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# Alcohol, Other Drugs, and Health: Current Evidence

SEPTEMBER–OCTOBER 2011

## NEW WITH THIS ISSUE!

A dedicated section on HIV/HCV research as it relates to alcohol and other drug use

## INTERVENTIONS

### Efficacy of Alcohol Brief Intervention in Primary Care by Nonphysicians

The best evidence for the efficacy of brief intervention (BI) for unhealthy alcohol use is in primary care. But does a physician have to deliver it? Researchers conducted a systematic review of studies of nonphysician interventions (those delivered by a nurse practitioner, nurse, health educator, counselor, psychologist, therapist, or “trained interventionist”) in primary-care settings. Thirteen studies of fair to poor quality met inclusion criteria.

- In 3 studies comparing physician and nonphysician BI, no difference in drinking outcomes was found.
- In 2 studies comparing the addition of a nonphysician to a physician BI, 1 found no difference in drinking outcomes while the second found it reduced drinking (5.8 versus 3.4 fewer drinks per week).
- In 7 studies of 2210 patients, drinking was 1.7 drinks per week lower in the nonphysician BI group compared with usual care (no BI).

*Comments:* These results are hypothesis-generating at best, because studies were not high quality, none had the proper design to test the equivalence of the interventions by different providers, and nurse practitioners and physician assistants were sometimes counted as physicians (and sometimes not). Although, clinically, we may wish to proceed with models of care that enlist nonphysicians for BI, we cannot say with confidence that results would be similar, although we also have little definitive evidence that they would be different. It seems reasonable to have any trained competent person deliver BI while researchers sort this question out.

Richard Saitz, MD, MPH

*Reference:* Sullivan LE, Tetrault JM, Braithwaite RS, et al. A meta-analysis of the efficacy of nonphysician brief interventions for unhealthy alcohol use: implications for the patient-centered medical home. *Am J Addict.* 2011;20(4):343–356.

### Electronic Self-Help Interventions for Adults with Unhealthy Alcohol Use Moderately Reduce Drinking

Internet and other electronic-based self-help interventions (e-interventions) for unhealthy alcohol use have the potential to reach a broader population than interventions based in health-care settings. To assess the effectiveness of these interventions, researchers conducted a meta-analysis of randomized controlled trials of electronic (internet or CD-ROM) self-help interventions in people with “problem drinking\*” aged 18 years and older.

\*Search terms to identify studies of problem drinking included alcohol abuse, alcoholism, problem drinking, hazardous drinking, and harmful drinking.

All interventions were no-contact (i.e., the subjects had no contact with a therapist, face-to-face or otherwise). Studies focused on college students were excluded. The main outcome was alcohol consumption, which had to be assessed by well-validated measures to be included in the meta-analysis.

- Nine randomized controlled trials with 1553 total participants were identified: 5 involved single-session feedback interventions, and 4 involved more extended interventions. All trials were

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Donna M. Vaillancourt

## E-interventions for Unhealthy Alcohol Use (continued from page 1)

- conducted in developed, industrialized countries.
- A moderate effect size of 0.44 for decreased alcohol consumption was found for participants receiving e-intervention compared with controls.\*
  - Single-session e-interventions were less effective than extended e-interventions (effect size 0.27 and 0.61, respectively;  $p=0.04$ ).

*Comments:* This meta-analysis found a moderate effect of e-interventions on drinking among those with unhealthy

\*Control conditions were waiting list (3 studies), alcohol leaflet (4 studies), and assessment only (2 studies).

## Alcohol and Other Drug Use Decreased During a Statewide Screening and Brief Intervention Program

As part of New Mexico's SAMHSA\*-funded initiative to provide screening, brief intervention, and referral to treatment (SBIRT), >55,000 adult patients statewide were screened for alcohol and past-year illicit or nonmedical prescription drug use. Behavioral health counselors assessed patients with AUDIT† scores >8 or with affirmative answers to questions regarding illicit or nonmedical prescription drug use, then conducted either brief intervention (BI) or a more intensive service (brief treatment [BT] or referral to treatment [RT]). Of the randomly selected 1290 adult patients who received services, 834 (69%) were available for 6-month follow-up. Pre-/post-analyses were adjusted for confounders and baseline substance use.

