OFFICE OF NATIONAL DRUG CONTROL POLICY

Third National Leadership Conference on Medical Education in Substance Abuse

Briefing Paper on Screening and Brief Intervention

JANUARY 16, 2008
WASHINGTON, DC

CONTENTS

SCREENING AND BRIEF INTERVENTION

What Are Screening and Brief Intervention?

Screening, brief intervention, and referral to treatment (known as SBIRT) is a comprehensive, integrated, public health approach to the delivery of early intervention and treatment services for persons with substance use disorders, as well as those who are at risk for developing such disorders. SBIRT provides the tools needed to identify, intervene with, and treat such individuals, and thus to reduce the associated adverse effects on health, family, and society.

- *Screening* quickly assesses the severity of substance use and identifies the appropriate level of treatment.
- *Brief intervention* focuses on increasing insight and awareness regarding substance use and motivation toward behavioral change.
- *Referral to treatment* provides those identified as needing more extensive treatment with access to speciality care.[1-8]

A key aspect of SBIRT is the integration and coordination of screening and treatment components into an integrated system of services. This system links a community's specialized treatment programs with a network of early intervention and referral activities that are conducted in medical and social service settings.[9-11]

Research studies consistently show that SBIRT can change the course of patients' harmful drinking,[12,13] encourage them to stop smoking, and reduce the number of hospital admissions for traumatic injuries,[14,15] drinking and driving, traffic violations, and alcohol-related injuries and health problems.[16-18] This "mainstreaming" of screening and brief intervention in health care settings helps to destigmatize substance use disorders by treating them in the same way as other chronic illnesses.

In response to the promise of SBIRT, the past several decades have witnessed the development of evidence-based screening instruments, manualized brief interventions, and research into effective implementation strategies.[4]

The components of SBIRT are shown at Appendix A and described in more detail below:

Screening. The goal of SBIRT is to make screening for substance abuse a routine part of medical care. Screening for diseases is warranted (1) if the disease has a significant prevalence and consequences, (2) effective and acceptable treatments are available, (3) early identification and treatment lead to favorable outcomes, and (4) effective screening instruments are available and easy to administer. Strong research evidence supports the fact that screening for alcohol, tobacco and other drug problems meets all of these criteria.[1]

Screening in a medical setting involves at least two components: biomarkers and patient reports.[5]

- *Biomarkers* are objective evidence that an individual may have a substance use disorder. These can be a simple positive drug screen or physical indications of potential abuse (such as liver disease).

- *Patient reports* are based on questionnaires designed to get a "big picture" of the individual's substance use and to identify potential red flags. This information may be elicited by direct questioning by a physician or other health care professional, using evidence-based screening instruments or a self-administered questionnaire, completed by the patient with pencil and paper or on a computer.

Studies show that many verbal (oral, written and electronic) screening methods have reliability and validity comparable to accepted medical procedures such as a single measurement of blood pressure to screen for hypertension, a fasting blood glucose test to detect diabetes, a mammogram to identify early breast cancer, or a prostate-specific antigen test to detect prostate cancer (*see Appendix B*).[1,5]

Brief Intervention. Brief intervention is a time-limited, patient-centered counseling strategy that focuses on reducing unhealthy behaviors and increasing healthy behaviors.[4] It is not unique to alcohol and other drug problems, but is widely used by physicians to encourage patients to change their dietary habits, lose weight, lower cholesterol or blood pressure, and take medications as prescribed.[4,5]

At its simplest, brief intervention involves a short conversation between a health care professional and a patient, in which concerns about the patient's alcohol, tobacco and/or other drug use are expressed, and advice to cut down or moderate consumption is given (*see Appendix C*). Such an intervention usually occurs immediately after an individual receives a positive screen indicating that an alcohol and/or drug use problem is present or that there is measurable risk of developing such a problem.[1,4]

As part of the brief intervention, the patient receives feedback on his or her alcohol, tobacco or other drug use pattern. The intervention focuses on increasing motivation for behavior change. Typical intervention strategies include education, simple advice, brief counseling, continued monitoring, or referral to a specialized addiction treatment service. Such interventions are designed to provide escalating levels of service, depending on the screening results.[4,5]

Brief intervention often is a manualized, protocol-driven process. A number of clinical trials suggest that the minimum number of brief intervention contacts required to achieve a reduction in alcohol use is three to four. These may involve screening and assessment, a 10- to 15-minute counseling session, or a follow-up phone call. The length of the intervention appears to be less important than the number of contacts.[6]

Referral to Treatment. Referral to specialized treatment is provided to those individuals who are identified as needing more extensive treatment than can be offered through the SBIRT program. The effectiveness of the referrals to specialty treatment is a strong measure of SBIRT's success and involves a proactive and collaborative effort between SBIRT providers and those who provide specialty treatment, so as to ensure that patients have access to the appropriate level of care.[1,4]

Why Are Screening and Brief Intervention Important?

Research studies consistently show that alcohol, tobacco and other drug use by young people and adults constitute a major public health problem. On the basis of a recent survey, Federal experts estimate that almost 20 million Americans age 12 and older are current users of illicit drugs, while 126 million use alcohol and 72 million use tobacco products.[7,8] Of these, 22 million – or 9 percent of the U.S. population – meet the diagnostic criteria for alcohol or drug abuse or dependence. In addition, virtually all regular smokers are considered nicotine dependent and or at great risk for becoming so.

Given these data, it is not surprising that substance abuse accounts for about one in four deaths in the United States each year, and results in more lives lost, illness, and disability than any other preventable health condition.[9, 10]

Actions to prevent or mitigate the misuse and abuse of alcohol, tobacco and other drugs can reduce the impact of such disorders on the individual, on the family, and on society. For example, identifying an underlying alcohol problem can clarify the differential diagnosis in patients with hypertension, mental confusion, or liver disorders, while helping a pregnant woman reduce her alcohol consumption can reduce the risk that her offspring will suffer from fetal alcohol syndrome (FAS) or fetal alcohol effect (FAE).[11]

Are Screening and Brief Intervention Effective?

Research studies have shown that large numbers of individuals at risk of developing serious alcohol or other drug problems may be identified through primary care screening.[1,4,12] Interventions such as SBIRT have been found to:

- Reduce the frequency and severity of drug and alcohol use,
- Reduce the risk of traumatic injury, and
- Increase the percent of patients who enter specialized substance abuse treatment.[5]

In addition to reductions in use of alcohol, tobacco and other drugs, SBIRT also has been associated with fewer hospital days and fewer emergency department visits.[13-18]

Evidence supporting the effectiveness of brief interventions is found in studies of smoking cessation counseling[19-21] and trauma departments,[22-25] as well as in primary care settings in many different nations. For instance, a systematic review of 29 randomized trials of brief behavioral interventions using motivational interviewing found that 60 percent showed at least one significant behavior change effect, especially for substance abuse interventions when used by clinicians who are not specialists in substance abuse.[26] Other research studies show that a physician's advice to quit smoking, accompanied by counseling and follow-up, is enough to convince many adult patients to undertake such an effort. [27-31]

Brief interventions by emergency physicians have been shown to be effective when they are incorporated into trauma center procedures, and to reduce subsequent drug use, alcohol use

and readmission for traumatic injuries,[32,33] as well as drinking and driving, traffic violations, alcohol-related injuries, and alcohol-related problems among older teens and young adults.[34-36] Brief intervention can have positive collateral effects as well, since interventions targeted to one health problem can and often do reduce the risk for other health problems and may provide patients with positive experiences in controlling a health outcome that can be used in other aspects of their lives.[37]

For all of these reasons, there is a growing consensus in the health care community that screening, intervention, and – where appropriate – referral for specialized treatment of alcohol, tobacco and drug problems should be a routine part of primary medical care.[33] Mainstream health organizations such as the American Medical Association, the American Academy of Child and Adolescent Psychiatry, the American Academy of Family Physicians, the American Academy of Pediatrics, and the American College of Obstetricians and Gynecologists, and the American College of Surgeons have adopted policies calling on their members to be knowledgeable, trained, and involved in all phases of prevention, screening, and intervention for alcohol, tobacco and other drug problems.

Are Screening and Brief Intervention Cost-Effective?

There is evidence that integrating screening and brief intervention with the general medical care system is not only effective, but can be cost-effective as well.[38-40] A study of a sample of 1,419 patients from HMO primary care clinics found a prevalence of 7.5 percent for hazardous drinking and 3.2 percent for drug use (with 10 percent having at least one of the two problems) – rates similar to those for hypertension and diabetes. Compared to other patients, this population had higher rates of medical disorders (injury, hypertension), utilized more services (1.5 times more primary care visits), and generated higher costs per patient (psychiatry, emergency room, pharmacy).[41]

A study of screening and brief intervention in trauma centers[33] concluded that an estimated 27 percent of all injured adult patients are candidates for a brief alcohol intervention. In the study, the net cost savings of the intervention was $89 per patient screened, or $330 for each patient offered an intervention. The benefit in reduced health expenditures resulted in savings of $3.81 for every $1 spent on screening and intervention. This finding was robust to various assumptions regarding probability of accepting an intervention, cost of screening and intervention, and risk of injury recidivism. On the basis of these results, the investigators estimated that, if interventions were routinely offered to eligible injured adult patients nationwide, the potential net savings could approach $1.82 billion annually.

