcohol use (Cruz et al., 2005).

Asking patients about substance use is the first of the 5 A's (Ask, Advise, Assess, Assist, and Arrange) that dentists have been encouraged to use when talking to patients about tobacco cessation or other substances (ADA, 2010; Fiore, Jaen, Baker et al., 2008; Neff et al., 2009a, 2009b). Two studies found that dentists and dental hygienists were more likely to engage in the beginning part of the 5 A process than the end-- they asked and advised patients about tobacco and alcohol use far more frequently than they assisted and arranged for follow up appointments (Cruz et al., 2005, Neff et al., 2009b). The same studies found dentists and dental hygienists were more likely to utilize the 5 A's for tobacco use than alcohol use. Using the Transtheoretical Model of Change (Prochaska & DiClemente, 1983), Cruz et al. also found that dental practitioners were not ready to engage in alcohol counseling: 74% of dentists and 64% dental hygienists were in the precontemplation stage, and 20% of dentists and 25% dental hygienists were in the contemplation stage. As such, both studies (Cruz et al., 2005, Neff et al., 2009b) indicate that dental practitioners do engage in the 5 A's to a degree. This current practice could help facilitate use of the SBIRT model.

Given that most dental practitioners do not seem to be screening patients or conducting interventions for alcohol and drug use or abuse, it is important to understand why. Neff et al. (2009a) examined predictors of dental practitioners' willingness to implement screening and brief intervention practices for alcohol abuse. Termed "SBI Acceptance," this outcome variable tapped the perceived appropriateness of SBI for both the dental setting and for the dentist or dental hygienist role. A variety of predictor variables were investigated, including participants' role in the dental office (dentist or dental hygienist), the size of the dental staff, the number of

years in practice, use of other preventive measures (such as tobacco cessation or chlorhexidine rinses to manage dental caries and gingivitis), involvement with professional organizations, attitude towards adopting evidence based practices (EBP), and perceived barriers to implementing SBI for alcohol use (self-efficacy concerns, time and reimbursement issues, and perceptions regarding the effectiveness of SBI). The sample consisted of 164 dentists and 93 dental hygienists in Virginia, who completed an online survey. Data were analyzed using structural equation modeling (SEM). The overall model, having acceptable fit, explained 45.8% of the variance in dental practitioners' acceptance of alcohol SBI practices. The only variable to have a direct effect on SBI acceptance was the perceived barriers. Participants were more accepting when they perceived fewer barriers to implementing SBI. Both attitude towards adopting evidence based practices and years in practice had an indirect effect on SBI acceptance through perceived barriers. Those with more favorable EBP attitudes perceived fewer barriers, and those with more years in practice perceived more barriers. Building on this study and using the same data set, Neff, Brickhouse, Gunsolley, Lanning, Lynch, and Downs (2010) conducted a similar structural equation modeling analysis using SBI Acceptance as a predictor variable and current SBI use for alcohol—measured and conceptualized in terms of advising and assessing—as the outcome variable. The overall model had excellent fit. The only variables that had direct effects on dental practitioners' current use of SBI for alcohol was SBI acceptance and current use of other preventative measures. The more SBI acceptance and use of other preventative practices, the greater the use of SBI for alcohol. Several variables predicted current SBI use indirectly through SBI acceptance. Participants who had been practicing dentistry longer perceived more barriers to SBI, which was associated with lower acceptance and less likelihood of use. Dentists (over hygienists), had more negative attitudes towards evidence based practices

and perceived more barriers; these variables were associated with lower acceptance and less likelihood of use. Neff et al.'s two studies (2009a, 2010) suggest that helping dental teams overcome the barriers to implementing alcohol screening and brief interventions, helping them view SBI as appropriate for the dental setting, and helping them embrace EBP might help induce them to adopt SBIRT practices.

### **Barriers to Implementing the SBIRT Model in Dental Settings**

Dentists seem to have reasons similar to those of physicians for not implementing SBIRT practices (Humphreys & McLellan, 2010; Murphy, 2009). A major barrier, encompassing both lack of training and lack of comfortability, is self-efficacy. McNeely, Wright, Rotrosen, Shelley, Matthews, Buchholz, and Curro (2011) surveyed dentists, and more than 90% said screening for alcohol, illicit drugs, and tobacco was important, but most did not provide counseling or make referrals for patients who used alcohol or drugs. Approximately 80% identified a lack of adequate knowledge or training as a barrier. This finding is somewhat inconsistent with the ADA's (2008) survey of dentists, in which approximately 83% of respondents said their training was sufficient "for recognizing and managing drug seeking patients" (p. 7). How much training dentists had actually received was not specified in either study, and there does not appear to be a set of national guidelines and/or standards regarding dentists' substance abuse education and/or SBIRT training. As explained by the Tufts Health Care Institute (2010) in regard to screening for substance abuse, "Although a question about substance abuse appears on the standard ADA patient screening form for new patients, it is not thought that this leads to clear-cut behavior on the part of the dentist. This is partly because guidance is lacking on what the dentist should do" (p. 4). Various dental industry websites, magazines, and journals have addressed substance use and the importance of SBIRT practices (e.g., ADA, n.d., "Drug Use;" De Fonesca, 2009;

Newman & Bolton, 2003); however, there is a need for more formalized and targeted training and education (Davoudi & Rawson, 2010; THCI, 2010).