- Overall, mean days of past-month substance use decreased regardless of service received (alcohol use from 7.2 to 4.3 days, alcohol intoxication from 5.5 to 3.1 days, and illicit drug use from 6.4 to 2.9 days).
- Past-month alcohol use decreased by 32% in the BI group and 47% in the BT/RT group; past-month drinking to

\*SAMHSA=Substance Abuse and Mental Health Services Administration.

†AUDIT=Alcohol Use Disorders Identification Test.

alcohol use. This approach could have a large public-health impact due to its broad reach. Further research is needed to determine if e-interventions are more effective when paired with therapist contact, whether they are appropriate or effective for subgroups of people with more severe unhealthy alcohol use (e.g., dependence), and whether they are applicable in developing countries.

Kevin L. Kraemer, MD, MSc

*Reference:* Riper H, Spek V, Boon B, et al. Effectiveness of e-self-help interventions for curbing adult problem drinking: a meta-analysis. *J Med Internet Res.* 2011;13(2):e42.

intoxication decreased by 30% in the BI group and 47% in the BT/RT group; and past-month use of illicit drugs decreased by 52% in the BI group and 60% in the BT/RT group.

*Comments:* Although the aim of this study was to compare the impact of BI versus BT/RT, to me the most important finding was that SBIRT could be implemented in health centers across an entire state and across a range of severity of alcohol and drug use problems. And, it appeared to be effective. This is a promising real-world, primary-care-based model for implementing SBIRT as long as well-trained behavioral health counselors are available. On the other hand, since the effects of BI in high-quality randomized trials are much smaller than the dramatic decreases observed here, caution should be used in interpreting the findings.

Hillary Kunins, MD, MPH, MS

*Reference:* Gryczynski J, Mitchell SG, Peterson TR, et al. The relationship between services delivered and substance use outcomes in New Mexico's Screening, Brief Intervention, Referral and Treatment (SBIRT) Initiative. *Drug Alcohol Depend.* 2011;118(2-3):152-157.

## Adding Gabapentin to Naltrexone for Alcohol Dependence: No Improvement in Longer Term Outcomes

Researchers hypothesized that adding gabapentin early in naltrexone treatment might improve longer term outcomes by ameliorating insomnia, irritability, and withdrawal craving. They randomly assigned 150 patients with alcohol dependence to 1 of 3 groups: naltrexone\* plus gabapentin† (NG), naltrexone plus placebo (NP), or double placebo (PP). All subjects received an average of 10–11 sessions of combined behavioral intervention therapy over the course of the 16-week study.

- There was no difference in completion rates between the 3 arms (approximately 85%).
- During the first 6 weeks, the NG group had a longer time to relapse and fewer drinks per drinking days than the other 2 groups; however, the percentage of heavy drinking days was similar to the PP group.
- Naltrexone alone was not better than placebo for any drinking outcome.

\*Dose of 50 mg daily for 16 weeks.

†Titrated up to a dose of 1200 mg daily for the first 6 weeks.

- There were no differences between groups in Obsessive Compulsive Drinking Scale scores, but the NG group reported significantly better sleep than the other 2 groups.
- After gabapentin was stopped (weeks 7–16), there were no significant differences between the 3 arms for any drinking outcome.

*Comments:* This study failed to confirm the hypothesis that prescribing gabapentin during the first 6 weeks of naltrexone treatment would improve longer term outcomes. Moreover, naltrexone and behavioral therapy offered no benefit over behavioral therapy alone. However, gabapentin did provide some short-term benefits. It remains to be seen whether prescribing it for longer periods would be effective.

Darius A. Rastegar, MD

*Reference:* Anton RF, Myrick H, Wright TM, et al. Gabapentin combined with naltrexone for the treatment of alcohol dependence. *Am J Psychiatry*. 2011;168(7):709–717.

## No Clear Evidence on How Best to Manage Insomnia in People with Alcohol Dependence

Insomnia among people in treatment for alcohol dependence is common and may be linked to relapse. Researchers conducted a systematic review of open-label and placebo-controlled trials to synthesize the available evidence on the pharmacological treatment of insomnia among people with alcohol dependence. Case reports and case series were excluded. Twenty studies met inclusion criteria.