Accordingly, the U.S. Preventive Services Task Force recommends screening and brief intervention in primary care settings to reduce alcohol misuse and to assist in smoking cessation,[42] and a report from the National Academies of Science[43] recommends that "all treatment professionals should have some knowledge of basic neuroscience and how alcohol, nicotine, and other drugs work on brain pathways, influence behavior, and interact with diverse conditions." Similar positions have been adopted by the Macy Conference on Medical Education,[44] the Association for Medical Education and Research in Substance Abuse,[45] the Office of National Drug Control Policy,[46] the National Institute on Drug Abuse, and other Federal agencies.

Where Should Screening and Brief Intervention Be Performed?

Multiple points in the health care system offer an opportunity to identify the full spectrum of substance use disorders, from elevated risk, to early onset, to problem use, to diagnosable abuse and dependence. Primary care practice, hospital emergency rooms, trauma centers, and other community settings provide opportunities for early intervention with at-risk substance users before more severe consequences occur.

For example, emergency departments and trauma centers offer an opportunity to improve the care of patients with at-risk and dependent drinking by teaching staff to screen, perform brief intervention, and refer to treatment. In one study,[14] a structured SBIRT curriculum was implemented in the emergency departments at 14 academic medical centers. ED faculty, residents, nurses, physician extenders, social workers, and emergency medical technicians were surveyed prior to participating in either a two-hour interactive workshop with case simulations, or a web-based program (www.ed.bmc.org/sbirt). A pre-post repeated measures design assessed changes in provider beliefs and practices at three and 12 months post-exposure.

Among 402 providers who participated in the study, 74 percent reported less than 10 hours of prior alcohol-related education, while 78 percent had less than 2 hours' exposure in the preceding year. At three-month follow-up, scores for self-reported confidence in ability, responsibility to intervene, and actual use of screening and brief intervention all improved significantly over baseline. Gains decreased somewhat at 12 months, but still remained above baseline. Length of time in practice was positively associated with use of screening and brief intervention, even after controlling for gender, race and profession. Persistent barriers included time limitations and lack of referral resources.[14]

Patients with substance use problems are seen in other clinical settings as well.[47-54] For example, patients with alcohol and other drug problems are twice as likely to consult a primary care physician as individuals who do not have such disorders.[55] An assessment of 22 primary care practices indicated that 9 percent of patients screened were at-risk drinkers, 8 percent were problem drinkers, and 5 percent were alcohol dependent.[56] In another study, 7 to 20 percent of patients seen in outpatient settings, 30 to 40 percent of those in emergency departments, and 50 percent of trauma patients met the criteria for an alcohol use disorder.[57]

Similarly, a study of 1,419 patients in HMO primary care clinics found that 7.5 percent of patients were engaged in hazardous drinking and 3.2 percent were engaged in non-medical drug use (with 10 percent of all patients endorsing one of the two problems).[58] These rates are similar to those for hypertension and diabetes, for which patients are routinely screened. Moreover, the study population had higher rates of injury than patients with hypertension, used health care services more often, and incurred higher costs per patient than the population as a whole.

Other research shows that patients *want* such help from their caregivers. For example, 74 percent of those who responded to a 2000 opinion survey sponsored by the Harvard School of Public Health and the Robert Wood Johnson Foundation said they believe that individuals who are

addicted can stop using drugs if they receive professional help.[59] By "help," two-thirds said they meant intervention by a physician or other health care professional.

How Widely Are Screening and Brief Intervention Used?

There is broad recognition that alcohol, tobacco and other drug use constitute a common health problem, that clinical interventions are appropriate and effective, and that physicians need to play an important role in providing such interventions.[60,61] Yet there is equally compelling evidence that the potential role of primary care professionals in prevention, early identification, and referral remains largely untapped.[62,63] Clearly, the basic clinical skills needed for screening and brief intervention – which physicians routinely employ in the management of other medical disorders – need attention when it comes to alcohol, tobacco and other drug use and abuse.[64]

In fact, the research literature documents inconsistent and widely varying levels of substance abuse screening and brief intervention by primary care physicians,[65-68] as well as under-use of smoking cessation aids and follow-up,[69,70] and inconsistent use of practice guidelines.[71-75] In a national survey of 2,000 primary care physicians and psychiatrists, 88 percent of respondents said they usually or always ask about alcohol use, but only 47 percent said they regularly inquire about maximum amounts consumed and only 13 percent reported use of formal alcohol screening tools.[76]

The most complete literature on primary care physicians' screening and brief intervention practices address screening for alcohol-related problems and tobacco use cessation. A substantial number of research studies, conducted in a wide range of public health and clinical care settings, have demonstrated the feasibility and benefits of interventions to promote smoking cessation.[77-80] Given decades of attention to the harms resulting from smoking on the part of the researchers, health care professionals, policymakers, and the media, one might expect a very positive picture of the state of physician interventions and, in fact, adult smoking cessation services do seem to have wider acceptance among physicians than other alcohol or drug interventions. However, they are not as consistently available as might be expected from the magnitude of effort to gain public and physician attention.

Even many physicians who screen for alcohol, tobacco or other drug problems do not know how to perform a brief intervention. For example, a survey by Friedman and colleagues asked 1,082 physicians about their screening and brief intervention practices. Among respondents who said they regularly asked new outpatients about drug use, only 55 percent said they routinely offered follow-up services or referral to treatment, and 15 percent reported that they did not intervene at all.[81]

How Can Wider Use of Screening and Brief Intervention be Promoted?

Multiple factors affect the ability and willingness of physicians and other caregivers to screen and intervene for alcohol and other drug problems. Evidence shows that these factors can be successfully addressed so as to promote wider use of screening and brief intervention. For example, in 2003, SAMHSA funded cooperative agreements with six States (California, Illinois, New Mexico, Pennsylvania, Texas and Washington State) and one Tribal Council (Cook Inlet) to

establish demonstrations of SBIRT services. Four additional States (Colorado, Florida, Massachusetts, and Wisconsin) were added in 2006. The awards are renewable for up to five years, depending on performance and availability of funding. Goals of the project were to:

- Increase access to clinically appropriate care for nondependent as well as dependent persons;
- Link the generalist and specialist treatment systems;
- Combine prevention, intervention, and treatment into an integrated continuum of care; and
- Build a coalition between health care services and alcohol and drug treatment services.[6,9]

While the State projects varied with regard to setting, population, and operational model, each involved implementating an SBIRT system within a community and/or medical setting. Grantees have implemented SBIRT in trauma centers, emergency rooms, community clinics, federally qualified health centers, and school clinics. Each system provides for brief intervention or brief treatment within the community setting and/or motivates and refers those identified as needing more extensive services to a specialized setting for assessment, diagnosis, and appropriate treatment.[9]

As of August 2007, the SAMHSA-funded grantees had screened more than 536,000 individuals. Preliminary data suggest that the initiative has been successful in modifying the consumption patterns of those who consume five or more alcoholic beverages in one sitting and those who use illicit drugs. In an October 2007 assessment, investigators found that, among SBIRT participants, the rate of drinking to intoxication (5+ drinks at a sitting) had decreased by 51.2 percent immediately following brief intervention, while the use of any illicit drug had declined by 36.2 percent. At follow-up, the gains were sustained: 31.3 percent of the SBIRT participants had maintained the reduction in their alcohol intake, while the reduction in illicit drug use persisted in 18.2 percent.[9]

Moreover, participating health care professionals learn how to conduct screening, brief intervention, and referral to treatment; become familiar with validated screening tools for identifying patients at elevated risk for harmful drinking or drug use; learn the essential goals of a brief intervention (namely, to help patients understand their screening results, explore the idea of reducing or quitting, and choose an appropriate plan); and learn to identify relevant operational issues for an SBI program and how to make decisions about such issues.[6,9]

Engaging Physicians and Other Health Care Professionals. Physician education programs appear more likely to succeed if that are shaped to reflect the ways in which physicians practice, the variety of ways in which they learn, where they seek information, how they approach the health of their patients, and what their immediate information needs may be.[82]

Experts have endorsed the effectiveness of brief but intensive training sessions in teaching practicing physicians to screen and intervene.[83-86] One approach, known as "academic detailing," is patterned after methods used successfully by pharmaceutical companies to market new drugs. Academic detailing programs focus on individual practitioners and usually are conducted in the physician's office or at a hospital. They may involve (1) short didactic presentations, (2) skills training using role play, (3) performance feedback, and (4) strategies for overcoming physician resistance.[87]

Two studies conducted as part of the World Health Organization's Alcohol Intervention Program[88] compared academic detailing with other approaches to physician behavior change. One, conducted in Denmark, compared the effectiveness of academic detailing, telephone contact, and direct mailings in convincing 143 physicians to undertake screening and brief intervention for problem drinking.[89] Academic detailing was found to be significantly more effective than the other interventions in convincing physicians to read educational materials and employ the new techniques in their practices.

A second study, conducted in Australia, compared academic detailing, telemarketing, and direct mailings directed to a sample of 628 family physicians.[90] Academic detailing was found to be twice as effective as the other methods in convincing physicians to adopt alcohol screening and brief intervention protocols and to participate in a three-month follow-up medical record review.

Many researchers recommend that any training experience be followed up by mentoring, reminders, and other supports. For example, a World Health Organization survey of physician training in diagnosis and management of alcohol problems in 13 countries found that physicians who took more alcohol-related CME units were more likely to counsel problem drinkers and to manage patients with alcohol-related problems.[91]

In the face of these data, it is important to remember that, compared with no training, even moderate levels of training have been shown to increase physician skills at problem identification and management.[92]

Effect of Personal Health Beliefs and Practices: A number of studies have attempted to correlate physicians' personal health attitudes and behaviors with the likelihood that they will offer clinical services such as breast cancer screening,[93] health promotion,[94-96] and nutrition counseling,[97]xercise counseling,[98-100] interventions for family violence.[101] Such studies suggest that physicians' efforts to improve their own health habits may increase the likelihood that they will address unhealthy behaviors in their patients. In contrast, a lack of physician self-concern correlates with lower rates of screening and counseling for patients.

