

Session 3.

Intervening with Alcohol Problems in Emergency Settings

Carlo C. DiClemente, PhD*
Carl Soderstrom, MD

Excessive alcohol consumption plays an important role in many of the medical conditions, accidents, and injuries that cause visits to emergency departments and trauma centers. Many studies have documented the presence of alcohol among patients admitted to emergency department¹⁻⁵ and trauma center^{6,7} settings. Other studies have demonstrated that even blood alcohol concentration (BAC) determinations underestimate the extent of alcohol problems among the patients who are triaged and treated in emergency settings.^{4,7} The prevalence of this co-factor to the emergency admission, and the fact that alcohol is a risk factor both for the first visit and for a return visit to the emergency setting, have occasioned a call for an effective method of intervening with alcohol problems in these settings.⁸⁻¹² Although there are problems with and barriers to intervening in these settings, a number of studies and a few controlled trials indicate that interventions focused on patients' drinking can reduce the amount of drinking as well as injury episodes, including repeat re-admission for injury and other negative consequences of drinking. This review will examine the rationale for intervening, types of interventions and interveners, and barriers and concerns that need to be addressed. Then we will offer suggestions for research and practice related to intervening effectively with alcohol problems in emergency settings.

Motivational considerations

The rationale for interventions in the emergency setting is that the medical condition or injury prompting admission provides a "window of opportunity" when the individual may be more vulnerable and more open to seeing the connection between current consequences and his or her drinking or drug abuse and may be more motivated to change.¹³⁻¹⁵

* Presenter

The presence of an adverse consequence that can be linked to drinking—such as gastrointestinal, vascular, renal, or other medical problem; an automobile crash; unintentional injury; or involvement in a violent incident—facilitates intervention among patients with alcohol problems encountered in the emergency setting. In an emergency department (ED) study of injured crash victims who had been drinking, Cherpitel found that more than one-third linked their drinking to being injured and thus were deemed good candidates for “brief intervention.”¹⁶ In another study by Sommers and colleagues¹⁵ involving two trauma centers, patients who were injured in vehicular crashes and had a positive BAC were asked, “To what extent do you believe your alcohol consumption was responsible for this injury?” Overall, 62% attributed being injured either “somewhat” (24%) or “mostly” or “totally” (38%) to be the result of drinking. This attribution may be less endorsed with medical conditions such as liver disease or pancreatitis.

Whether this awareness is viewed as a “hitting bottom” phenomenon or in more traditional motivational terms, there does seem to be a connection between readiness to change and recognition that negative consequences can be directly linked to a behavior.¹⁷ Reports from emergency staff and anecdotal descriptions of some interventions support the results of the above studies, indicating heightened motivation in the initial period of time in the emergency setting. However, it is not clear how long this initial openness to change lasts. There are also reports that after a couple of days, spurred by concerns about legal responsibility, family member advice, or rationalizations, patient openness to discuss drinking and other problem behaviors decreases dramatically.

We do know that alcohol consumption changes for many problem drinkers after their visit to an emergency setting. Several studies have documented consumption changes not only in the intervention condition but also in the minimal intervention control groups.^{18,19} However, changes in alcohol consumption are often not sustained among participants in control conditions. After the emergency visit, there seems to be a reduction in drinking that gradually returns to baseline problematic levels for many untreated patients. Changes in drinking that are produced simply by the visit to the emergency department seem to dissipate without an alcohol-specific intervention.¹⁸ Although there may be some

natural or unaided salutary effect on drinking resulting from the medical emergency or injury and the ensuing visit to the emergency setting,²⁰ that effect appears to be short-lived for many patients.

Re-injury and readmission to an emergency or other medical setting is much greater for problem drinkers than for other emergency patients.¹² It is clear from the literature that without some intervention that can facilitate enduring reductions in drinking, simply giving medical treatment alone to the problem drinker admitted to the emergency setting will not reduce the rates of re-admission or prevent re-injury related to alcohol consumption. Although it is still not clear what the nature and extent of the intervention must be, some type of intervention specifically for drinking needs to be given.

Interventions in the emergency department: a review

Various types of interventions have been proposed and examined for the emergency medical setting (Figure 1). These range from brief interventions delivered by the physician to more extensive counseling during the admission that includes referral to intensive treatment after discharge. Gentilello and colleagues conducted a pilot intervention at a Houston emergency department that consisted of a substance abuse counselor mobilizing the family, and at times the employer, to intervene with the patient's drinking and to arrange for immediate entry to a residential substance abuse treatment program after discharge. This program appeared to be successful in getting problem-drinking patients to treatment, but only with families who could be engaged and for patients who had resources or insurance.²¹ This and other seminal studies encouraged many professionals to call for some type of consultation service or brief intervention to be employed with patients in emergency rooms or trauma settings.^{13,22-25}

Many of the early studies that documented the efficacy of interventions with problem drinkers in emergency settings were evaluations and not controlled studies. Nevertheless, the documented outcomes have been impressive. Several studies have examined the outcomes achieved by substance abuse counselors or alcohol workers intervening with problem drinkers. A brief intervention in an emergency department by alcohol health workers demonstrated a mean reduction in drinking of 43% for a subset of patients who were enrolled in the study.²⁶ The pilot

program in Texas described above demonstrated a 100% successful referral to alcoholism treatment for patients and families who agreed to be in the program.²¹ A substance abuse consultation team in a trauma center reported acceptance of referral for drug or alcohol treatment in 62% of the 100 consecutive cases retrospectively evaluated.²⁷ Hemphill, Bennett, and Watkins reported successful referral of patients to treatment with nearly half of the 440 patients referred for treatment remaining for the duration of the treatment program.²⁸ Early reports of screening and referral of patients have been promising in terms of reduction in drinking or in successful connection with appropriate alcohol treatment programs.^{29,30} For the most part, these interventions have used blood alcohol concentration as one of the critical defining features in screening for the intervention.

Interventions for drinking problems have also been successful in reducing re-injury. In a recent review of intervention trials for problem drinking that measured injury outcomes, Dinh-Zarr and colleagues identified 19 studies that measured injury outcomes among participants in a variety of settings. They reported that reductions in a variety of injuries, injury hospitalizations, and deaths ranged from a 27% reduction in “drinking-related injuries and accidents” to a 65% reduction in “accidental and violent deaths.”³¹ However, in this review there was no clear evidence that the mechanism of action of these interventions was reduced alcohol consumption. These interventions appeared to affect risk taking in addition to or instead of reductions in drinking and included individuals who had legal charges pending. Most of the studies reviewed were not well controlled and the numbers of participants and effect sizes reported in these studies were modest.

Until recently, no well-controlled intervention studies have addressed whether interventions in emergency settings would reduce alcohol consumption and consequences. Several current publications have begun to remedy this lack of prospective, randomized trials. Gentilello and colleagues at the Harborview Medical Center in Seattle, Washington, conducted a randomized controlled trial in a Level I trauma center. Patients who screened positive on a combination of blood alcohol concentration (BAC), serum gamma glutamyl transpeptidase (GGT), and SMAST scores, and who agreed to a follow-up study, were randomized into an intervention or control procedure. The intervention was a single motivational interview that lasted approximately 30 minutes with

a doctoral-level psychologist trained and certified in motivational interviewing techniques. A letter was sent summarizing this session one month later. A total of 366 patients were randomly assigned to the intervention condition, but nearly 15% of these patients were discharged before the intervention could be given, and nearly 2% refused the intervention. At the 12-month follow-up, the intervention group demonstrated an average reduction in drinking of 22 drinks per week compared with a reduction of 7 drinks per week for the control group. Most of the drinking reduction occurred among the patients with mild to moderate alcohol problems and not in the heaviest drinking subgroup. There were also significant reductions in new injuries of about 50% at one year and a reduction in inpatient hospital readmissions for injury treatment of 50% at the three-year follow-up. The authors suggest that this type of intervention alone is insufficient for patients with more chronic and severe alcohol dependence. Another limitation of this seminal study is that 50% of participants were lost to follow-up at 12 months. However, this trial demonstrates that a rather brief intervention delivered by a trained professional in the emergency setting can produce significant reductions in drinking and repeat injury episodes.