- The most evidence for efficacy was found for trazodone, which was superior to placebo in 2 randomized trials (RCTs) that examined subjective and objective sleep measures.
- Evidence of efficacy for gabapentin (1 open-label study, 4 RCTs) was equivocal.
- In 1 RCT, topiramate improved subjective sleep measures and reduced heavy drinking days.
- In 2 RCTs, carbamazepine improved subjective sleep measures.
- One RCT showed superiority of lormetazepam over zopiclone on 1 sleep measure (time to fall asleep).

- The remaining evidence came from small, mostly open-label studies with some evidence of efficacy for quietiapine, triazolam, ritanserin, bright light, and magnesium and no evidence or worsening for clomethiazole, scopolamine, and melperone.

*Comments:* The most striking finding of this systematic review is that evidence of harm or efficacy for pharmacological substances often used to treat insomnia in people with alcohol dependence (e.g., benzodiazepines) is almost nonexistent. Although trazodone has the most data suggesting efficacy, caution is necessary since 1 study raised concerns that it may decrease days abstinent. High-quality randomized controlled trials are needed to establish the efficacy of pharmacological agents commonly used to treat insomnia among individuals with alcohol dependence as well as to determine their impact on relapse.

Nicolas Bertholet, MD, MSc

*Reference:* Kolla BP, Mansukhani MP, Schneekloth T. Pharmacological treatment of insomnia in alcohol recovery: a systematic review. *Alcohol Alcohol*. 2011;46(5):578–585.

## ASSESSMENTS

### Benzodiazepine Use among Patients Receiving Methadone Maintenance

Benzodiazepine (BZD) misuse among opioid-dependent patients receiving methadone maintenance treatment (MMT) may increase the risk of ongoing illicit opioid use and overdose. There are few recent data on BZD use

among MMT patients in the US. Chen et al. surveyed 194 patients at a Baltimore, MD, methadone clinic to estimate

(continued on page 4)

## Benzodiazepine Use among Patients Receiving MMT (continued from page 3)

the prevalence and correlates of BZD use in this population. (Of note, in this clinic, BZD use, prescribed or not, led to penalties (e.g., removal of take-home privileges).

- Forty-three percent of respondents were women, and 76% were African American.
- Forty-seven percent reported ever using BZDs, and one-quarter had used a BZD within the last 30 days.
- Of those who had ever used a BZD, most (84%) had done so without a prescription at least once (the most common reasons being curiosity and to relieve tension/anxiety). Half did not use BZDs until after entering MMT; among the remainder, 61% reported increasing or restarting use after entering MMT.
- In a multivariable model, white race (odds ratio [OR], 2.7), having an anxiety problem before entering MMT (OR, 2.4), past initiation of opioids for pleasure or to get high (instead of reasons such as curiosity or to relax; OR, 2.6), and incremental increases in a depression score (OR, 1.05) were significantly associated with ever having used BZDs, prescribed or not.

*Comments:* Many patients initiate or increase BZD use after entering MMT, even when BZD use is penalized. Limitations to this study include possible underreporting of use, given that some respondents filled out the survey at group counseling sessions, and lack of information on what proportion of current BZD users exhibited misuse. Further, single-site findings may not be generalizable to all settings; both use and misuse may be more common in clinics where BZD prescriptions are allowed. Despite these limitations, the study suggests a need for MMT programs to address co-occurring addiction and anxiety and to ensure appropriate monitoring for BZD misuse regardless of clinic policy about BZD prescriptions.

Christine Pace, MD,† and Richard Saitz, MD, MPH

*Reference:* Chen KW, Berger CC, Forde DP, et al. Benzodiazepine use and misuse among patients in a methadone program. *BMC Psychiatry*. May 19, 2011;11:90.

†Contributing Editorial Intern, Resident in Addiction Medicine, and Fellow in General Internal Medicine, Clinical Addiction Research and Education (CARE) Unit, Boston University School of Medicine, Boston, MA.

## One in 12 US College Students Report K2 Use

“K2” or “spice” refers to a series of products advertised and sold legally in some states as incense. The herbs in K2 are adulterated with synthetic cannabinoids prior to sale and are smoked to achieve effects similar to marijuana. To estimate the extent of K2 use in a sample of college students, researchers conducted a 2010 electronic survey of University of Florida students. Of 2396 surveys delivered by email, 852 students (36%) responded.