For example, a national survey of physicians found that physicians who had directly encountered problems with alcohol or other drugs (in friends and/or family members) were more likely to screen for and diagnose SUDs and to conduct brief interventions than physicians who had not had such direct experiences.[102] Other studies demonstrate a similar effect.[103-108]

Self-Efficacy and Attitudes: One of the reasons physicians do not perform screening and brief intervention is lack of self-efficacy – that is, they lack of confidence in their skills to intervene and have doubts about the effectiveness of the help they can provide (these often areaccompanied by a lack of familiarity or experience with screening and brief intervention techniques).

Multiple surveys have found that physicians' negative attitudes toward alcohol and other drug problems and the patients who have them also play a part in discouraging screening and brief intervention. However, negative attitudes about their *own* abilities (often based on an accurate perception of their actual lack of skills) seems to be an even greater problem. For instance,

Danielsson and colleagues studied impediments to trauma surgeons' use of screening for alcohol problems. They found that cognitive factors, rather than lack of motivation, were the main obstacle; that is, the surgeons were not confident in their skills.[109] Similar findings appear in studies of primary care physicians,[110-113] pediatricians,[114] family medicine residents,[115,116] and medical students.[117]

Providing Ongoing Feedback: Feedback is one of the most powerful change strategies yet identified, especially when a physician perceives the need for such change. Greco and Eisenberg define feedback as giving physicians information about their practice performance and/or patient outcomes, often in comparison with those of their peers.[118] Examples of effective feedback techniques include (1) conducting confidential performance reviews based on medical record audits, (2) providing written feedback from quality assurance committees, and (3) giving feedback derived from patient satisfaction questionnaires.[119,120]

Feedback can be used in combination with other techniques, such as role play. Physicians need to become comfortable in asking screening questions, with brief intervention techniques, and in motivational interviewing. They need to say the appropriate words and learn how to focus as much on what patients do *not* say (nonverbal cues) as what they *do* say. Role play with colleagues or recovering persons and standardized patients are effective strategies for teaching these skills. Role play can be conducted with large groups through the use of a paired technique (workshop participants turn to the person next to them) or in small groups. Immediate feedback, from either the "patient" or an instructor, reinforces the learning experience.

Engaging Authoritative Sources to Champion Change: Because attitudinal issues play such a large role in physicians' willingness to address alcohol, tobacco and other drug problems in their patients, clinical guidelines and protocols may be more readily accepted if they are championed by opinion leaders who are trusted sources of clinical information, are effective presenters of new information about changes in clinical practice, or who mentor and provide advice to colleagues.

The need for physicians to adopt screening and brief intervention has been championed by a number of authoritative individuals and organizations in addition to the Office of National Drug Control Policy, including the American Medical Associatin (in policy statements adopted or reaffirmed in 1979, 1981, 1991, 2001 and 2007), the American Society of Addiction Medicine (in 1987), the Accreditation Council for Continuing Medical Education (2007), the Federation of State Medical Boards (2007), and the American College of Surgeons (in 2006).

Engaging System Supports for SBI Training and Dissemination. A report from the Institute of Medicine highlights the need for reliable screening, diagnostic, and monitoring instruments, as well as access to health care providers who have mastered required clinical competencies, as demonstrated by appropriate licensing and/or certification. The report stresses the need for system-wide changes involving government, private insurers, and health care purchasers sharing the responsibility for adequately preparing physicians and patients to use the most effective and appropriate services.[121]

Therefore, in each clinical setting, strategies and processes are needed to ensure that screening and brief intervention services occur and are supported. For example, it is useful to identify

which clinician or other health care professional will conduct screenings, interventions, and referrals; to set up strategies and responsibilities to secure information about local treatment resources (public and private) and self-help groups; and to ascertain the status and nature each patients' health insurance, other treatment resources, and public reimbursement capacities.

These strategies can be augmented by adopting screening procedures such as self-administered health history forms, charting tools, manual or computerized patient and physician reminder systems, and standardized prevention messages using protocol-driven service delivery methods.[122] These and other technological advances are increasingly available to support the development of new or improved practice systems and to make clinical and other information more readily available to physicians. These include use of the Internet, handheld software, faxed information, and computer-based programs to improve clinical decisionmaking, information retrieval, service selection, and patient assessment.[123-127]

Professional Licensure and Certification: Changes in licensure and certification requirements to incorporate SBI have been endorsed by many organizations. Certification requirements also can be used to select and tailor information to the knowledge needs of particular physician groups, as can enlisting the participation of insurers and purchasers, who have the power to require changes in practice.[128]

Clinical Protocols: An excellent example of a protocol that can guide implementation of a systematic approach to expanding the continuum of care has been developed by the VA/DoD Evidence-Based Clinical Practice Guideline Working Group of the Veterans Health Administration, Department of Veterans Affairs, Department of Defense.[129]

The VA/DoD guideline consists of five modules that address inter-related aspects of care for patients with substance use disorders. Module A (Assessment and Management in Primary Care) provides a summary of the evidence base for screening and brief interventions and outlines pathways for referral to specialty treatment. [129]

Performance Standards: In May 2007, the National Quality Forum (NQF) announced endorsement of national voluntary consensus standards on evidence-based practices for the treatment of substance use disorders. The standards state that "Patients in general and mental health care settings should be screened for at-risk drinking, alcohol use problems and illnesses, and any tobacco use on new patient encounters and at least annually. Health care providers should employ a systematic method to identify patients who use drugs, which considers epidemiologic and community factors and potential health consequences of drug use for their specific population." [130]

NQF's endorsement of these practices represents the formal consensus of more than 350 healthcare providers, consumer groups, professional associations, purchasers, federal agencies, and research and quality improvement organizations. These standards were vetted through NQF's formal Consensus Development Process, with multiple stakeholder input, to achieve special legal standing as voluntary consensus standards.

At about the same time, the American College of Surgeons (ACS) Committee on Trauma adopted a requirement that Level I and Level II trauma centers have a mechanism in place to

identify problem drinkers. ACS also requires that Level I centers have the capability to provide brief interventions for patients who screen positive.

Working in cooperation with the Center for Substance Abuse Treatment of the Substance Abuse and Mental Health Services Administration, the ACS Committee on Trauma has produced a resource guide, the "Committee on Trauma Quick Guide: Alcohol Screening and Brief Intervention (SBI) for Trauma Patients," to help trauma centers meet the new requirements.[5]

Engaging Purchasers and Payers of Care. It seems clear that, although much of the research on primary care physicians' screening and brief intervention for alcohol, tobacco and other drug problems highlights the shortcomings of medical education and practice, fundamental change also requires that reimbursement systems support the desired changes in physician behavior.

UPPL and Limits on Insurance Coverage: Lack of adequate insurance coverage is frequently cited as an obstacle to identification and treatment.[131,132] Conversely, a study of pediatricians showed a positive relationship between physician reimbursement and well-visit and immunization practices.[133]

Typically, health insurance plans – if they cover clinical services for alcohol, tobacco and other drug problems at all – set annual or lifetime dollar limits on coverage.[134] Actual lack of coverage (or the assumption that coverage is inadequate or absent) may dissuade physicians from intervening so as not to create patient expectations and concerns that cannot be adequately addressed.

Some of these perceptions are based in reality. For example, although alcohol and other drug use are major factors in injury and use of trauma services, insurance statutes (known as the Uniform Accident and Sickness Policy Provision Law, or UPPL) in force in more than 30 States allow health plans to refuse to cover services to patients who are injured as a result of being under the influence of alcohol or any drug not prescribed by a physician.[135,136] These policies have the direct effect of discouraging screening trauma patients for alcohol and other drug problems, since a positive screen may lead to denial of coverage for the needed care.

Screening Requirements: A survey of three major types of health plans (HMOs, preferred provider organizations, and point-of-service plans) found that only 15 percent required any alcohol, drug, or mental health screening by primary care practitioners.[137] Similar results were obtained in a survey by the American Association of Health Plans, which sought to determine the extent to which the plans incorporated effective tobacco control interventions. Of the 323 health plans responding, 71 percent said they were aware of the Federal (Agency for Healthcare Research and Quality) tobacco cessation guidelines, but only 9 percent had fully and 39 percent had partially implemented them. Smoking cessation services for pregnant women were offered by only 45 percent of the plans and, despite a 25 percent smoking prevalence in the patient population, only 15 percent of the plans could identify which patients were smokers.[138]

New Reimbursement Codes: Despite the aforementioned problems, there is encouraging evidence of an evolution in health care coverage for preventive services. In a major breakthrough, the American Medical Association has published new AMA Level I Current Procedural Terminology (CPT®) Codes that cover screening and brief intervention. Published in October 2007, the new codes became fully effective January 1, 2008. The AMA also established the relative value units (RVUs) that associate a value for each service.

New Category I CPT® Codes

99408: Alcohol and/or substance (other than tobacco) abuse structured screening (e.g., AUDIT, DAST), and brief intervention (SBI) services; 15 to 30 minutes,

99409: Alcohol and/or substance (other than tobacco) abuse structured screening (e.g., AUDIT, DAST), and brief intervention (SBI) services; greater than 30 minutes.