A controlled trial of a similar motivational intervention with older adolescents ages 18 to 19 years treated in an emergency room following an alcohol-related event randomly assigned 94 of the 184 eligible patients.¹⁹ Patients were assigned to a motivational intervention or a standard control of a handout about drinking and driving and a list of alcohol treatment agencies. The intervention, which lasted 30 to 40 minutes, was delivered in the emergency department either immediately or within a couple of days of the visit. About 25% of the eligible patients were discharged before the intervention and another 25% refused to participate. Nevertheless, drinking and driving, moving violations, alcohol-related injuries, and alcohol-related problems were significantly reduced at the six-month follow up, with the intervention group experiencing one-third to one-half fewer events than the control group. Although drinking decreased over time for both intervention and control groups, their drinking levels were not significantly different. Bachelor's or master's level staff with one to two years' of experience and extensive motivational interview training delivered this intervention.

Follow-up was limited to six months, so this study would have missed any rebound back to baseline at later time points, and the refusal rate was rather high in this study. However, the evidence was strong for a harm reduction effect across various indicators of risk and re-injury.

Who delivers what type of intervention

Most of the interventions described previously were conducted by specialists trained in alcohol or substance abuse counseling or in motivational interviewing techniques. These interventionists met with the patient, discussed drinking and substance use openly and directly, and offered some advice and assistance. Substance abuse counselors typically offered advice and referrals to treatment facilities or self-help programs. Motivational interview counselors typically discussed the perceived consequences, readiness to change, pros and cons of change, and plans to reduce drinking and avoid alcohol-related injuries in the future. Substance abuse specialists of one type or another typically delivered drinking interventions in emergency settings with a few exceptions.^{29,30} No studies have compared different types of intervention providers in these settings.

In contrast, physicians or nurses in a variety of primary care settings have delivered brief alcohol-focused interventions. These interventions also appear to be effective in reducing drinking and risky behaviors.^{20,32,33} One recent study demonstrated that a brief, patient-centered alcohol counseling intervention delivered in the context of a regularly scheduled internal medicine visit produced significant reductions in alcohol consumption among both male and female high-risk drinkers.³⁴ Based on these interventions in other medical settings, a number of researchers have recommended the involvement of the physician in the emergency setting in the alcohol intervention.^{9,26,35,36} However, few studies of physician-delivered interventions in an emergency setting exist. Clearly, none of the extant studies could be done without the support and involvement of emergency medicine physicians and trauma surgeons. However, it may be difficult to get physicians to deliver these alcohol-focused interventions for a variety of practical, philosophical, orientation, and training reasons.

To some degree, all interventions described in the emergency setting are motivational. Each intervention attempts to highlight problematic alcohol consumption, the connection between injury and drinking,

and patient plans to address excessive drinking. Prototypic substance abuse interventions focus on motivation to enter treatment because the patients are severely dependent, heavy drinkers. Referral to “appropriate” treatment is the critical end point of this type of intervention and compliance with the referral the important outcome. Change of drinking and risky behaviors is left to the treatment program, and almost always, abstinence from alcohol is the goal of these treatment programs.³⁷ On the other hand, motivational interviewing approaches view change as the province and responsibility of the individual and work with the individual at whatever level of motivation or stage of change is appropriate to promote consideration of change and an individualized plan of action that does not necessarily include additional treatment or self-help groups like Alcoholics Anonymous. Brief motivational interventions have been used with a wide range of problem drinkers and have been found to be effective in reducing drinking and its consequences.³⁸ Goals for this treatment are articulated by the client and can include reduction as well as abstinence from alcohol.

Nearly all interventions delivered in emergency settings consist of a single intervention visit. It is difficult to prescribe multiple visits unless the patient is admitted to the hospital from the emergency department or has an extended stay in a trauma center. Some researchers have suggested that the follow-up visit to the clinic for extended treatment would be the best place for alcohol interventions.²⁵ However, postponing intervention to the follow-up visit poses great logistical problems. Scheduling of follow-up visits depends on type of medical problem or injury. Moreover, these visits are not consistently attended by the patient or delivered by the same physician who saw the patient in the initial visit to the emergency setting. Although many single-visit alcohol interventions in medical settings have been effective,³² the context of the emergency setting does increase the importance of considering follow-through after the initial contact. Gentilello and colleagues sent a letter home one month after discharge as a reminder of the intervention conversation.¹⁸ A currently funded trial at the University of Maryland Shock Trauma Center in Baltimore is using a feedback letter and two or more follow-up phone calls to extend the intervention beyond the emergency setting interview. This extension into the post-discharge period is most relevant for interventions that do not rely completely

on referral to treatment. However, post-discharge follow-up could also be used to solve problems related to treatment recommendations and enhance compliance with the recommendations.

Issues and challenges for interventions in emergency settings

Substantial evidence indicates that interventions with problem drinkers in emergency settings can produce significant change in drinking behavior and/or reduce risk of re-injury. The number of studies that have demonstrated effects either with volunteer or randomized participants is modest but increasing, and the effects range from minimal to very sizeable reduction in risks that have significant public health importance. Evaluation and referral interventions have been able to get a number of emergency department and trauma center patients into alcoholism treatment.^{29,30} It is not always clear whether there were long-term positive outcomes from these trials since referral has been the outcome variable most often studied. However, one can assume that some patients referred to treatment had very positive outcomes in terms of reductions in drinking and of risk profiles. Motivational interventions in emergency settings have more recently demonstrated important clinical outcomes in terms of risk-taking, negative consequences of drinking, and, at times, reductions in drinking.^{18,19} The number of participants who were not screened, who refused, who were discharged early, or who were ineligible was large in some studies. However, when the intervention was delivered to patients in emergency settings and compared with standard or minimal interventions, intervention patients had significantly better outcomes on relevant measures. It is important to note that minimal interventions are not insignificant since they include, of necessity, an assessment of drinking behavior and a follow-up contact, and they are often much more than ordinarily occurs in the emergency setting. Screening or assessment alone, however, does not appear to be as effective as some type of specific intervention.

Bringing research to practice

This review of interventions, focused on addressing alcohol problems among patients in various medical settings, highlights several important issues and offers a perspective on the challenges to creating sustained, effective intervention programs in the emergency setting. Strategies and

insights from clinical trials should be gathered and made available to practitioners to help every emergency department and trauma center implement a coordinated, effective, and feasible program of screening and intervention for problem drinkers. However, several conceptual and practical issues need to be clarified so they can be resolved in a future research and implementation agenda.

Although an opportunity exists to intervene with patients who have alcohol use problems, and there are published guidelines for emergency department and trauma centers concerning intervention, that opportunity has not been seized.^{8,9,35,39} Gentilello and colleagues noted that although “trauma centers are uniquely positioned to implement programs of alcohol screening, intervention, and referral,” and “despite emphasis on injury control and prevention, little has been done to incorporate alcohol intervention programs into care of the injured patient.”¹⁰ This observation was based in part on the results of a national survey of trauma centers which revealed that blood alcohol testing, which is often a precursor for any intervention, was routinely conducted at only 64% of centers despite a published guideline by the Committee on Trauma of the American College of Surgeons indicating that testing was an “*essential*” characteristic for those centers.⁴⁰ The survey also found that although 59% of the centers had substance abuse counselors, only 5% used screening questionnaires to identify patients with alcohol use problems.

Although we know of no studies assessing clinical practices regarding alcohol problems in emergency departments, a survey of 1,055 emergency medicine physicians by Chang and colleagues found that most physicians favored testing and reporting injured, alcohol-impaired drivers.⁴¹ However, ambivalent attitudes were revealed concerning alcoholics and alcoholism. On a scale of 0 (strongly disagree) to 7 (strongly agree) the statement “alcoholics are difficult to treat” received a mean score of 6.25, and the statement “alcoholism is a treatable disease” received a mean score of 5.27. In an earlier report, Chang and Astrachan documented low BAC testing rates for intoxicated drivers by emergency department physicians.⁴² One of the reasons they cited was “defeatism about alcoholism management.” In a recent survey of emergency medicine physicians, 78% agreed that alcohol abuse/dependence is a “treatable disease,” but more than 90% indicated that there was a lack of time to perform interventions, and only 51% supported

emergency department interventions.⁴³ These attitudes and practices are similar to those found in a national survey of physicians practicing internal medicine, family medicine, obstetrics-gynecology, and psychiatry.⁴⁴ Most physicians reported asking about alcohol use but few used recommended screening protocols or offered formal treatment.