- Ever use of K2 was reported by 69 students (8%).
- Among those who reported using K2, 90% also reported using marijuana, while only 36% of those who had not used K2 reported using marijuana.
- K2 use was associated with younger age, male gender, and cigarette and marijuana use.

*Comments:* This study, although of limited generalizability due to response rate and conduct at a single institution, provides a glimpse into an evolving problem of synthetic cannabinoid use. Although 8% is below the prevalence rate for marijuana and tobacco use in college populations, it is higher than the rate for other drugs of abuse such as cocaine, LSD, heroin, sedatives, and anabolic steroids. Physicians need to learn more about these drugs given concerning reports of severe health effects associated with their use.

Darius A. Rastegar, MD

*Reference:* Hu X, Primack BA, Barnett TE, et al. College students and use of K2: an emerging drug of abuse in young persons. *Subst Abuse Treat Prev Policy*. July 11;6:16. doi:10.1186/1747-597X-6-16.

## HEALTH OUTCOMES

### Patients with Amphetamine Use Disorders Are More Likely to Be Hospitalized or Die from Parkinson's Disease

Animal studies have shown that amphetamines, including methamphetamine, are toxic to dopamine-releasing brain neurons, but whether they play a role in the development of Parkinson's disease (PD) in humans is not clear. Researchers analyzed a 16-year dataset (linked to state mortality records) of patients discharged from all California acute inpatient health facilities to determine whether patients admitted for amphetamine-related conditions

(n=40,472) had an increased risk of PD-related hospitalization or death. Comparison groups included a population-proxy control of patients admitted for appendicitis (n=207,831) and a stimulant-drug control of patients admitted for a cocaine use disorder (n=35,335). Groups were matched by age, sex, race, date of incident admission, and number of subsequent admissions.

(continued on page 5)

## Amphetamine Use and Risk of Parkinson's Disease (continued from page 4)

- There were 51 incident cases of PD in the amphetamine group and 29 incident cases of PD in the appendicitis control group in 1:1 matched samples of respective subjects (n=40,358) (hazard ratio [HR] of PD-related hospitalization or death, 1.76).
- There were 36 incident cases of PD in the amphetamine group and 15 in the cocaine control group in 1:1 matched samples of respective subjects (n=40,358) (HR of PD-related hospitalization or death, 2.41).

*Comments:* The association between PD and amphetamine use disorders shown in this study provides epidemiologic evidence supporting the potential toxicity of amphetamines

to dopaminergic neurons seen in animal studies. The evidence for this neurotoxicity appears to be specific to amphetamines and not to cocaine. This study did not address whether amphetamines prescribed at doses intended to address sleep and attention disorders increase PD risk, but this question warrants further study.

Alexander Y. Walley, MD, MSc

*References:* Callaghan RC, Cunningham JK, Sykes J, et al. Increased risk of Parkinson's disease in individuals hospitalized with conditions related to the use of methamphetamine or other amphetamine-type drugs. *Drug Alcohol Depend.* July 25, 2011 [e-pub ahead of print]. doi:10.1016/j.drugalcdep.2011.06.013

## Type of Alcoholic Beverage Consumed Affects Acute Pancreatitis Risk

A follow-up study was conducted using data from the Swedish Mammography Cohort and the Cohort of Swedish Men to examine the association between consumption of spirits, wine, and beer and the risk of acute pancreatitis. In total, 84,601 individuals aged 46–84 years were followed for a median of 10 years. During that time, 513 subjects developed acute pancreatitis.

- There was a dose-response association between the amount of spirits consumed on a single occasion and the risk of acute pancreatitis. The multivariable adjusted risk ratio (RR) was 1.52 for every increment of 5 standard drinks\* of spirits consumed per single occasion.
- There was no association between acute pancreatitis risk and wine or beer consumption, frequency of consumption (including spirits), or average monthly consumption.

\*Standard drink=12 g ethanol in this study.

*Comments:* Although acute pancreatitis is associated with alcohol consumption, previous research indicates the risk is low. The authors suggest the increased risk from spirits shown in this study may relate to a lack of antioxidants, which are present in other types of alcoholic beverages, or to other constituents in spirits such as long-chain alcohols that have been shown to be more potent than ethanol in inducing oxidative stress. However, the data suggest those that drank spirits in this study may have consumed more alcohol per occasion, leading to higher blood-alcohol levels. This may be more important than type of beverage in increasing risk of pancreatitis.