Medical professionals can use the new CPT codes to communicate concisely and reliably with colleagues, patients, and insurers about screening for substance use and appropriate interventions. The codes thus make it possible to efficiently report (and obtain reimbursement for) screening and brief intervention. This process will increase the likelihood that those with substance use disorders will receive an appropriate intervention, thereby reducing the number of patients with substance use disorders. As a result, physicians can dedicate both time and resources to assess their patients' risky substance use characteristics and behaviors.

In another step forward, the Centers for Medicare and Medicaid Services (CMS) has added reimbursement codes for screening and brief intervention for Medicaid beneficiaries. The new HCPCS H Codes were published in January 2007 by the Centers for Medicare and Medicaid Services (CMS), and the definitions were refined in August 2007.

The definitions were developed based on a review of the screening and brief intervention materials that were prepared in support of the SBI CMS code request package and a National Association of State Alcohol and Drug Abuse Directors (NASADAD) State Issue Brief on Screening and Brief Intervention. NASADAD participated in a Substance Abuse and Mental Health Services Administration (SAMHSA) screening and brief intervention work group that developed the materials and made the code request to CMS.

The HCPCS Level II definitions and administrative codes are:

- ***Code H0049 Alcohol and/or Drug Screening:*** A quick process designed to identify an individual who has an alcohol and/or drug use problem or is at risk for developing one by evaluating responses to questions about alcohol and/or other drug use. A valid brief questionnaire about the context, frequency, and amount of alcohol and/or other drug use can be used to examine substance use patterns. Examples of valid questionnaires are the AUDIT (Alcohol Use Disorder Identification Test), MAST (Michigan Alcohol Screening Test), DAST (Drug Abuse Screening Test), and ASSIST (Alcohol, Smoking, and Substance Involvement Screening Test). The result of a positive screen is a recommendation for a brief intervention for individuals with an alcohol and/or drug use problem or at risk of developing one, or a referral to a substance abuse treatment program for individuals with severe alcohol and/or other drug abuse and dependence.

- ***Code H0050 Alcohol and/or Drug Service, Brief Intervention*** (per 15 minutes): A brief one-on-one session focused on increasing motivation for behavior change to reduce harmful levels of alcohol/and or other drugs. Intervention strategies include education, simple advice, brief counseling, continued monitoring, or referral to a substance abuse treatment specialist.

Coordinating Public Systems. Recent efforts to improve clinical performance and patient outcomes have led to collaborations such as the use of public agencies, managed care plans, health care provider organizations, and physicians to set evidence-based performance measures and outcomes.

One such collaboration, the Physician Consortium for Performance Improvement, has focused on developing performance measures.[139] Such standards, with reimbursement mechanisms tied to the standards, can improve the quality of care, increase cost-effectiveness, provide a basis for consumers and purchasers of services to compare health care plans, support and pay for desired services, and thus bring about changes in physician practice.

The National Academies of Science report, *Improving the Quality of Health Care for Mental and Substance-Use Conditions*,[140] presented a comprehensive view of the problems facing these areas and recommended redesigning systems to fit the needs of and to actively involve patients, using patient-centered decision-making and care decisions, and assuring that patients will are informed and involved in every stage of their care. The report also called for services to be coordinated and to employ evidence-based practices such as screening and brief intervention.

Finally, the report highlighted the need for reliable screening, diagnostic and monitoring instruments, used by health care providers who have the required clinical competencies, licensing and/or certification. Most important, the report stressed the need for system-wide changes on the part of government, researchers, insurers, and health care purchasers so as to enable prepared physicians and patients to offer and access the most effective and appropriate services.

Engaging Policymakers and the Public. Lack of adequate reimbursement for screening and brief intervention, as well as other services for alcohol, tobacco and other drug problems, arises in almost every discussion of impediments to providing such services.

Medical, public health, criminal justice, and citizen advocacy groups have argued for increased funding for such services, as well as for requirements that the care of substance use disorders by reimbursed at parity with care for other medical disorders. Specifically, such groups are working toward the repeal of UPPL statutes that allow health plans to limit such reimbursement.

Research Needs. About 40 years after the first controlled study, screening and brief intervention is being disseminated into practice. But many unanswered questions remain. There is much we don't yet know SBI's cost-effectiveness, patient preferences, education for clinicians, quality performance measures, 'no-contact' SBI, predictors of behavior change, and methodological concerns with the SBI literature.

The best evidence for the efficacy of screening and brief intervention is that it can lead to decreased consumption in primary care patients with non-dependent unhealthy alcohol use. But further research is needed on brief drug screening tools, efficacy of SBI for drugs, effectiveness in real world settings, integration of SBI for alcohol and drugs with other health behaviors, effects of SBI on alcohol and drug consequences, effects on dependence among those not seeking help, and on how to best disseminate the efficacious elements of SBI into practice.[141]

Some experts have suggested that physicians' negative attitudes toward alcohol and other drug problems can be explored successfully in undergraduate and continuing medical education.[142-145] This approach is supported by evidence that even brief skills-based training can be effective in changing student attitudes and skills.[146-148] However, longer-term follow-up of this strategy is needed.

Conclusions

Changing physicians' practice behaviors to incorporate screening and brief intervention will require the use of multiple integrated approaches that (1) accurately reflect physicians' knowledge and skills training needs, (2) incorporate evidence-based educational strategies that reflect the ways in which physicians learn throughout their careers, and (3) employ systems supports wherever possible, and (4) realistically reflect limits imposed by productivity requirements and reimbursement policies.

Adoption of the new CPT codes by the AMA and the HCPCS codes for Medicaid represent a major step toward removing lack of reimbursement as a barrier to implementation of screening and brief intervention, thus increasing the likelihood that patients with substance use disorders will receive an appropriate intervention.

ACKNOWLEDGMENTS: This document was prepared by Bonnie B. Wilford, M.S., Director of the Center for Health Services & Outcomes Research at JBS International, Inc., with the advice and assistance of the following individuals, whose contributions are acknowledged with gratitude: Bertha K. Madras, Ph.D., Deputy Director of the Office of National Drug Control Policy; Richard Denisco, M.D., of the National Institute on Drug Abuse; Ken Hoffman, M.D., M.P.H., and Tom Stegbauer, M.B.A., of the Center for Substance Abuse Treatment; Mark Willenbring, M.D., of the National Institute on Alcohol Abuse and Alcoholism; Michael F. Fleming, M.D., M.P.H., of the University of Wisconsin-Madison; Eric Goplerud, Ph.D., of The George Washington University Medical Center; Susan Hayashi, Ph.D., Kazi Ahmed, Ph.D., Patricia Kassebaum and Manu Singh of JBS International, Inc.; and Richard A. Yoast, Ph.D., of the American Medical Association. In addition, we thank Mary A. Kelly, M.S.L.S., for assistance with the literature search.

References

1. Fleming MF (2002). Screening, assessment, and intervention for substance use disorders in general health care settings. In *Project Mainstream: Strategic Plan for Interdisciplinary Faculty Development – Arming the Nation's Health Professional Workforce for a New Approach to Substance Use Disorders, Part I. Evidence Supporting the Strategic Plan.* Providence, RI: Association for Medical Education and Research in Substance Abuse.

2. National Institute on Alcohol Abuse and Alcoholism (2005). *Helping Patients Who Drink Too Much. A Clinician's Guide* [NIH Publication No. 07-3769; revised January 2007]. Rockville, MD: NIAAA, National Institutes of Health.

3. Fiellin DA, Butler R, D'Onofrio G et al. (2002). The physician's role in caring for patients with substance use disorders: Implications for medical education and training. In *Project Mainstream: Strategic Plan for Interdisciplinary Faculty Development: Arming the Nation's Health Professional Workforce for a New Approach to Substance Use Disorders: Part II. Discipline-Specific Recommendations for Faculty Development*. Providence, RI: Association for Medical Education and Research in Substance Abuse.

4. Babor TF, McRee BG, Kassebaum PA, Grimaldi PL, Ahmed K, Bray J (2007). Screening, Brief Intervention, and Referral to Treatment (SBIRT): Toward a public health approach to the management of substance abuse. *Substance Abuse* 28(3):7-30.

5. Committee on Trauma (2007). *Quick Guide: Alcohol Screening and Brief Intervention (SBI) for Trauma Patients.* Washington, DC: Dept. of Health and Human Services, p. 11. [Accessed at http://www.mayatech.com/cti/sbitrain07/include/SBIRT_COT_Guide.pdf]

6. Substance Abuse and Mental Health Services Administration (2007). SBIRT Core Components. (Accessed at www.sbirt.samhsa.gov) Jan. 13, 2008.

7. Office of National Drug Control Policy (2005). *National Drug Control Strategy Data Supplement.* Washington, DC: Executive Office of the President. (Accessed at www.whitehousedrugpolicy.gov/publications/policy/ndcs06_data_supl/)

8. Office of Applied Studies (2006). *Results from the 2005 National Survey on Drug Use and Health: National Findings*. NSDUH Series H-30 [DHHS Publication No. SMA 06-4194]. Rockville, MD: OAS, Substance Abuse and Mental Health Services Administration.

9. Stegbauer T (2007). Screening, Brief Intervention, and Referral to Treatment (SBIRT) Program: SBIRT Performance Summary (slide program). November 2.

10. World Health Organization (2005). Public health problems caused by harmful use of alcohol. *The World Health Report* Jan. 22.