The first challenge for implementing recommended screening and interventions for problem drinking in emergency settings involves convincing staff of the importance and efficacy of such interventions. Although the research to date supports the efficacy of these interventions, clinical trials are needed to confirm these findings and to set the stage for the next logical step of effectiveness studies. Feasibility and successful dissemination must be demonstrated. Prototype interventions that can reach the majority of problem drinkers, motivate them to change drinking patterns or enter appropriate treatment, and produce positive long-term outcomes should be introduced into several emergency settings of differing size and staff composition. These multi-site effectiveness studies can then be used to promote change in standard practice in all emergency settings.

What we have learned from the research to date gives us some direction as to how to implement interventions in emergency settings to reduce drinking and alcohol related risks. The first step to developing an effective and efficient intervention program would be to create a screening procedure integrated into the admission and triage system of the emergency settings. Alcohol problems can be identified along a range of alcohol use and consequences. However, it is important to clarify what type of problem interveners are attempting to address. The screening procedure can have a net with larger or smaller mesh that can be set for more or less severe alcohol problems. However, whatever the titration of the screen, the procedure must be clearly delineated and uniformly applied to every patient admitted to the emergency department or trauma center. The primary screen must be integrated into the standard intake procedure of the emergency setting and must be the responsibility of the staff to administer to all patients.

This preliminary screen should trigger a more in-depth assessment and a brief intervention that can be delivered either separately or as a package (Figure 2). The assessment is critical for evaluating motivation

and decisional considerations and for determining the need for and appropriateness of referrals to treatment. The success of motivational and patient-centered approaches seems to indicate that it is critical to take into account the motivation of the patient and his or her readiness to change.^{24,25} Once motivated, the patient may need a variety of options depending on the nature of the alcohol problem and the needs of the patient. Many treatment providers believe that intensity of treatment should be determined by level of alcohol problem, although controlled trials do not always support the assumption. Greater dependence and, particularly, greater support for drinking in the environment, may indicate a need for more intensive treatment, such as detoxification, inpatient or residential treatment, or intensive day treatment. Self-help groups like Alcoholics Anonymous, Women for Sobriety, or Rational Recovery; outpatient treatments; and guided self-change⁴⁵ may also be appropriate for a wide range of drinking problems. In any case, the broader the net cast by the screening instrument that identifies individuals with alcohol problems, the more flexible and wide-ranging should be the referral and post-discharge options.

The assessment and intervention could be delivered by a variety of trained professionals who have some expertise in motivational interventions, understand alcohol problems, and are armed with a series of viable options to assist the patient.³⁵ The intervention, by necessity, needs to be brief and limited in contact consisting of 10 to 40 minutes of interaction. Interventions and the staff who conducts them need to be flexible and creative in adapting to situations created by the injuries and the noisy and often chaotic nature of emergency settings. Communication rather than confrontation, concern rather than condemnation, and facilitation rather than force or law enforcement should mark the interventions. If there is a legal aspect to the case, it should be separated from the clinical intervention as much as possible. Multiple, feasible referral options that vary in intensity and scope should be available as part of the intervention. Since data from other studies indicate that facilitating the referral and making the connections increase compliance, the intervention ideally should have a component of compliance enhancement if it includes referral to community treatment programs.

Next steps

Research is needed to confirm and extend the findings to date about interventions in emergency settings. Unresolved questions about the nature and format of the intervention that could use input from research are enumerated below.

1. Should there be several types of interventions for differing levels of severity? Individuals with less severe alcohol problems may benefit from a brief intervention with little or no follow-up or referral.¹⁰ Are there subpopulations that benefit more from motivational or brief interventions?^{46,47} Should we triage the most severe problem patients into a more intensive intervention in the emergency setting? What are the long-term outcomes (12 months or more) of various interventions with patients of differing levels of severity?

2. Who can best deliver the intervention? How involved should the patient's attending physician in the medical treatment be in the intervention for alcohol problems? Most emergency department physicians do not believe that physicians or nurses would be the best persons to provide effective treatment.⁴² There are a variety of professionals that could be trained to deliver the intervention including physicians, nurses, psychologists, social workers, and substance abuse counselors. However, it may be more a matter of skill and ability to work in this setting and deliver the needed type of intervention rather than of profession that should determine who should deliver the intervention.

3. Should the intervention include the family? Are family members a help or hindrance in the intervention? Family members and partners can be of significant assistance in the intervention.⁴⁸ However, they can also interfere with the interview by suggesting non-cooperation, interfering with the candidness of the self-report, and trying to protect the patient from the intervention in some misguided attempt to help. Including family should be done carefully and thoughtfully, if at all.

4. What are the constraints regarding the timing of the intervention? Must the intervention occur in the first 24 hours or can it be included in discharge planning and delivered after discharge? We need to know more about the closing of this "window of opportunity" and whether delay interferes with motivation.

5. How can emergency staff be trained to facilitate the screening and intervention? Would particular approaches to training be more effective in reaching emergency physicians and nurses?

6. How does extent of injury or severity of illness affect the intervention? It is clear that some injuries create barriers to intervention in the emergency setting. Is a separate protocol needed for individuals who are admitted to the hospital for surgery or other medical treatments that necessitate a hospital stay?

7. Should all interventions triage and intervene based on patient readiness to change? The perspective of the stages of change model appears to be an appealing one to help staff and interventionist understand the process of change for addictive and health behavior.^{49,50} Incorporating this perspective into interventions in the emergency setting has been suggested by several researchers.^{24,25}

8. Are there significant policy issues that must be resolved to make interventions for alcohol problems more feasible? For example, many clinicians do not routinely obtain a BAC test because of a fear of denial of payment for medical care by third-party payors for injured patients who test positive. This fear is well grounded. Rivara and colleagues in a survey of insurance commissioners found that 26 of 31 respondents indicated that intoxication at the time of injury allowed for exclusion of coverage.⁵¹ A review of state statutes, including those of the District of Columbia, revealed that 38 states have a provision that allows third-party payors to issue policies that deny payment for injuries sustained while intoxicated. While Rivara and associates note, “this option seems to be enforced rarely by most companies,” we are aware of anecdotal reports of emergency departments and trauma centers that have ceased testing because of the fears of non-payment. However, our inquiry to billing department staff at the Maryland Shock Trauma Center, which admits nearly 6,000 patients annually, revealed not a single case of denial of payment.

9. There is also a need for health services research to examine technology transfer and explore ways to disseminate research findings to emergency settings of differing size and complexity. Implementation is as important as the intervention in these settings. Unless screening and

intervention becomes an integral part of the emergency triage and treatment system, it will be an appendage that will be inconsistently applied or tried and discarded. An intervention template with options incorporating the alcohol problem intervention into the various settings should be developed and evaluated.

10. As we have indicated, guidelines and best practices have been published that deal with alcohol dependence and abuse and emergency medicine. The challenge now is to discover how government agencies and professional organizations can promote adoption and implementation of intervention guidelines.

The opportunity

A combination of basic research, program implementation and evaluation studies, and policy and procedure evaluations are needed to resolve the issues outlined previously. Twenty years ago, Joseph Zuska, a surgeon with an interest in alcohol problems among injured patients noted: “The crisis that brings the alcoholic to the surgeon is an opportunity for intervention in a progressive, often fatal disease.”⁵² More recently, the Substance Abuse Task Force from the Society of Academic Emergency Medicine led by D’Onofrio and colleagues emphasized that in the emergency department setting, “Early intervention and appropriate referral of patients with alcohol problems have the potential to reduce alcohol-related morbidity and mortality.”⁹ An accumulating body of evidence supports these calls for intervention. However, systemic and practical barriers must be overcome and additional research conducted to take full advantage of this opportunity.