R. Curtis Ellison, MD

*Reference:* Sadr Azodi O, Orsini N, Andrén-Sandberg A, et al. Effect of type of alcoholic beverage in causing acute pancreatitis. *Br J Surg.* 2011;98(11):1609–1616.

## HIV AND HCV

### Naltrexone Has Little, If Any, Liver Toxicity in HIV-Infected Patients and Does Not Adversely Affect HIV Biomarkers

Naltrexone is a potentially useful treatment for alcohol and opioid dependence in HIV-infected patients, but its effect on liver enzymes and HIV biomarkers is not known. Researchers examined data from a national Veterans Affairs administrative, laboratory, and pharmacy database to identify HIV-infected patients who had received an initial oral naltrexone prescription of  $\geq 7$  days. Values for liver enzymes (aspartate aminotransferase [AST] and alanine aminotransferase [ALT]), HIV viral load, and CD4 cell count were extracted and compared for 1 year before, during, and 1 year after naltrexone treatment. One hundred fourteen patients\* received naltrexone for a median of 49 days.

- Values for AST and ALT were generally below the

upper limit of normal before, during, and after naltrexone treatment regardless of whether the analysis included all 114 participants or only those with laboratory data for all 3 time periods (n=58).

- Only 2 cases of substantial liver enzyme elevation† occurred during naltrexone treatment; 1 case resolved after naltrexone discontinuation, while the other persisted for 33 days after naltrexone discontinuation.
- HIV viral load decreased and CD4 counts did not change after naltrexone treatment.

*Comments:* This observational case series shows that liver toxicity is uncommon in HIV-infected patients treated with

†Defined as ALT or AST  $> 5$  times baseline values or  $> 3.5$  times baseline values if baseline was  $> 40$  IU/L.

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\*Ninety-seven percent were men; 53% were black, 89% met criteria for alcohol dependence, and 57% were also infected with hepatitis C.

## Naltrexone Does Not Affect Liver Enzymes or HIV Biomarkers (continued from page 5)

naltrexone. Importantly, naltrexone was not associated with a worsening of HIV biomarkers. Although this analysis was not designed to assess the impact of naltrexone on alcohol or opioid use, it does increase confidence that naltrexone can be safely used in HIV-infected individuals.

Kevin L. Kraemer, MD, MSc

*Reference:* Tetrault JM, Tate JP, McGinnis KA, et al. Hepatic Safety and Antiretroviral Effectiveness in HIV-Infected Patients Receiving Naltrexone. *Alcohol Clin Exp Res.* July 28, 2011 [e-pub ahead of print]. doi: 10.1111/j.1530-0277.2011.01601.x.

## Behavioral Intervention Associated with Improved Liver Enzymes in HCV-infected Young People Who Use Injection Drugs

This secondary analysis of data from the Study to Reduce Intravenous Exposures (STRIVE) randomized clinical trial assessed the effect of an educational/behavioral intervention on self-reported drinking and liver enzymes (AST/ALT\*) in 355 young (aged 18–35) HCV-infected patients with prior 6-month injection drug use (IDU). The intervention included multiple group sessions about HCV/liver-related health, including alcohol, whereas the control arm participated in general discussions about various social issues (family, self-respect, etc.). Data from baseline, 3-, and 6-month follow-up visits were analyzed.

- The intervention was associated with lower AST (odds ratio [OR]=0.91,  $p=0.06$ ) and ALT (OR=0.94,  $p=0.05$ ) at 6 months but had no effect on alcohol use or AUDIT† score.
- Patterns of self-reported alcohol use were dynamic, with frequent transitions from use to abstinence and vice versa. Transitions were significantly associated

with changes in AST/ALT.

- Subjects who had received a clinical diagnosis of liver disease were more likely to transition to abstinence (relative risk, 1.88).

*Comments:* This study showed that an educational/behavioral intervention had a positive effect on AST/ALT in young HCV-infected patients with IDU. It did not report a significant effect on drinking behaviors. Although the study had limitations (short follow-up, secondary analysis, and an intervention not exclusively focused on alcohol), the results are important in that they provide evidence that short-term changes in alcohol use can have significant impact on AST/ALT in young HCV-infected patients with IDU.