11. Hanson GR, Li TK (2003). Public health implications of excessive alcohol consumption. Editorial. *Journal of the American Medical Association* 289(8):1031-1032.

12. O'Connor PG (2007). Brief interventions for problem drinking: Another piece of the puzzle (editorial). *Annals of Internal Medicine* Feb.6;146(3):223-225.

13. Academic ED SBIRT Research Collaborative (2007). The impact of screening, brief intervention, and referral for treatment on emergency department patients' alcohol use. *Ann Emerg Med.* Dec;50(6):699-710, 710.e1-6.

14. Bernstein E, Bernstein J, Feldman J et al. (2007). An evidence based alcohol screening, brief intervention and referral to treatment (SBIRT) curriculum for emergency department (ED) providers improves skills and utilization. *Substance Abuse* 28(4):79-92.

15. Dunn C (2003). Brief motivational interviewing interventions targeting substance abuse in the acute care medical setting. *Seminars in Clinical Neuropsychiatry* Jul;8(3):188-196.

16. Hungerford DW, Williams JM, Furbee PM, Manley WG 3rd, Helmkamp JC, Horn K, Pollock DA (2003). Feasibility of screening and intervention for alcohol problems among young adults in the ED. *American Journal of Emergency Medicine* Jan;21(1):14-22.

17. Monti PM, Colby SM, Barnett NP et al. (1999). Brief intervention for harm reduction with alcohol-positive older adolescent in a hospital emergency department. *Journal of Consulting and Clinical Psychology* 67(6):989-994.

18. D'Onofrio G, Pantalon MV, Degutis LC, Fiellin DA, O'Connor PG (2005) Development and implementation of an emergency practitioner-performed brief intervention for hazardous and harmful drinkers in the emergency department. *Academic Emergency Medicine.* Mar;12(3):249-256.

19. Borland R, Segan C (2006) The potential of quitlines to increase smoking cessation. *Drug and Alcohol Review* Jan;15(1):73-78.

20. Tait RJ, Hulse GK (2003). A systematic review of the use of brief intervention with substance using adolescents by type of drug. *Drug and Alcohol Review* 22:337-346.

21. Fiore MC, Bailey WC, Cohen SJ, Dorfman SF, Goldstein MG et al. (2000). *Treating Tobacco Use and Dependence: Clinical Practice Guideline.* Rockville, MD: U.S. Department of Health and Human Services, Public Health Service.

22. Burke PJ, O'Sullivan J, Vaughan BL (2005). Adolescent substance use: Brief interventions by emergency care providers. *Pediatric Emergency Care* Nov;21(11):770-776.

23. D'Onofrio G, Pantalon MV, Degutis LC, Fiellin DA, O'Connor PG (2005). Development and implementation of an emergency practitioner-performed brief intervention for hazardous and harmful drinkers in the emergency department. *Academic Emergency Medicine* Mar;12(3):249-256.

24. Tait RJ, Hulse GK (2005). Adolescent substance use and hospital presentations: A record linkage assessment of 12-month outcomes. *Drug & Alcohol Dependence* Sep 1;79(3):365-371.

25. Yonas M, Baker D, Cornwell EE 3rd, Chang D, Phillips J, Paradise J, Paradise M, Sutton E, Elihu A (2005). Readiness to change and the role of inpatient counseling for alcohol/substance abusing youth with major trauma. *Journal of Trauma* 59(2):466-469.

26. De Micheli D, Fisberg M, Formigoni ML (2004). Study on the effectiveness of brief intervention for alcohol and other drug use directed to adolescents in a primary health care unit. *Revista da Associacao Medica Brasileira* Jul-Sep;50(3):305-313.

27. Tait RJ, Hulse GK, Robertson SI, Sprivulis PC (2005). Emergency department-based intervention with adolescent substance users: 12-month outcomes. *Drug and Alcohol Dependence* Sep 1;79(3):359-363.

28. Wilk AI, Jensen NM, Havighurst TC (1997). Meta-analysis of randomized controlled trials addressing brief interventions in heavy alcohol drinkers. *Journal of General Internal Medicine* 12(5):274-283.

29. World Health Organization Brief Intervention Study Group (1996). A cross-national trial of brief interventions with heavy drinkers. *American Journal of Public Health* 86(7):948-955.

30. Office of Applied Studies (2006). *Results from the 2005 National Survey on Drug Use and Health: National Findings.* NSDUH Series H-30 [DHHS Publication No. SMA 06-4194]. Rockville, MD: OAS, Substance Abuse and Mental Health Services Administration.

31. Dunn C, Deroo L, Rivara FP (2001). The use of brief interventions adapted from motivational interviewing across behavioral domains: A systematic review. *Addiction* Dec;96(12):1725-1742.

32. Dunn C (2003). Brief motivational interviewing interventions targeting substance abuse in the acute care medical setting. *Seminars in Clinical Neuropsychiatry* Jul;8(3):188-196.

33. Gentilello LM, Ebel BE, Wickizer TM, Salkever DS, Rivara FP (2005). Alcohol interventions for trauma patients treated in emergency departments and hospitals: A cost benefit analysis. *Ann Surg*. Apr;241(4):541-550

34. Monti PM, Colby SM, Barnett NP et al. (1999). Brief intervention for harm reduction with alcohol-positive older adolescents in a hospital emergency department. *Journal of Consulting and Clinical Psychology* 67(6):989-994.

35. Coups EJ, Gaba A, Orleans T (2004). Physician screening for multiple behavioral risk factors. *American Journal of Preventive Medicine* 27(2S):34-41.

36. Whitlock EP, Polen MR, Green CA et al. (2004). Behavioral counseling interventions in primary care to reduce risky/harmful alcohol use by adults: A summary of the evidence for the U.S. Preventive Services Task Force. *Annals of Internal Medicine* 140:557-568.

37. Mundt MP (2006). Analyzing the costs and benefits of brief intervention. *Alcohol Research and Health* 29(1):34-36.

38. Fleming MF, Mundt MP, French MT et al. (2002). Brief physician advice for problem drinkers: Long-term efficacy and benefit-cost analysis. *Alcohol Clin Exp Res*. Jan;26(1)36-43.

39. Kraemer KL (2007). The cost-effectiveness and cost-benefit of screening and brief intervention for unhealthy alcohol use in medical settings. *Substance Abuse* 28(3):67-77.

40. National Institute on Drug Abuse (1998). *The Economic Costs of Alcohol and Drug Abuse in the United States–1992*. Rockville, MD: NIDA, National Institutes of Health.

41. Seale JP, Shellenberger S, Tillery W et al. (2006). Implementing screening and intervention in a family medicine residency clinic: The Healthy Lifestyles Project. *Substance Abuse* 26(1):23-31.

42. U.S. Preventive Services Task Force (2006). *Guide to Clinical Preventive Services, 2006* [AHRQ Publication No. 06-0588]. Rockville, MD: Agency for Healthcare Research and Quality.

43. National Academies of Science (2003). *Dispelling the Myths About Addiction: Strategies to Increase Understanding and Strengthen Research.* Washington, DC: National Academies Press.

44. Lewis DC (1994). Training about alcohol and substance abuse for all primary care physicians. Paper presented at Training About Alcohol and Substance Abuse for All Primary Care Physicians (conference). New York, NY: Josiah Macy Foundation.

45. Association for Medical Education and Research in Substance Abuse (2002). *Strategic Plan for Interdisciplinary Faculty Development: Arming the Nation's Health Professional Workforce for a New Approach to Substance Use Disorders: Part I. Evidence Supporting the Strategic Plan*. Providence, RI: Association for Medical Education and Research in Substance Abuse.

46. Office of National Drug Control Policy (2005). *Report of a Leadership Conference on Medical Education in Substance Abuse, December 1-2, 2004.* Washington, DC: Executive Office of the President.

47. Rush BR (1989). The use of family medical practices by patients with drinking problems. *Canadian Medical Association Journal* Jan 1;140(1):35-39.

48. Manwell LB, Fleming MF, Johnson K et al. (1998). Tobacco, alcohol, and drug use in a primary care sample: 90 day prevalence and associated factors. *Journal of Addictive Diseases* 17(1):67-81.

49. Saitz R (2005). Unhealthy alcohol use. *New England Journal of Medicine* 352(56):596-607.

50. Weisner C, Mertens J, Parthasarathy S, Moore C, Lu Y (2001). Integrating primary medical care with addiction treatment: A randomized controlled trial. *Journal of the American Medical Association* Oct.10;286(14):1715-1723.

51. American Academy of Pediatrics, Committee on Substance Abuse (1998). Tobacco, alcohol, and other drugs: The role of the pediatrician in prevention and management of substance abuse. *Pediatrics* Jan;101(1 Pt 1):125-128.

52. Babcock ID, Wyer PC, Gerson LW (2000). Preventive care in the emergency department, Part II: Clinical preventive services—An emergency medicine evidence-based review (Society for Academic Emergency Medicine, Public Health and Education Task Force, Preventive Services Work Group). *Academic Emergency Medicine* 7:1042-1054.

53. Bradley KA (1994). The primary care practitioner's role in the prevention and management of alcohol problems. *Alcohol Health & Research World* 18:97-104.

54. Volk RJ, Steinbauer JR, Cantor SB (1996). Patient factors influencing variation in the use of preventive interventions for alcohol abuse by primary care physicians. *Journal of Studies on Alcohol* Mar;57(2):203-209.

55. Bernstein SL, Becker BM (2002). Preventive care in the emergency department: Diagnosis and management of smoking and smoking-related illness in the emergency department: A systematic review. *Academic Emergency Medicine* Jul; 9(7):720-729.