References

1. Cherpitel CJ. Screening for alcohol problems in the emergency department. *Ann Emerg Med* 1995;26:158–66.
2. Degutis LC. Screening for alcohol problems in emergency department patients with minor injury: results and recommendations for practice and policy. *Contemporary Drug Problems* 25;1998:463–75.

3. Ewing JA. Detecting alcoholism: the CAGE questionnaire. *JAMA* 1984; 252:1905–7.
4. Maio RF, Waller PF, Blow FC, Hill EM, Singer KM. Alcohol abuse/dependence in motor vehicle crash victims presenting to the emergency department. *Acad Emerg Med* 1997;4:256–62.
5. Whiteman PJ, Hoffman RS, Goldfrank LR. Alcoholism in the emergency department: an epidemiologic study. *Acad Emerg Med* 2000;7:14–20.
6. Rivara FP, Jurkovich GJ, Gurney JG, Seguin D, Fligner CL, Ries R, Raisys VA, Copass M. The magnitude of acute and chronic alcohol abuse in trauma patients. *Arch Surg* 1993;128:907–13.
7. Soderstrom CA, Smith GS, Dischinger PC, McDuff DR, Hebel JR, Gorelick DA, et al. Psychoactive substance use disorders among seriously injured trauma center patients. *JAMA* 1997;277:1769–74.
8. D’Onofrio G, Bernstein E, Bernstein J, Woolard RH, Brewer PA, Craig SA, Zink BJ. Patients with alcohol problems in the emergency department, part 1: improving detection. SAEM Substance Abuse Task Force. Society for Academic Emergency Medicine. *Acad Emerg Med* 1998;5(12):1200–9.
9. D’Onofrio G, Bernstein E, Bernstein J, Woolard RH, Brewer PA, Craig SA, Zink BJ. Patients with alcohol problems in the emergency department, part 2: intervention and referral. SAEM Substance Abuse Task Force. Society for Academic Emergency Medicine. *Acad Emerg Med* 1998;5(12):1210–7.
10. Gentilello LM, Donovan DM, Dunn CW, Rivara FP. Alcohol interventions in trauma centers: current practice and future directions. *JAMA* 1995;274:1043–8.
11. Lowenstein SR, Weissberg MP, Terry D. Alcohol intoxication, injuries, and dangerous behaviors—and the revolving emergency department door. *J Trauma* 1990;30:1252–8.
12. Soderstrom CA, Cole FJ, Porter JM. Injury in America: the role of alcohol and other drugs—an EAST position paper prepared by the Injury Control and Violence Prevention Committee. *J Trauma* 2001;50(1):1–12.
13. Dyehouse JM, Sommers MS. Brief intervention after alcohol-related injuries. Substance abuse interventions in general nursing practice. *Nurs Clin North Am* 1998;33(1):93–104
14. Longabaugh R, Minugh A, Nirenberg TD, Clifford PR, Becker B, Woolard R. Injury as a motivator to reduce drinking. *Acad Emerg Med* 1995;2:817–25.

15. Sommers MS, Dyehouse JM, Howe SR, Lemmink J, Davis K, McCarthy M, Russlee AC. Attribution of injury to alcohol involvement in young adults seriously injured in alcohol-related motor vehicle crashes. *Am J Crit Care* 2000; 9:28–35
16. Cherpitel CJ. Drinking patterns and problems and drinking in the event: an analysis of injury by cause among casualty. *Alcohol Clin Exp Res* 1996;2:1130–7.
17. DiClemente CC. Motivation for change: implications for substance abuse. *Psychological Science* 1999;10(3):209–13.
18. Gentilello LM, Rivara FP, Donovan DM, et al. Alcohol interventions in a trauma center as a means of reducing the risk of injury recurrence. *Ann Surg* 1999;230:473–83.
19. Monti PM, Colby SM, Barnett NP, et al. Brief intervention for harm reduction with alcohol-positive older adolescents in a hospital emergency department. *J Consult Clin Psychol* 1999;67(6):989–94.
20. Chick J, Lloyd G, Crombie E. Counseling problem drinkers in medical wards: a controlled study. *Br Med J* 1985;290:965–7.
21. Gentilello LM, Duggan P, Drummond D, et al. Major injury as a unique opportunity to initiate treatment in the alcoholic. *Am J Surg* 1988;156:558–61.
22. El-Guebaly N, Armstrong SJ, Hodgkins DC. Substance abuse and the emergency room: programmatic implications. *J Addict Dis* 1998;17(2):21–40.
23. Madden C, Cole TB. Emergency intervention to break the cycle of drunken driving and recurrent injury. *Ann Emerg Med* 1995;25(2):177–9.
24. Soderstrom CA, Dischinger PC, Kerns TJ, Kufera JA, Mitchell KA, Scalea TM. Epidemic increases in cocaine and opiate use by trauma center patients. *J Trauma* 2001;51:557–64.
25. Smith AJ, Shepherd JP, Hodgson RJ. Brief interventions for patients with alcohol-related trauma. *Br J Oral Maxillofac Surg* 1998;36:408–15.
26. Wright S, Moran L, Meyrick M, O'Connor R, Touquet R. Intervention by an alcohol health worker in an accident and emergency department. *Alcohol Alcohol* 1998;33(6):651–6.
27. Fuller MG, Diamond DL, Jordan ML, Walters MC. The role of a substance abuse consultation team in a trauma center. *J Stud Alcohol* 1995;56:267–71.

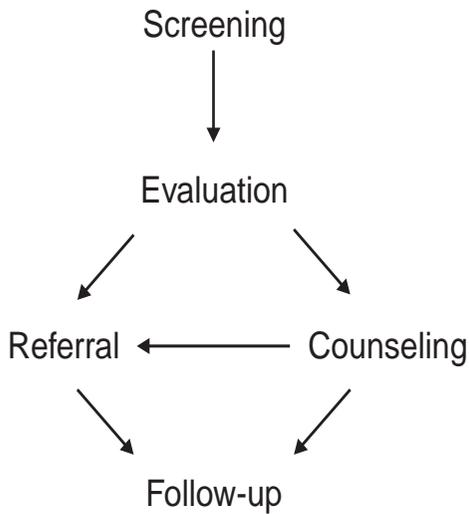
28. Hemphill C, Bennett BE, Watkins, BL. Alcoholism: the response of a public hospital. *Urban Health* 1984;13(7):14–6.
29. Bernstein E, Bernstein J, Levenson S. Project ASSERT: an ED-based intervention to increase access to primary care, preventive services, and the substance abuse treatment system. *Ann Emerg Med* 1997;30(2):181–9.
30. Hungerford DW, Pollock DA, Todd KH. Acceptability of emergency department-based screening and brief interventions for alcohol problems. *Acad Emerg Med* 2000; 7:1383–92.
31. Dinh-Zarr T, Diguseppi C, Heitman E, Roberts I. Preventing injuries through interventions for problem drinking: a systematic review of randomized controlled trials. *Alcohol Alcohol* 1999;34:609–21.
32. Fleming MF, Barry KL, Manwell LB, Johnson K, London R. Brief physician advice for problem alcohol drinkers: a randomized controlled trial in community-based primary care practices. *JAMA* 1997;277:1039–45.
33. Walsh DC, Hingson RW, Merrigan DM, Levenson SM, Coffman GA, Heeren T, Cupples LA. The impact of a physician's warning on recovery after alcoholism treatment. *JAMA* 1992;267(5):663–7.
34. Ockene JK, Adams A, Hurley TG, Wheeler EV, Hebert JR. Brief physician and nurse practitioner-delivered counseling for high risk drinkers. *Arch Intern Med* 1999;159:2198–2205.
35. Dunn CW, Donovan DM, Gentilello LM. Practical guidelines for performing alcohol interventions in trauma centers. *J Trauma* 1997;42:299–304.
36. Reyna TM, Hollis MW, Hulsebus RC. Alcohol-related trauma: the surgeon's responsibility. *Ann Surg* 1985;201:194–7
37. Miller WR. Alcoholism: toward a better disease model. *Psychology of Addiction Behaviors* 1993;7:129–35.
38. Bien TH, Miller WR, Tonigan JS. Brief interventions for alcohol problems: a review. *Addiction* 1993;88:315–36.
39. Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration. *Alcohol and Other Drug Screening of Hospitalized Trauma Patients, Treatment Improvement Protocol (TIP), No. 16*. Rockville (MD): Department of Health and Human Services; 1995. DHHS Publication No. (SMA) 95-3014.