Studies have shown that dentists and dental hygienists do benefit from intervention training for tobacco cessation, in that the training increases their knowledge, self-efficacy, and motivation (Sheffer et al., 2009), as well as their actual use of motivational interviewing techniques (Koerber et al., 2003). It is reasonable then to argue that training dental practitioners to conduct interventions for alcohol or other drug use might also lead to more favorable attitudes towards such interventions and/or help alleviate some of the discomfort dentists often feel about talking to patients about substance use (Shepherd, Young, Clarkson, Bonnetti, & Ogden, 2010; Turner & Dworkin, 2004). As illustrated in the studies conducted by Neff et al. (2009a, 2010), having more favorable attitudes toward screening and brief interventions is important, as it is associated with fewer perceived barriers and greater acceptance, which is associated with increased use of SBI. Further research is needed to determine if training dentists on how to do brief interventions related to alcohol or drug use is indeed associated with more favorable attitudes towards SBIRT practices, as well as increases in knowledge, self-efficacy, and actual implementation.

A secondary self-efficacy issue is dentists' comfortability in talking to patients about substance use. While the ADA (2008) survey found that the majority of dentists reported having received adequate substance abuse training, the same survey found most dentists were uncomfortable asking patients about alcohol (56.4%) or drug use (65.6%). An underlying question not addressed in the ADA report was why dentists felt uncomfortable asking or what would make them more comfortable. In addition to their own discomfort, dentists seem to be concerned about their patients' discomfort. Dentists often fear that asking about substance abuse

would strain their relationships with their patients, that the patients might be offended or embarrassed (Shepherd et al., 2010). As stated previously, many patients are receptive to such conversations with their dentists (ADA, n.d., “Drug Use;” Miller et al., 2006). It is important to note, though, that Miller et al.’s (2006) study found patients were supportive of dentists asking about alcohol use. How patients would respond to questions about drug use is not known. Also, the participants in this study were of lower income; it is possible that those of a different socio-economic status would respond differently to such questions.

Lack of time is an additional barrier for dentists (McNeely et al., 2011; Neff et al., 2009; THCI, 2001; Turner & Dworkin, 2004). It is possible though to divide the steps in the SBIRT process amongst various members of the dental team. One suggestion is to have dental hygienists do the screening and dentists provide the feedback to the patients, as dental hygienists spend more time with the patients (THCI). Preliminary research suggests dental hygienists can play a key role in the implementation of SBIRT practices. They have been found to be significantly more likely engage in the 5 A’s (for tobacco) than dentists (Neff et al., 2009b), and to have more favorable attitudes toward screening and brief interventions (Neff et al., 2010). Upon contacting almost 400 dentists and inviting them to participate in a study on SBIRT implementation and effectiveness, Neff et al. (2011) found that the more hygienists in a dental practice, and the fewer the number of dentists, the more likely the dentist was willing to participate in the study.

Lack of reimbursement for SBIRT practices is another major barrier to implementation (McNeely et al., 2011; Neff et al., 2009a; THCI, 2010). However, as Humphreys and McLellan (2010) explain, progress is being made in this regard:

The prior [Bush] Administration, with support from many outside organizations, was able to create Medicaid and Medicare payment codes for SBIRT that allowed reimbursement

for clinicians who provided these services. Unfortunately, by the close of 2008 only a minority of states had activated those approved codes, utilization of the codes was low even in those states where they were activated, and some clinicians were complaining that the reimbursement level was not sufficient. The Obama Administration intends to increase the number of states that activate the SBIRT codes and the number of health care providers who take advantage of the reimbursement available for SBIRT. (pp. 281-282)

It might be worthwhile to examine the degree to which private insurers pay or would be willing to pay for SBIRT practices in dental settings. Finally, not having anyone to refer patients to, or not knowing where patients should be referred to, is also a concern for dentists (McNeely et al., 2011; THCI, 2010; Turner & Dworkin, 2004).

### **Conclusion**

This review of the research regarding the effectiveness of the SBIRT model, the reasons why dental settings would be ideal for implementation of SBIRT practices, and the barriers to implementation in dental settings has revealed numerous areas in which further research is needed. Perhaps the most salient research need regards whether or not SBIRT is effective when conducted with dental patients. Preliminary studies should investigate alcohol and drug use outcomes in dental patients who have been screened and received a brief intervention. If these studies reveal decreases in use and/or consequences related to use, then experimental studies with control groups should be designed. Such research would require training dental practitioners how to screen, how to conduct a brief intervention, and how to refer patients to treatment. There is a need, also, to engage those dental practitioners who receive such training in research regarding their knowledge, attitudes, and self-efficacy. While there are some studies examining the impact of training for tobacco cessation, the impact of SBIRT training for alcohol and drug

use is yet to be determined. This line of research might also investigate what type of SBIRT training is most effective for dental teams. Understanding how to break down barriers to SBIRT implementation and/or how to help dental teams develop more favorable attitudes and a greater sense of self-efficacy could eventually help expand the use of screening, brief interventions and treatment referrals. Because dentists seem to be concerned about how their patients would respond to conversations about their alcohol and drug use, it might also be helpful to build a body of research on patients' attitudes toward SBIRT practices in dental settings.

The paucity of research on SBIRT in dental settings is likely due, in part, to the limited use of SBIRT in dental settings. Expanding the research and implementation of SBIRT to this relatively new context, also provides researchers and practitioners the opportunity to contribute to our more general understanding of the effectiveness of the SBIRT model. There is a need for additional SBIRT research regarding the use of single item screening tests, the best mode of screening (face-to-face, pen and paper, electronic, biological markers, etc.), and the most effective elements of brief interventions, particularly for patients with severe substance abuse problems and/or dependence. Additionally, more research is needed on drug use outcomes and treatment outcomes. In short, implementing screening, brief interventions, and treatment referrals to dental settings can help inform both SBIRT research and SBIRT practice.

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