Judith Tsui, MD, MPH

*Reference:* Drumright LN, Hagan H, Thomas DL, et al. Predictors and effects of alcohol use on liver function among young HCV-infected injection drug users in a behavioral intervention. *J Hepatol.* 2011;55(1):45–52.

\*AST=aspartate aminotransferase; ALT=alanine aminotransferase.  
†AUDIT=Alcohol Use Disorders Identification Test.

## Combination of Substance Use Treatment and Risk Reduction Most Effective at Preventing HCV Seroconversion in People Who Inject Drugs

Prevention of hepatitis-C virus (HCV) seroconversion in people who inject drugs is a public-health priority because of the high prevalence of HCV infection in this population (40–90%), the likelihood of progression to chronic infection, and the probability that HCV-related mortality will surpass HIV-related mortality in the near future. This systematic review and meta-analysis sought to determine which risk-reduction interventions were most effective for reducing HCV seroconversion in people who inject drugs. Twenty-six studies met inclusion criteria: 4 randomized clinical trials and 22 observational studies. Intervention categories (which were not mutually exclusive) included behavioral intervention (2 studies); unspecified substance use treatment (5 studies); opioid replacement therapy (8 studies); syringe exchange (7 studies); syringe disinfection with bleach (4 studies); and multicomponent interventions, i.e., those that combined substance use treatment with either behavioral intervention or syringe exchange (2 studies).

- Multicomponent interventions reduced HCV seroconversion by 75%.
- The effects of single-component interventions were not significant.

*Comments:* Although limited by lack of quality assessment and relatively few studies in the multicomponent intervention group, these data support the hypothesis that strategies combining substance-use treatment and risk reduction are most effective at prevention of HCV transmission in people who inject drugs.

Jeanette M. Tetrault, MD

*Reference:* Hagan H, Pouget ER, Des Jarlais DC. A systematic review and meta-analysis of interventions to prevent hepatitis C virus infection in people who inject drugs. *J Infect Dis.* 2011;204(1):74–83.

## Counseling and Case Management Increases Eligibility for HCV Treatment

Comorbid substance-use and mental-health disorders (SUD/MHD) among patients with chronic hepatitis-C virus (HCV) infection may lead clinicians to defer pegylated interferon (pegIFN) treatment. This randomized controlled study assessed the efficacy of a 9-month integrated-care intervention at improving pegIFN treatment eligibility among patients whose HCV treatment was deferred due to SUD/MHD. Patients (N=101) seen in a hepatology clinic, nearly half of whom were deferred due to an SUD, were randomized to receive written treatment recommendations from a hepatologist or written recommendations plus up to 9 months of monthly counseling along with case management to promote adherence to the recommendations. Hepatologists blinded to group assignment determined eligibility for HCV treatment at 3, 6, and 9 months based on self-reported adherence to treatment recommendations, clinical exam, and laboratory testing. At 9 months,

- 42% of patients in the intervention

group (n=21) were deemed eligible for PegIFN treatment versus 18% in the control group (n=9) (p=0.009).

- 24% of patients in the intervention group (n=12) had started pegIFN treatment versus 14% in the control group (n=7) (p=0.21).

*Comments:* The finding that counseling along with case management promoted eligibility for HCV treatment lends support to the efficacy of this approach among patients with co-occurring SUD/MHD. The fact that so few patients in either group actually began treatment, regardless of the intensity of care, points to the ongoing need to find effective interventions to treat this vulnerable HCV-infected population.

Hillary Kunins, MD, MPH, MS

*Reference:* Evon DM, Simpson K, Kixmiller S, et al. A randomized controlled trial of an integrated care intervention to increase eligibility for chronic hepatitis C treatment. *Am J Gastroenterol.* 2011;106(10):1777-86.

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### Target Audience

The target audience is generalist clinicians, many of whom have received limited training on detecting and treating substance abuse.

### Educational Needs Addressed

Primary-care clinicians often miss the diagnosis of alcohol or drug problems and cannot stay abreast of the current substance-abuse literature in the context of a busy practice. Because of the effects of alcohol and drugs on adherence to care plans and physician-patient relationships, patients with alcohol or drug problems may receive suboptimal treatment for other conditions. Further, physicians sometimes perceive alcohol or drug dependence as less treatable than other medical conditions, and thus delegate responsibilities for screening and intervention to others. At the root of the screening and treatment gap is the inadequate provision of substance-abuse education in medical schools and mental-health fields. The newsletter addresses this not only by research dissemination but by providing free downloadable teaching tools for use by educators.