40. Soderstrom CA, Dailey JT, Kerns TJ. Alcohol and other drugs: an assessment of testing and clinical practices in U.S. trauma centers. *J Trauma* 1994;36:68–73.
41. Chang G, Astrachan BM, Weil U, Bryant K. Reporting alcohol-impaired drivers: results from a national survey of emergency physicians. *Ann Emerg Med* 1992;21:284–90.
42. Chang G, Astrachan BM. The emergency department surveillance of alcohol intoxication after motor vehicular accidents. *JAMA* 1988;260:2533–6.
43. Graham DM, Maio RE, Blow FC, Hill EM. Emergency physician attitudes concerning intervention for alcohol abuse/dependence in the emergency department. *J Addict Dis* 2000;19:45–53.
44. Friedman PD, McCullough D, Chin MH, Saitz R. Screening and interventions for alcohol problems: a national survey of primary care physicians and psychiatrists. *J Gen Intern Med* 2000; 15:84–91.
45. Sobel MB, Sobel LC. *Problem Drinkers: Guided Self-change Treatment*. New York (NY): Guilford Press; 1993.
46. Heather N. Interpreting the evidence on brief interventions for excessive drinkers: the need for caution. *Alcohol Alcohol* 1995;30(3):287–96.
47. Poikilainen K. Effectiveness of brief interventions to reduce alcohol intake in primary health care populations: a meta-analysis. *Prev Med* 1999; 28(5): 503–9.
48. McCrady BS, Epstein EE. Marital therapy in the treatment of alcoholism. In: Gurman AS, Jacobson N, editors. *Clinical Handbook of Marital Therapy 1995*. 2nd ed. New York (NY): Guilford Press; 1995. p. 369–93.
49. DiClemente CC, Prochaska JO. Toward a comprehensive, transtheoretical model of change: stages of change and addictive behaviors. In: Miller WR, Heather N, editors. *Treating Addictive Behaviors*. 2nd ed. New York (NY): Plenum; 1998. p.3–24.
50. Zimmerman GL, Olsen CG, Bosworth MF. A “stages of change” approach to helping patients change behavior. *Am Fam Physician* 2000;61(5):1409–16.
51. Rivara FP, Tollefson S, Tesh E, Gentilello LM. Screening trauma patients for alcohol problems: are insurance companies barriers? *J Trauma* 2000;48:115–8.
52. Zuska JJ. Wounds without cause. *Bull Am Coll Surg* 1981;66:5–10.

Figure 1 **Types of Emergency Setting Interventions**

- ◆ Brief Advice (and Referral)
- ◆ Substance Abuse Evaluation and Referral
- ◆ Motivational Enhancement (and Referral)
- ◆ Personalized Feedback (New)
- ◆ Post-Discharge Contact (New)

Figure 2 **Points of Intervention**



Response to Dr. Carlo DiClemente's Presentation

Gail D'Onofrio, MD

I am honored to be a discussant following Dr. DiClemente's comments about interventions for patients presenting to the emergency department (ED) with alcohol problems. We have just heard compelling evidence regarding the efficacy of brief intervention in a variety of settings including primary care, inpatient trauma centers, and emergency departments, and for multiple populations, ranging from adolescents to adults.

We now know several truths. First, screening and brief intervention (SBI) does work. A recent evidence-based review of the literature on SBI, conducted by Dr. Linda Degutis and me, revealed 39 studies (30 randomized controlled and 9 cohort) with a positive effect demonstrated in 32 of these studies.¹ We also know that the ED visit offers a potential "teachable moment" due to the possible negative consequences surrounding it and that in essence we, as emergency physicians, have a captive audience. In addition, we know that patients presenting to the ED are likely to need our help more than those who present to primary care. Cherpitel recently compared patients presenting to an ED with those presenting to primary care in the same metropolitan area. She found that ED patients were one and one-half to three times more likely than primary care patients to report heavy drinking, consequences of drinking, alcohol dependence, or history of treatment for an alcohol problem.²

It is now time for us to adapt the information we have learned from these efficacy trials to the ED setting and move on to effectiveness trials. In doing so, we face unique challenges. These include time pressures, competing priorities, few formal follow-up protocols, negative attitudes of the staff, and a multitude of systems problems in an environment that at best can be described as controlled chaos. Perhaps the largest hurdle is the fact that ED practitioners have not yet bought into the idea that SBI is part of their role or responsibility.

To be effective, our research strategies must be brief and clear. In real life, there is not a cadre of researchers to screen and administer lengthy interventions. Therefore, protocols must be capable of being integrated into existing systems with available resources.

I am going to show you a clip from a video entitled *The Emergency Physician and the Problem Drinker: Motivating Patients for Change*.³ Actual ED scenarios are used to demonstrate common problems or traps that arise when physicians attempt to counsel patients about their alcohol use. The intervention featured, the brief negotiation interview, includes establishing rapport, raising the subject of problem drinking, providing feedback, and assessing the patient's readiness to change. Specific strategies to intervene, based on the patient's readiness to change, are demonstrated to help the patient start the process of finding his or her own solutions to change. Two versions of a physician/patient interaction are depicted: one that is likely to be unsuccessful, and one that is likely to be successful.

To be successful in developing effectiveness trials in the ED setting, researchers must be very clear about a number of issues when developing their proposals. These issues include:

Who should be screened?

Should we target certain populations—the injured or non-injured; the at-risk, harmful, or hazardous drinker; or the dependent drinker? Should we concentrate on the life cycle, from adolescence to older age, or should we concentrate first on more defined populations? It is unrealistic to assume that one intervention will work for everyone.

What should the intervention include?

The message of the intervention is vital. It should be brief, scripted, and reproducible. Exactly what constitutes brief? The exact time of the intervention should be recorded. What is included in the intervention should be clearly stated. Should we be sure to include the acceptable components of brief intervention as outlined in the acronym FRAMES: feedback, responsibility, advice, menu of strategies, empathy, and self-efficacy?⁴ Is making a connection between drinking and the ED visit important? Is there a prescription or recommendation given to the patient? Does the message include advice or add a component of motivational enhancement therapy? Does the research protocol monitor adherence to the message, and how?

Who should provide the screening and intervention?

Which provider actually screens for problems and provides the intervention? Different sites can be creative about who conducts the interventions. Is it best done by nurses, physicians, or health promotion advocates?⁵ Is it possible that patients can be screened by completing computer programs while waiting in the ED, with results then relayed to the physician?⁶

How can we motivate practitioners to change?

What can be done to motivate physicians and other health care providers to change their behaviors and incorporate SBI into their practices? What are the motivators? Are they patient driven so that documentation of a decrease in recidivism and morbidity and mortality must be proven to convince practitioners? Or are they tied to reimbursement? Are emergency physicians more likely to include counseling in their practice if it is a billable service? What other barriers must be removed or systems changes made before SBI is successful in an ED? Available resources are essential, as well as perceived support and role models.⁷ A great deal of time is spent developing continuous quality improvement projects in EDs for problems with far less prevalence. Return visits and deaths are often tracked. Why not include patients with alcohol problems in this process?

What exactly is included in educational programs for providers?

Standard didactic educational programs have not been shown to change physician behavior and subsequently improve patient care.⁸ However, evidence indicates that skills-based interactive sessions can change practice.^{9,10}

How do we measure success?

What outcomes are we measuring? Do they include a decrease in alcohol consumption or decreases in negative consequences, such as drinking and driving violations or school and work problems? A decrease in morbidity and mortality may be more difficult to measure and require a lengthy follow-up period, but it provides much more meaningful data to the practicing emergency physician. It is also possible that tracking

referrals to primary care or specialized treatment programs may be an important outcome. Rates of enrollment in treatment programs and compliance with appointments may be meaningful outcomes.