56. Bradley KA, Curry SJ, Koepsell TD, Larson EB (1995). Primary and secondary prevention of alcohol problems: U.S. internist attitudes and practices. *Journal of General Internal Medicine* Feb;10(2):67-72.

57. Tait RJ, Hulse GK, Robertson SI, Sprivulis PC (2005). Emergency department-based intervention with adolescent substance users: 12-month outcomes. *Drug and Alcohol Dependence* Sep 1;79(3):359-363.

58. D'Onofrio G, Pantalon MV, Degutis LC, Fiellin DA, O'Connor PG (2005). Development and implementation of an emergency practitioner-performed brief intervention for hazardous and harmful drinkers in the emergency department. *Academic Emergency Medicine* Mar;12(3):249-256.

59. Harvard School of Public Health and The Robert Wood Johnson Foundation (2000). Report on public attitudes toward illegal drug use and drug treatment (telephone survey of 1,012 adults conducted by International Communications Research). Unpublished slide presentation.

60. Burke PJ, O'Sullivan J, Vaughan BL. (2005) Adolescent substance use: Brief interventions by emergency care providers. *Pediatric Emergency Care.* Nov;21(11):770-776.

61. An LC, Bernhardt TS, Bluhm J, Bland P, Center B, Ahluwalia JS, Foldes SS, Magnan S, Manley M (2004). Treatment of tobacco use as a chronic medical condition: Primary care physicians' self-reported practice patterns. *Preventive Medicine* May;38(5):574-585.

62. Kaplan CP, Perez-Stable EJ, Fuentes-Afflick E, et al. (2004). Smoking cessation counseling with young patients: The practices of family physicians and pediatricians. *Archives of Pediatrics & Adolescent Medicine* Jan;158(1):83-90.

63. Sand N, Silverstein M, Glascoe FP, Gupta VB, Tonniges TP, O'Connor KG (2005). Pediatricians' reported practices regarding developmental screening: Do guidelines work? Do they help? *Pediatrics* Jul;116(1):174-179.

64. DePue JD, Goldstein MG, Schilling A, Reiss P, Papandonatos G et al. (2002). Dissemination of the AHCPR clinical practice guideline in community health centres. *Tobacco Control* Dec;11(4):329-335.

65. National Academies of Science, Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders (2006). *Improving the Quality of Health Care for Mental and Substance-Use Conditions: Quality Chasm Series*. Washington, DC: National Academies Press.

66. Hartmann KE, Espy A, McPheeters M, et al. (2004). Physicians taught as residents to conduct smoking cessation intervention: A follow-up study. *Preventive Medicine* Aug;39(2):344-50.

67. Friedmann PD, McCullough D, Chin MH et al. (2000). Screening and intervention for alcohol problems: A national survey of primary care physicians and psychiatrists. *Journal of General Internal Medicine* Feb;15(2):84-91.

68. Saitz R, Sullivan LM, Samet JH (2000). Training community-based clinicians in screening and brief intervention for substance abuse problems: Translating evidence into practice. *Substance Abuse* 21(1):21-31.

69. Fiore MC, Bailey WC, Cohen SJ, Dorfman SF, Goldstein MG et al. (2000). *Treating Tobacco Use and Dependence: Clinical Practice Guideline.* Rockville, MD: U.S. Department of Health and Human Services, Public Health Service.

70. Bernstein SL, Becker BM (2002). Preventive care in the emergency department: Diagnosis and management of smoking and smoking-related illness in the emergency department: A systematic review. *Academic Emergency Medicine* Jul; 9(7):720-729.

71. Manske S, Miller S, Moyer C, Phaneuf MR, Cameron R (2004). Best practice in group-based smoking cessation: Results of a literature review applying effectiveness, plausibility, and practicality criteria. *American Journal of Health Promotion* Jul-Aug;18(6):409-423.

72. Sinclair H, Bond C, Stead L (2004). Community pharmacy personnel interventions for smoking cessation. *Cochrane Database System Reviews* 1:CD003698.

73. Davis DA, Taylor-Vaisey A (1997). Translating guidelines into practice: A systematic review of theoretic concepts, practical experience and research evidence in the adoption of clinical practice guidelines. *Canadian Medical Association Journal* Aug 15;157(4):408-416.

74. Kaner EF, Wutzke S, Saunders JB et al. (2001). WHO Brief Intervention Study Group. Impact of alcohol education and training on general practitioners' diagnostic and management skills: Findings from a World Health Organization collaborative study. *Journal of Studies on Alcohol* Sep;62(5):621-627.

75. Center on Addiction and Substance Abuse (2000). *Missed Opportunity: National Survey of Primary Care Physicians and Patients.* New York, NY: CASA, Columbia University (Accessed at www.casacolumbia.org/publications1456/publications_show.htm?doc_id=29109.)

76. Westbrook JI, Gosling AS, Coiera E (2005). Do clinicians use online evidence to support patient care? A study of 55,000 clinicians. *Journal of the American Medical Informatics Association* 11(2):113-120.

77. American Academy of Pediatrics, Committee on Child Health Financing and Committee on Substance Abuse (2001). Improving substance abuse prevention, assessment, and treatment financing for children and adolescents. *Pediatrics* 108(4):1025-1029.

78. Institute of Medicine; Smedley BD, Syme SL, eds. (2000). *Promoting Health: Intervention Strategies from Social and Behavioral Research*. Committee on Capitalizing on Social Science and Behavioral Research to Improve the Public's Health, Division of Health Promotion and Disease Prevention, National Academies of Science. Washington, DC: National Academies Press.

79. Kadel FJ, Vilensky W (1999). Perceptions and reported practices of osteopathic physicians in diagnosing and treating addiction. *Journal of the American Osteopathic Association* 99(9):461-469.

80. ACOG Committee on Ethics. (2004) ACOG Committee Opinion, Number 294, May 2004. At-risk drinking and illicit drug use: Ethical issues in obstetric and gynecologic practice. *Obstetrics & Gynecology*. May;103(5 Pt 1):1021-1031.

81. Friedmann PD, McCullough D, Chin MH et al. (2000). Screening and intervention for alcohol problems: A national survey of primary care physicians and psychiatrists. *Journal of General Internal Medicine* Feb;15(2):84-91.

82. Frank E, Galuska DA, Elon LK, Wright EH (2004a). Personal and clinical exercise-related attitudes and behaviors of freshmen U.S. medical students. *Research Quarterly for Exercise and Sport* Jun;75(2):112-121.

83. Dickstein LJ (1997). Practical recommendations for supporting medical students and faculty in learning about family violence. *Academic Medicine* Jan;72(1 Suppl):S105-109.

84. Wyatt SA, Vilensky W, Manlandro JJ Jr, Dekker MA 2nd . (2005) Medical education in substance abuse: From student to practicing osteopathic physician. *Journal of the American Osteopathic Association*. Jun;105(6 Suppl 3):S18-25.

85. Frank E, Rothenberg R, Lewis DC et al. (2000b). Correlates of physicians' prevention-related practices: Findings from the Women's Physicians' Health Study. *Archives of Family Medicine* 9:359-367.

86. Poirier MK, Clark MM, Cerhan JH, Pruthi S, Geda YE, Dale LC (2004).Teaching motivational interviewing to first-year medical students to improve counseling skills in health behavior change. *Mayo Clinic Proceedings* Mar;79(3):327-331.

87. Schwartz JS, Cohen SJ (1990). Changing physician behavior. In *Primary Care Research: An Agenda for the 90s* (conference proceedings) [AHCPR Publication 90-3460]. Rockville, MD: Agency for Health Care Policy and Research.

88. World Health Organization Brief Intervention Study Group (1996). A cross-national trial of brief interventions with heavy drinkers. *American Journal of Public Health* 86(7):948-955.

89. Cornuz J, Ghali WA, Di Carlantonio D, Pecoud A, Paccaud F (2000). Physicians' attitudes towards prevention: Importance of intervention-specific barriers and physicians' health habits. *Family Practice* Dec;17(6):535-540.

90. Ohida T, Sakurai H, Mochizuki Y et al. (2001). Smoking prevalence and attitudes toward smoking among Japanese physicians. *Journal of the American Medical Association* 285:2643-2648.

91. World Health Organization Brief Intervention Study Group (1996). A cross-national trial of brief interventions with heavy drinkers. *American Journal of Public Health* 86(7):948-955.

92. Johnson TP, Booth AL, Johnson P (2005) Physician beliefs about substance misuse and its treatment: Findings from a U.S. survey of primary care practitioners. *Substance Use & Misuse* 40(8):1071-1084.

93. Frank E, Rimer BK, Brogan D, Elon L (2000). U.S. women physicians' personal and clinical breast cancer screening practices. *Journal of Women's Health and Gender Based Medicine* Sep;9(7):791-801.

94. Frank E, Harvey LK (1996). Prevention advice rates of women and men physicians. *Archives of Family Medicine* Apr;5(4):215-219.

95. Frank E, Hedgecock J, Elon LK (2004). Personal health promotion at U.S. medical schools: A quantitative study and qualitative description of deans' and students' perceptions. *British Medical Education* Dec 6;4(1):29.

96. Frank E, Wright EH, Serdula MK, Elon LK, Baldwin G (2002). Personal and professional nutrition-related practices of U.S. female physicians. *American Journal of Clinical Nutrition* Feb;75(2):326-332.