### Educational Objectives

At the conclusion of this program, participants will be able to state the latest research findings on alcohol, illicit drugs, and health; incorporate the latest research findings on alcohol, illicit drugs, and health into their clinical practices, when appropriate; and recognize the importance of addressing alcohol and drug problems in primary care settings. In sum, the purpose of the newsletter is to raise the status of alcohol and drug problems in both academic and clinical culture to promote evidence-based screening and treatment and ultimately improve patient care.

### Disclosure Statement

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### Course Faculty

Richard Saitz, MD, MPH, FASAM, FACP

Course Director

Professor of Medicine and Epidemiology

Boston University Schools of Medicine and Public Health

Faculty member has nothing to disclose in regards to commercial support and does not discuss unlabeled/investigational uses of a commercial product.

David A. Fiellin, MD

Professor of Medicine

Yale University School of Medicine

Faculty member has nothing to disclose in regards to commercial support and does not discuss unlabeled/investigational uses of a commercial product.

Nicolas Bertholet, MD, MSc

Department of Medicine and Public Health

Lausanne University, Switzerland

Faculty member has nothing to disclose in regards to commercial support and does not discuss unlabeled/investigational uses of a commercial product.

R. Curtis Ellison, MD

Professor of Medicine and Public Health

Boston University School of Medicine

Faculty member is the Director of the Institute on Lifestyle and Health, which receives various donations from individuals and companies in the alcohol beverage industry, given as "unrestricted educational gifts." Funds are not given for specific research projects and donors have no prior information on, or input into, the surveillance being carried out or critiques published by the Institute or the Section. Faculty member does not discuss unlabeled/investigational uses of a commercial product.

Peter D. Friedmann, MD, MPH

Professor of Medicine and Community Health

Warren Alpert Medical School of Brown University

Faculty member has served as a consultant for Clinical Tools, Inc., is a member of the speakers bureau for Reckitt Benckiser Pharmaceuticals, and is a stockholder in Alkermes, Inc. Faculty member does not discuss unlabeled/investigational uses of a commercial product.

Kevin L. Kraemer, MD, MSc

Associate Professor of Medicine and Health Policy and Management

University of Pittsburgh Schools of Medicine and Public Health

Faculty member has nothing to disclose in regards to commercial support and does not discuss unlabeled/investigational uses of a commercial product.

Hillary Kunins, MD, MPH, MS

Associate Clinical Professor of Medicine and

Psychiatry & Behavioral Sciences

Albert Einstein College of Medicine

Faculty member is a stockholder in Pfizer, and her daughter is a stockholder in Abbott Laboratories, Johnson & Johnson, and Medtronic, Inc. Faculty member does not discuss unlabeled/investigational uses of a commercial product.

Darius A. Rastegar, MD

Assistant Professor of Medicine

Johns Hopkins School of Medicine

Faculty member has nothing to disclose in regards to commercial support and does not discuss unlabeled/investigational uses of a commercial product.

Jeffrey H. Samet, MD, MA, MPH

Professor of Medicine and Social and Behavioral Sciences

Boston University Schools of Medicine and Public Health

Faculty member has nothing to disclose in regards to commercial support and does not discuss unlabeled/investigational uses of a commercial product.

Jeanette M. Tetrault, MD

Assistant Professor of Internal Medicine

Yale University School of Medicine

Faculty member has nothing to disclose in regards to commercial support and does not discuss unlabeled/investigational uses of a commercial product.

Alexander Y. Walley, MD, MSc

Assistant Professor of Medicine

Boston University School of Medicine

Faculty member has nothing to disclose in regards to commercial support and does not discuss unlabeled/investigational uses of a commercial product.

Donna Vaillancourt

Managing Editor

Alcohol, Other Drugs, and Health: Current Evidence

Boston Medical Center

Ms. Vaillancourt has nothing to disclose in regards to commercial support.

Jody Walker, MS

Boston University School of Medicine

CME Program Manager

Ms. Walker has nothing to disclose in regards to commercial support and does not discuss unlabeled/investigational uses of a commercial product.

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Date of original release: November 1, 2011.

Date of expiration: October 31, 2012.

CME Course Code I.ACT11, September-October 2011.