How long one brief intervention may affect patients' behavior is unclear. ED providers have no formal relationships with the patients beyond the index visit, and it is entirely plausible that the effect of the brief intervention may be short lived. Therefore, certain outcomes may need to be measured early at one or three months. However, one may also argue that it is possible that there may be a "sleeper effect," or delayed emergence of treatment efficacy, as described by O'Malley and Carroll,^{11,12} making it imperative that assessments be continued for one year or more.

All of these questions need to be answered in future studies if we are to prove that SBI is effective in the ED setting. It is crucial that researchers are clear on all aspects of their research protocols so that future projects can either replicate or build on past experiences. These aspects include exclusion and inclusion criteria, the specifics of the intervention (i.e., what, how, and by whom), and the specific outcomes to be measured. Adherence to the protocol should also be assured.

In conclusion, there is no "silver bullet," or one exact intervention that will work for everybody. We must focus on small, incremental steps and realize that the entire process will be a long one. Fortunately, the number of ideas and research questions are endless, allowing for multiple studies and a great deal of creativity on the part of the researchers.

References

1. D'Onofrio G, Degutis LC. Preventative care in the emergency department: screening and brief intervention for alcohol problems in the emergency department: a systematic review. *Acad Emerg Med* 2002;9(6):627-38.
2. Cherpitel CJ. Drinking patterns and problems: a comparison of primary care with the emergency room. *J Subst Abuse* 1999;20:85-95.
3. D'Onofrio G, Bernstein E, Bernstein J. *The Emergency Physician and the Problem Drinker: Motivating Patients for Change*. [videocassette] South Natick (MA): Marino & Company Production; 1997.

4. Miller WR, Sanchez VC. Motivating young adults for treatment and lifestyle change. In: Howard G, editor. *Issues in Alcohol Use and Misuse in Young Adults*. Notre Dame (IN): University of Notre Dame Press; 1993. p. 55–82.
5. Bernstein E, Bernstein J, Levenson S. Project ASSERT: an ED based intervention to increase access to primary care, preventive services, and the substance abuse treatment system. *Ann Emerg Med* 1997;30:181–9.
6. Rhodes KV, Lauderdale DS, Stocking CB, Howes DS, Roizen MF, Levinson W. Better health while you wait: a controlled trial of a computer-based intervention for screening and health promotion in the emergency department. *Ann Emerg Med* 2001;37:284–91.
7. Cartwright AKJ. The attitudes of helping agents towards the alcoholic client: The influence of experience, support, training, and self-esteem. *Br J Addict* 1980; 75:413–31.
8. Davis DA, Thamson MA, Oxman AD, Haynes RB. Changing physician performance: a systematic review of the effect of continuing medical education strategies. *JAMA* 1995;274:700–5.
9. Davis D, O'Brien MAT, Freemantle N, Wolf FM, Mazmanian P, Taylor-Vaisy A. Impact of formal continuing medical education: do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *JAMA* 1999;282:867–74.
10. Saitz R, Sullivan LM, Samet JH. Training community-based clinicians in screening and brief intervention for substance abuse problems: translating evidence into practice. *J Subst Abuse* 2000;21:21–31.
11. O'Malley SS, Jaffe AJ, Chang G, Rode S, Schottenfeld R, Meyer RE, Rounsaville B. Six-month follow-up of Naltrexone and psychotherapy for alcohol dependence. *Arch Gen Psychiatry* 1996;53:217–24.
12. Carroll K, Rounsaville BJ, Nich C, Gordon LT, Wirtz PW, Gawin F. One-year follow-up of psychotherapy and pharmacotherapy for cocaine dependence: delayed emergency of psychotherapy effects. *Arch Gen Psychiatry* 1994;51:989–97.

Intervening with Alcohol Problems in Emergency Medicine: Discussion of the DiClementi and Soderstrom Article

Kristen Lawton Barry, PhD

Reducing death and disability related to alcohol remains a national health status goal.^{1,2} Cherpitel and others have suggested that the emergency department (ED) may be the ideal place to identify alcohol problems and to begin interventions, particularly with patients who enter the ED with an injury.³⁻¹⁰ Several compelling reasons make the ED an important setting for alcohol interventions. First, a large number and variety of patients are seen in EDs every year. Second, many of the patients who use the ED do not have their hazardous drinking detected or treated in other primary or tertiary care settings. Third, most patients with alcohol problems are released from the ED rather than being admitted to hospitals where detection may be more likely. Finally, for patients seen in the ED, there can be an immediacy between the event bringing them to this setting (e.g., injuries) and possible identification of and intervention for an alcohol problem.

Logistical challenges to brief interventions in the ED

The ED presents unique challenges, however, for identifying and intervening with patients who drink at a hazardous level. The ED is a fast-paced environment with many competing demands that do not allow for concentrated periods of personnel time devoted to intervening with long-term problems, even if the problems are related to a particular ED visit. It is of great importance to develop intervention strategies that can be used easily and efficiently in this setting.

Medical care challenges in the ED

In addition to the practical problems generally associated with screening and intervention in this venue, pressing problems in the delivery of medical care will affect how we intervene in the future with ED patients at risk for and currently experiencing problem drinking. By 2020, there will be a serious shortage of nursing personnel available to work in this and other medical settings.¹¹ This shortage will come at a time when the

Baby Boom generation is reaching retirement age and having more health-related problems that lead to greater use of urgent care and emergency facilities. In fact, EDs are already seeing greater numbers of patients at a time when hospitals are closing. This critical health care shortage could exacerbate a vicious cycle of need for care and difficulty providing that care.

DiClemente and Soderstrom have produced a well-crafted, state-of-the-art article and presentation about the need for, importance of, and challenges in conducting research on the efficacy and ultimate effectiveness of brief alcohol interventions in the ED for persons who are at-risk drinkers, problem drinkers, or alcohol-dependent drinkers. It is clear from their manuscript that a spectrum of alcohol problems presents in the ED and that a spectrum of solutions is necessary to meet the challenges of providing “best practices” care.

Issues raised by DiClemente and Soderstrom

This response to DiClemente and Soderstrom’s conference presentation briefly addresses issues raised by Dr. DiClemente, primarily the need for considering the use of technology to augment or deliver brief alcohol interventions in the ED. Previous research has shown that brief interventions for hazardous drinking are effective in reducing drinking levels across a variety of health care settings, including the ED.¹²⁻¹⁷ However, the sample sizes, attrition rates, types of interventions, levels of alcohol use, outcomes measured, and effect sizes have varied greatly across the studies. In addition, the target of the intervention (at-risk drinkers, problem drinkers, alcohol-dependent drinkers) and the mechanism of intervention (physician, nursing staff, social workers, technology with or without provider advice) remain open questions.

Brief alcohol interventions have generally included feedback by a health care professional based on patients’ responses (screening positive) to questions about alcohol consumption or consequences. These results indicate that while this approach is effective for a percentage of hazardous drinkers, it is not effective for everyone (effect sizes of ~30% to 40%). The intervention studies based on provider feedback and advice to the patient have had mixed results in the ED. In addition, it remains difficult to engage health care professionals in conducting brief interventions in this venue because of the volume of patients and the urgency of other presenting problems. It is becoming clear that, to be widely

effective, an ED-based brief alcohol intervention model that requires providers to give advice and written materials to the screen-positive patients will need some modification.

Two concepts that appear often in the literature may be useful in informing future research. First, the ED potentially provides an ideal “teachable moment” for patients who have problems with alcohol use. It is thought that this is particularly true if the patient’s use can be tied to the reason for the ED visit. However, it may also be anticipated that using the ED visit as a teachable moment may be effective for non-injured persons who drink at risk excessively. Second, the ED is a fast-paced environment in which providers cannot easily find time to conduct brief alcohol interventions, even if they have the training, skills, and desire to do so. The concept of the teachable moment, although only a conceptualization at this time, provides part of the seminal interest in doing alcohol interventions in the ED. On the other hand, the fast pace of the ED may play a role in why providers find it difficult to address alcohol issues at all, particularly for those patients who do not present in the ED with problems or conditions clearly linked to alcohol consumption.