97. Abramson S, Stein J, Schaufele M, Frates E, Rogan S (2000). Personal exercise habits and counseling practices of primary care physicians: A national survey. *Clinical Journal of Sports Medicine* Jan;10(1):40-48

98. Frank E, Bhat Schelbert K, Elon L (2003). Exercise counseling and personal exercise habits of U.S. women physicians. *Journal of the American Medical Women's Association* Summer;58(3):178-184.

99. Ding L, Landon BE, Wilson IB, Wong MD, Shapiro MF, Cleary PD (2005). Predictors and consequences of negative physician attitudes toward HIV-infected injection drug users. *Archives of Internal Medicine* 165:618-623.

100. Hanna EZ (1991). Attitudes toward problem drinkers, revisited: Patient-therapist factors contributing to the differential treatment of patients with alcohol problems. *Alcoholism: Clinical and Experimental Research* Dec;15(6):927-931.

101. Ferguson L, Ries R, Russo J (2003). Barriers to identification and treatment of hazardous drinkers as assessed by urban/rural primary care doctors. *Journal of Addictive Diseases* 22(2):79-90.

102. Litaker D, Flocke SA, Frolkis JP et al. (2005). Physicians' attitudes and preventive care delivery: Insights from the DOPC study. *Preventive Medicine* May;40(5):556-563.

103. Johnson TP, Booth AL, Johnson P (2005) Physician beliefs about substance misuse and its treatment: Findings from a U.S. survey of primary care practitioners. *Substance Use & Misuse* 40(8):1071-1084.

104. Marcell AV, Halpern-Felsher B, Coriell M et al. (2002). Physicians' attitudes and beliefs concerning alcohol abuse prevention in adolescents. *American Journal of Preventive Medicine* Jan;22(1):49-55.

105. Duszynski KR, Nieto FJ, Valente CM (1995). Reported practices, attitudes, and confidence levels of primary care physicians regarding patients who abuse alcohol and other drugs. *Maryland Medical Journal* Jun;44(6):439-446.

106. Rush BR, Powell LY, Crowe TG et al. (1995). Early intervention for alcohol use: Family physicians' motivations and perceived barriers. *Canadian Medical Association Journal* Mar 15;152(6):863-869.

107. Hanna EZ (1991). Attitudes toward problem drinkers, revisited: Patient-therapist factors contributing to the differential treatment of patients with alcohol problems. *Alcoholism: Clinical and Experimental Research* Dec;15(6):927-931.

108. Rubin JD, Sobal J, Moran MT (1990). Health promotion beliefs and practices of fourth-year medical students. *American Journal of Preventive Medicine* Mar-Apr;6(2):106-111.

109. Danielsson PE, Rivara FP, Gentilello LM, Maier RV (1999). Reasons why trauma surgeons fail to screen for alcohol problems. *Archives of Surgery* May;143:564-568.

110. Whitlock EP, Polen MR, Green CA et al. (2004). Behavioral counseling interventions in primary care to reduce risky/harmful alcohol use by adults: A summary of the evidence for the U.S. Preventive Services Task Force. *Annals of Internal Medicine* 140:557-568.

111. Spandorfer JM, Israel Y, Turner BJ (1999). Primary care physicians' views on screening and management of alcohol abuse: Inconsistencies with national guidelines. *Journal of Family Practice* Nov;48(11):899-902.

112. Volk RJ, Steinbauer JR, Cantor SB (1996). Patient factors influencing variation in the use of preventive interventions for alcohol abuse by primary care physicians. *Journal of Studies on Alcohol* Mar;57(2):203-209.

113. Johnson TP, Booth AL, Johnson P (2005) Physician beliefs about substance misuse and its treatment: Findings from a U.S. survey of primary care practitioners. *Substance Use & Misuse* 40(8):1071-1084.

114. McInerny TK, Cull WL, Yudkowsky BK (2005). Physician reimbursement levels and adherence to American Academy of Pediatrics well-visit and immunization recommendations. *Pediatrics* Apr;115(4):833-838.

115. Kahan M, Wilson L, Liu E et al. (2004). Family medicine residents' beliefs, attitudes and performance with problem drinkers: A survey and simulated patient study. *Substance Abuse* Mar;25(1):43-51, 30.

116. Seale JP, Shellenberger S, Tillery W et al. (2006). Implementing screening and intervention in a family medicine residency clinic: The Healthy Lifestyles Project. *Substance Abuse* 26(1):23-31.

117. Bellas PA, Asch SM, Wilkes M (2000). What students bring to medical school: Attitudes toward health promotion and prevention. *American Journal of Preventive Medicine* Apr;18(3):242-248.

118. Greco PJ, Eisenberg JM (1993). Changing physicians' practices. *New England Journal of Medicine* 329(17):1271-1273.

119. Jamtvedt G, Young JM, Kristoffersen DT, Thomson O'Brien MA, Oxman AD (2003). Audit and feedback: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* (3):CD000259. Update of *Cochrane Database Syst Rev*. 2000;(2):CD000259.

120. Saitz R, Sullivan LM, Samet JH (2000). Training community-based clinicians in screening and brief intervention for substance abuse problems: Translating evidence into practice. *Substance Abuse* 21(1):21-31.

121. National Academies of Science, Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders (2006). *Improving the Quality of Health Care for Mental and Substance-Use Conditions: Quality Chasm Series*. Washington, DC: National Academies Press.

122. Bungey JB, Pols RG, Mortimer KP, Frank OR, Skinner HA (1989). Screening alcohol & drug use in a general practice unit: Comparison of computerised and traditional methods. *Community Health Studies* 13(4):471-483.

123. Lu YC, Xiao Y, Sears A, Jacko JA (2005). A review and a framework of handheld computer adoption in healthcare. *Journal of Medical Informatics* 74:409-422.

124. Adatia F, Bedard PL (2003). "Palm reading": 2. Handheld software for physicians. *Canadian Medical Association Journal* 168(6):727-734.

125. Buck DS, Rochon H, Turley DP (2005). Taking it to the streets: Recording medical outreach data on personal digital assistants. *Computer Informatics in Nursing* 23(5):250-255.

126. Carroll AE, Christakis DA (2004). Pediatricians' use of and attitudes about personal digital assistants. *Pediatrics* 113:238-242.

127. Criswell DF, Parchman ML (2002). Handheld computer use in U.S. family practice residency programs. *Journal of the American Medical Informatics Association* 9:80-86.

128. Institute of Medicine; Smedley BD, Syme SL, eds. (2000). *Promoting Health: Intervention Strategies from Social and Behavioral Research*. Committee on Capitalizing on Social Science and Behavioral Research to Improve the Public's Health, Division of Health Promotion and Disease Prevention, National Academies of Science. Washington, DC: National Academies Press.

129. VA/DoD Evidence-Based Clinical Practice Guideline Working Group (2006). *Assessment and Management in Primary Care*. Washington, DC: Department of Veterans Affairs. [Accessed at: http://www.oqp.med.va.gov/cpg/SUD/SUD_Base.htm).

130. National Quality Forum (2006). *National Voluntary Consensus Standards for the Treatment of Substance Abuse Disorders*. Washington, DC: The Forum.

131. Galanter M, Keller DS, Dermatis H, et al. (2003). The impact of managed care on substance abuse treatment: A report of the American Society of Addiction Medicine. *Journal of Addictive Diseases* 19:13-35.

132. Gassman RA (2003). Medical specialization, profession, and mediating beliefs that predict stated likelihood of alcohol screening and brief intervention: Targeting educational interventions. *Substance Abuse* Sep;24(3):141-156.

133. McInerny TK, Cull WL, Yudkowsky BK (2005). Physician reimbursement levels and adherence to American Academy of Pediatrics well-visit and immunization recommendations. *Pediatrics* Apr;115(4):833-838.

134. Rivara FP, Tollefson S, Tesh E, Gentilello LM (2000). Screening trauma patients for alcohol problems: Are insurance companies barriers? *Journal of Traumatic Injury, Infection, and Critical Care* Jan;48(1):115-118.

135. Saitz R, Sullivan LM, Samet JH (2000). Training community-based clinicians in screening and brief intervention for substance abuse problems: Translating evidence into practice. *Substance Abuse* 21(1):21-31.

136. Ensuring Solutions (2005). *Alcohol Exclusion Law Resource Kit. Fact Sheet*. Washington, DC: Ensuring Solutions to Alcohol Problems. (Accessed at www.ensuringsolutions.org/alcoholexclusions/index.htm)

137. Garnick D, Horgan CM, Merrick EL et al. (2002). Managed care plans' requirements for screening for alcohol, drug, and mental health problems in primary care. *American Journal of Managed Care* 8(10):879-888.

138. American Association of Health Plans (2001). *Addressing Tobacco in Managed Care: A Resource Guide for Health Plans*. Washington, DC: American Association of Health Plans.

139. Physician Consortium for Performance Improvement (n.d.). Principles for Performance Measurement in Health Care: A Consensus Statement from the American Medical Association and the Joint Commission on Accreditation of Healthcare Organizations and the National Committee for Quality Assurance. (Accessed at www.ama-assn.org/ama1/pub/upload/mm/370/principlesperfmeas.pdf)

140. National Academy of Sciences, Committee on Crossing the Quality Chasm: Adaptation to Mental Health and Addictive Disorders (2006) *Improving the Quality of Health Care for Mental and Substance-Use Conditions: Quality Chasm Series*. Washington, DC: National Academies Press.

141. Wiecha J, Barrie N (2002). Collaborative online learning: A new approach to distance CME. *Academic Medicine* Sep;77(9):928-929.