The implementation of brief alcohol intervention systems in “real world” emergency medical practice has not been easy. This has been true in primary care settings as well. Efficacy trials are the first step, but implementation of proven alcohol screening and brief intervention systems in hospital- and community-based settings has been the most difficult part of the process. Serious logistical challenges remain in developing systems that facilitate the use of these techniques on a regular basis.

The combination of the potential opportunity to affect the alcohol consumption of at-risk drinkers and the limited time for providers to intervene, along with the higher volume and projected shortages of nursing personnel, necessitates the need to expand research on brief alcohol interventions specifically with the use of new technology. The use of technology may reduce the time needed for providers and staff to personally provide screening and intervention services and target patients who can derive benefit from the brief intervention messages.

In addition, because of the effect sizes shown by the studies to date, there is also a need to target responses and elements of the brief intervention to the problems specific to each individual patient who scores

positive for at-risk drinking or more serious alcohol-related problems. The use of new technologies for individualizing brief intervention materials and feedback may help to fill gaps in the system of care for patients with at-risk and problem drinking patterns.

This is a large challenge and a large expectation for any one system of intervention. Just as there is a spectrum of alcohol use problems, there may be a family of solutions. These solutions will need to address both the types of interventions that best fit each ED and medical center and the specific problems of the patient. “One size fits all” does not work in brief interventions, just as it does not work in clinical practice in general. Taking a public health perspective, methods are sought that are the most effective clinically and financially.

New directions in brief alcohol interventions in emergency medicine

One of the innovations being tested at this time is the use of automated computerized screening with real-time production of brief workbook content tailored to specific problems. The use of computerized, tailored messaging represents an important technique to provide targeted, individualized feedback to patients considered most open to change messages. Tailored messaging systems have been found effective in the areas of depression, smoking cessation, dietary intake, and use of mammography.¹⁸

Other technologies that may be useful in the future include the use of interactive voice recognition (IVR) technology to facilitate screening, delivery of educational interventions, and follow-up of patient progress by telephone. IVR telephone availability 24 hours/day could facilitate follow-up of ED patients. Interactive computer programs on laptops or palm computers, web-based interventions, computerized bundling of brief health messages for multiple health risks (e.g., smoking, alcohol use, seat belt use), and audio interventions tailored to specific problems and delivered through headsets¹⁹ are also being posited as potential approaches in emergency and urgent care settings.

Some of these technologies have been raised because of system barriers to provider-based interventions. The use of technology (e.g., hand-held computerized screening, interactive headphone delivery of messages, tailored messaging booklets) to assist in interventions in a

crowded, busy venue may allow a level of privacy that addresses the shame and stigma many individuals feel about problems related to alcohol misuse and abuse.

Patients in the emergency setting range from those with no alcohol problems to those with severe dependence. In the next few years, a variety of exciting intervention techniques will be tested in EDs and urgent care clinics. Drs. DiClemente and Soderstrom have set the stage for us to think about what is needed in the future to provide best practices care to patients with problems related to alcohol use. Any methods that are developed with researchers and clinicians working together will help to overcome barriers and promote best practices care for a range of drinkers in the emergency setting.

References

1. U.S. Department of Health and Human Services. *Healthy People 2000. National promotion and disease prevention objectives*. Washington (DC): U.S. Department of Health and Human Services; 1990. DHHS Publication No. (PHS) 91-50212.
2. U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington (DC): U.S. Government Printing Office; 2000.
3. Cherpitel CJ. Breath analysis and self-reports as measures of alcohol-related emergency room admission. *J Stud Alcohol* 1989;50:155–61.
4. Cherpitel CJ. Alcohol, Injury, and risk-taking behavior: data from a national sample. *Alcohol Clin Exp Res* 1993;17(4):762–6.
5. Dewey KE. Alcohol related attendances at the accident and emergency department. *Ulster Med J* 1993;62(1):58–62.
6. Zink BJ, Maio RF. Alcohol use and trauma. *Acad Emerg Med* 1994;1(2):171–3.
7. Maio RF. Alcohol and injury in the emergency department: opportunities for intervention. *Ann Emerg Med* 1995;26:221–3.
8. Dyehouse JM, Sommers MS. Brief interventions after alcohol-related injuries. Substance abuse interventions in general nursing practice. *Nurs Clin North Am* 1998;33(1):93–104.

9. Longabough R, Minugh PA, Nirenberg TD, Clifford PR, Becker B, Woolard R. Injury as a motivator to reduce drinking. *Acad Emerg Med* 1995;2(9):817-25.
10. Sommers MS, Dyehouse JM, Howe SR, Lemmink J, Davise K, McCarthy M, Russlee AC. Attribution of injury to alcohol involvement in young adults seriously injured in alcohol-related motor vehicle crashes. *Am J Crit Care* 2000; 9:28-35.
11. Buerhaus PI, Staiger DO, Auerbach DI. Implications of an aging registered nurse workforce. *JAMA* 2000;283(22):2948-54.
12. Chick J, Lloyd G, Crombie E. Counseling problem drinkers in medical wards: a controlled study. *Br Med J* 1985;290,965-7.
13. Babor TF, Grant M. *Project on Identification and Management of Alcohol-related Problems. Report on Phase II: A Randomized Clinical Trial of Brief Interventions in Primary Health Care*. Geneva: World Health Organization; 1992.
14. Fleming MF, Barry KL, Manwell LB, Johnson K, London R. Brief physician advice for problem alcohol drinkers: a randomized controlled trial in community-based primary care practices. *JAMA* 1997;277(13):1039-45.
15. Wright S, Moran L, Meyrick M, O'Connor R, Tourquet R. Intervention by an alcohol health worker in an accident and emergency department. *Alcohol Alcohol* 1998;33(6):651-6.
16. Dinh-Zarr T, Diguseppi C, Heitman E, Roberts I. Preventing injuries through interventions for problem drinking: a systematic review of randomized controlled trials. *Alcohol Alcohol* 1999;34:609-21.
17. Gentilello LM, Rivara FP, Donovan DM, Jurkovich GJ, Daranciang E, Dunn CW, et al. Alcohol interventions in a trauma center as a means of reducing the risk of injury recurrence. *Ann Surg* 1999;230:473-83.
18. Strecher VI, Kreuter MW, DenBoer DJ, Kobrin SC, Hospers HJ, Skinner CS. The effects of computer-tailored smoking cessation messages in family practice settings. *J Fam Pract* 1994;39:262-70.
19. Blow FC, Barry KL. Older Patients with at-risk and problem drinking patterns: new developments in brief interventions. *J Geriatr Psychiatry Neurol* 2000; 13(3):115-23.

General Discussion

Richard Longabaugh commented on how much remains unknown about what motivates patients to change their use of alcohol. He noted that researchers at Brown previously had found that readiness to change was predicted by whether or not patients attributed their ED injury visit to their drinking. They expected the same result in their new study with hazardous drinkers who had a positive BAC at the time of their injury visit. However, they were surprised to find that regardless of whether the injury was attributed to alcohol or not, patients did equally well at follow-up. Consequently, the motivational mechanism is not clear. Another surprise was that in the new study, a single intervention session at the time of the emergency visit made no difference in any outcome measures at either 3 months or 1 year. Patients who returned 7 to 10 days later for a second intervention session did not improve on outcomes at 3 months, but they did improve on alcohol-related negative consequences and injuries at 1 year. Two-thirds of the patients returned for a second session, but that proportion varied from one-third to 90% across the different interventionists.

Kristen Barry noted that in primary care studies, one session seems to be enough to foster change. However, she found it interesting that booster sessions worked in this setting. Even though the intervention did not decrease drinking, it did decrease drinking-related consequences, which may be part of what we're looking for in this setting.

Carlo DiClemente said the message needs to be reinforced after discharge. In his work, they are using a feedback letter and phone calls at two weeks and six weeks. He noted that Longabaugh's data indicate there is benefit from a post-discharge contact and that we will see if other studies confirm that.