142. Endsley S, Kirkegaard M, Linares A (2005). Working together: Communities of practice in family medicine. *Family Practice Management* 12(1):28-32.

143. Saitz R, Sullivan LM, Samet JH (2000). Training community-based clinicians in screening and brief intervention for substance abuse problems: Translating evidence into practice. *Substance Abuse* 21(1):21-31.

144. Balas EA, Weingarten S, Garb CT, Blumenthal D, Boren SA, Brown GD (2000). Improving preventive care by prompting physicians. *Archives of Internal Medicine* 160:301-308.

145. Pederson L, Blumenthal D, Dever A, McGrady G (2006) A web-based smoking cessation and prevention curriculum for medical students: Why, how, what, and what next. *Drug and Alcohol Review*. Jan;25(1):39-47.

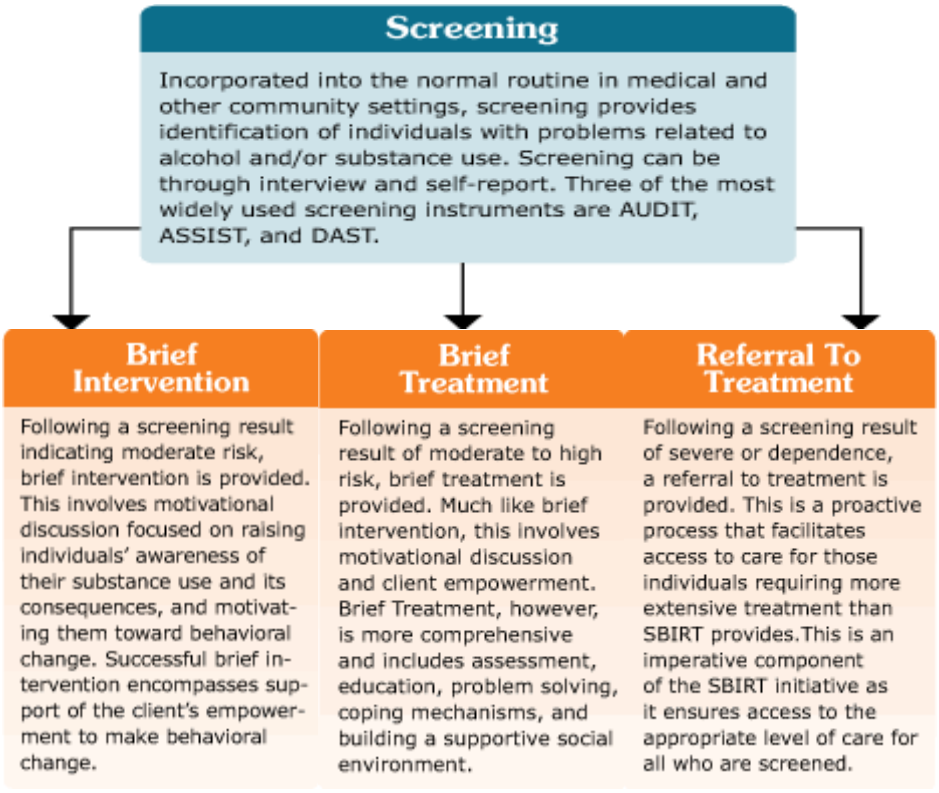
146. Robertson MK, Umble KE, Cervero RM (2003). Impact studies on continuing education for health professions: Update. *Journal of Continuing Education in the Health Professions* Summer;23(3):146-156.

147. Hartmann KE, Espy A, McPheeters M et al. (2004). Physicians taught to conduct smoking cessation intervention: A follow-up study. *Preventive Medicine* Aug;39(2):344-350.

148. Neumann T, Neuner B, Weiss-Gerlach E, Tønnesen H, Gentilello LM et al. (2006). The effect of computerized tailored brief advice on at-risk drinking in subcritically injured trauma patients. *Journal of Trauma* Oct;61(4):805-814.

APPENDIX A. SBIRT CORE COMPONENTS

The theoretical framework and programmatic structure of SBIRT programs may vary, but the core components of SBIRT are constant and can be defined as follows:



Source: Substance Abuse and Mental Health Services Administration (www.sbirt.samhsa.gov) Accessed Jan. 13, 2008.

APPENDIX B. WIDELY USED SCREENING INSTRUMENTS

A number of substance abuse screening instruments have been developed and validated. The choice of instrument may vary depending on State or local regulations, reimbursement policies, or personal preference. Ideally, all agencies within a particular health care system would use the same screens, administered and scored in the same way.

A screen should be simple enough that it can be administered by a wide range of health professionals. It should focus on the substance use severity (primarily consumption patterns) and a core group of associated factors such as legal problems, mental health status, educational functioning, and living situation. The client's awareness of the problem, feelings about his or her substance use, and motivation for changing behavior also may be solicited. Three commonly used screening instruments are:

- ***Alcohol Use Disorders Identification Test***: The AUDIT is a screening tool developed by the World Health Organization to identify persons whose alcohol consumption has become hazardous or harmful to their health. It is a 10-item screening questionnaire with 3 questions on the amount and frequency of drinking, 3 questions on alcohol dependence, and 4 on problems caused by alcohol. All of the questions are scored using a 5-point Likert scale.

- ***Alcohol, Smoking, and Substance Involvement Screening Test***: The ASSIST is an instrument developed for the World Health Organization (WHO) by an international group of substance abuse researchers to detect and manage substance use and related problems in primary and general medical care settings.

- ***Drug Abuse Screening Test***: The DAST was designed to provide a brief instrument to detect drug abuse or dependence disorders. The DAST provides a general measure of lifetime problem severity that can be used to guide further inquiry into drug-related problems and to help determine treatment intensity.

Simplicity, low cost, and accuracy are important characteristics of effective screening tools. For instance, consumption questions focused on frequency, quantity, and binge drinking are widely recommended as initial screening questions for adults in clinical settings.[2,3]

Such questions can be incorporated into routine patient care and are very sensitive and specific for the detection of at-risk and problem drinkers. While some patients will minimize their alcohol use – especially those who are alcohol-dependent – a number of interview techniques can minimize underreporting. These include asking about alcohol use in the context of other health behaviors, asking direct questions in a nonjudgmental manner, observing nonverbal cues, asking about very heavy drinking days, and checking with a family member. Consumption questions also facilitate determining the level of risk for alcohol-related health effects.[2]

Source: Substance Abuse and Mental Health Services Administration (www.sbirt.samhsa.gov) Accessed Jan. 13, 2008.

APPENDIX C: SAMPLE BRIEF INTERVENTION

The patient has positive screening results. However, because the AUDIT indicates that the patient has an early, and relatively mild, drinking problem, only simple advice is needed. This intervention takes about 3 minutes.

Transition statement to move from screening to brief intervention:
CLINICIAN: Thank you for answering those questions. Would you be interested to find out how your score on this questionnaire compares with other people?
PATIENT: Sure, I guess.

Giving information/feedback:
CLINICIAN: Okay. Well those 10 questions have been given to thousands of people around the world so that people can find out whether it would be good for them to change their drinking. Scores can range from 0–40. Scores between 0–6 (women)/0–7(men) are considered low-risk drinking; scores between 8–15 are considered hazardous drinking, and scores above 15 likely indicate more serious alcohol problems. Your score was 9, which puts your drinking in the hazardous range.
PATIENT: Oh wow.

Understanding patients' views of drinking and enhancing motivation:
CLINICIAN: Surprised?
PATIENT: Yeah. I figured I'd be, you know, in the lowest range.
CLINICIAN: So you thought your drinking was less than average…
PATIENT: Yeah, I mean my friends drink more than me. I'm not an alcoholic or anything like that.
CLINICIAN: Well, let's not worry so much about labels here. I'm more concerned about whether your drinking is going to hurt you in the future or not.
PATIENT: Yeah.
CLINICIAN: Many of our patients are surprised to learn what their scores are, and it's just an opportunity to think about making a change. If you were to do that, your chances of avoiding another injury in the future would be much better.
PATIENT: I don't know about quitting, that seems like way overkill for me. But maybe I could cut down.

Giving advice and negotiating:
CLINICIAN: Many patients can successfully cut down so they reduce their risk of injury and other problems. Men who are successful in cutting down are able to drink no more than 4 standard drinks per occasion and no more than 14 drinks per week. What do you think you'll do?
PATIENT: Well, I guess I could give it a try. It's not like it's a big deal to me or anything…
CLINICIAN: That's really great. You sound determined. So your limit would be no more than 4 drinks per occasion (beers, 5 oz. of wine or a mixed drink with 1.5 oz of spirits), and no more than 14 drinks per week. It's a good opportunity for you to test your control over alcohol. Just remember that this guideline means you can't have all of your weekly drinks in one day! (both laugh) And most important of all, no drinks at all if you're driving.

PATIENT: Yeah, well I think I can stay under those limits pretty easily. And also, I never drink and drive anyway.
CLINICIAN: Really? That's great to hear. How do you avoid that?
PATIENT: If I take my car out, I just don't drink anything, period, end of story. And if I know I'm going to drink, I use a designated driver.

Closing on good terms:
CLINICIAN: Good for you, and thanks for talking with me.

Source: Committee on Trauma (2007). *Quick Guide: Alcohol Screening and Brief Intervention (SBI) for Trauma Patients.* Washington, DC: Dept. of Health and Human Services, p. 11. [Accessed at http://www.mayatech.com/cti/sbitrain07/include/SBIRT_COT_Guide.pdf]