Herman Diefenhaus added that there must be some type of maintenance activity if we are dealing with a chronic, relapsing condition. The research questions are how to determine which patients need maintenance activities, what types of activities they need, and when or how often they are needed.

Christopher Dunn related that his research interventions took 30 to 40 minutes, but his interventions outside the research arena took about 20 minutes because the process did not have to be so complicated and uniform, and there was less data collection. He observed that the first question of the SMAST (“Do you think you’re a normal drinker?”) forced people to label and marginalize themselves. This had created many difficulties during his interventions. He noted that he prefers the AUDIT. An original goal of the study was to encourage post-discharge alcohol treatment, but only 5% to 10% of study patients went to at least one treatment or Alcoholics Anonymous session. Consequently, he questioned how important that goal should be. Very few patients refused to speak to him or had problems with privacy during the interview. Family members were present less than 10% of the time, and their impact on the intervention varied. He noted that even though interventions are evidence-based, organizations and interventionists in non-research settings will make an intervention their own. In any case, he observed, even in the existing randomized trials of interventions that use motivational interviewing, we cannot evaluate the effect of counselors’ skill levels. In future trials, he recommended that the fidelity of the intervention and variations among interventionists be more closely monitored.

Barry agreed that we have not monitored closely enough what intervention is being delivered by the interventionists we train. The good news is that across many trials, the interventions being delivered seem to work. She also agreed that the first question of the SMAST is problematic. She noted that the short and long MAST for geriatric patients have been modified, eliminating the problems.

Peter Monti agreed with Dunn that measuring treatment fidelity is extremely important. He cited a brief report and an upcoming chapter in a book about interventions with adolescents that describes how studies at Brown evaluate fidelity. He also noted that none of the three clinical trials (Gentilello’s with trauma patients, his own with adolescents, and Longabaugh’s in the ED) used physicians or ED staff to conduct interventions. He recommended that future research evaluate whether using physicians or ED staff is more cost effective than using specially hired staff. He wondered if using ED physicians could increase treatment efficacy enough to offset the added cost of training and possible decreased delivery of interventions. He also noted that given

the costs and difficulties of the ED setting, the relative efficacy and cost of booster sessions is another important issue deserving further research. In his continuing trial, he should be able to address this question because adolescents will be randomized to booster sessions or a single session. Although his study of adolescents found reductions in risky behavior and alcohol-related harm, he was disappointed to find no effect on drinking. Given the harmful levels of drinking among adolescents in his studies, he remarked that it is irresponsible for interventions not to focus on drinking as well as harm.

Gail D'Onofrio noted that her planned study will use physicians, physician assistants, and senior emergency medicine residents to deliver brief interventions for injured and non-injured harmful and hazardous drinkers. The study will allocate resources to promote adherence to the treatment protocol and monitor treatment fidelity. It also will control for ancillary treatments that might influence intervention outcome.

Edward Bernstein noted that Project Assert adapted a readiness-to-change instrument for use in the ED. Patients were asked to place themselves on a readiness scale of 1 to 10. If patients rated themselves on the low end of the scale, researchers then asked them what would bring them to a higher score.

DiClemente commented that such adjustments to instruments are often necessary. In assessing change, interventionists can use three markers to help them: importance, confidence, and readiness.

Barry praised the use of a linear method to measure stages of change. She added that an in-home, brief intervention linked with primary care found no association between stage of change and outcome. She thought more research is needed on this issue.

Daniel Hungerford noted that there are operational realities in the emergency department that must be considered in order to implement interventions. At the same time, some central questions need to be submitted to empirical testing. The screening and brief intervention trial he and colleagues conducted in West Virginia did not include a booster session and had a mode intervention time of about 14 minutes. Although outcomes for the experimental and control groups were not significantly different at 3 months, outcomes improved for both groups

compared to baseline. At 12 months, outcomes for both groups were still not different, but the percentage of patients who had improved had decreased and was no longer significantly different from baseline. He concluded that a brief intervention might have a short-lived effect that degrades over time. Consequently, a booster intervention might be helpful. His second point was that there is an easy assumption that a brief intervention is more appropriate for patients with mild-to-moderate problems than for patients with severe problems. It is thought they are more likely to respond successfully. The West Virginia project is on a college campus. Many of the college students who visit the ED have mild alcohol problems and are confident they could overcome their alcohol problems if they wanted to. However, most of them do not feel this issue is important enough to address. At follow-up, it is the non-students and students with more severe problems who are more likely to improve. He concluded we should not trust easy assumptions, but instead treat them as empirical questions.

Barry reinforced the importance of looking at this issue by age groups, noting that young adult males were least affected by interventions in the Wisconsin early intervention study. She concurred with Hungerford's observation that intervention effects seem to wear off after a period of time. She suggested that although booster interventions are needed, perhaps they are not needed very often, particularly in primary care settings. Maintenance of effect might be possible with yearly consultations.

DiClemente noted that some trials have found patients with more severe problems being helped; others have helped patients with more moderate problems. Readiness to change may or may not be related to problem severity. Similarly, readiness to cut down may not coincide with readiness to abstain. Patients who are more ready to cut down are generally less ready to abstain. There is strong evidence that readiness to change and confidence, especially before treatment, are unrelated. Sophisticated research is required to tease apart the complex interactions between these variables.

D'Onofrio agreed that methodological issues are extremely important. She noted that research studies often attempt to control so many variables and follow up with patients so frequently that control groups receive so much attention focused on alcohol that it may constitute an

intervention, particularly when compared with patients who receive standard care. Even if the assessment is embedded in a general health-needs survey, patients know they are being asked about alcohol, and that could affect their answers. These methodological problems can mask valid intervention effects.

Monti believed that a decision to screen only for patients with severe alcohol problems is premature. In his study of adolescents, he saw a decrease in drinking among all groups. However, the only patients who showed a differential effect from the brief intervention were precontemplators in the 13- to 17-year-old group. For younger children, he concluded, the emergency room visit was a powerful event.

Robert Woolard related that many ED patients they approached to participate in research still had measurable blood alcohol levels. Brown's IRB required a mental status exam to ensure patients could understand the research dimensions of the project before they could be enrolled in the study. Therefore, the study was able to correlate mental status exam scores with alcohol levels at the time of consent. Patients with BACs of 0.10 and 0.08 g/dl had impaired mental status, mostly in short-term memory. He wondered at what blood alcohol level patients could remember an intervention. If they had had to wait until patients were sober, many would be discharged because in his ED, patients are discharged when staff estimate their BAC is below 0.08 g/dl.

DiClemente reported that most of the people who got the longer intervention in his study remembered the interventionist at the two-week follow-up, so there was some recall.

Richard Brown commented on high up-front costs required to develop technological means of delivering these services, such as computer-based screening. He said funding mechanisms such as small business grants were not always appropriate for researchers and wondered whether there were other funding mechanisms that might be more appropriate.

Barry replied that her group had used the R-01 grant programs to help develop or adapt technology, but she admitted that R-01 grants can be difficult and time-consuming to obtain.

Brown replied that only a certain proportion of the funding can be applied toward development in R-01 grants, and some of the technology, for example interactive videos, can be quite expensive to develop.

Elinor Walker reminded the group that the Agency for Healthcare Research and Quality has an R-03 program with a \$100,000 cap, including both direct and indirect costs. She noted that these projects are reviewed by a study section, but one that may be more forgiving than R-01 study sections. However, the program is still quite competitive, and the project would probably have to involve testing as well as development.

Longabaugh noted that R-21 grants, which are available for development of treatments, could be used to develop technologies.

Mary Dufour observed that there are few applicants who are skilled at both the research and the business aspects of a project, so small business grants seldom go to people in the scientific community. If applicants want to go that route, she recommended they get help from someone well-versed in business.

Marilyn Sommers related her experience from two clinical trials among hospitalized patients. In both, nurse clinicians, all female, implemented the study. Because the trauma population is mostly young, male, and not always easy to work with, the gender of the interventionist could be important. Perhaps physicians, especially male physicians, have more authority in that population, which may affect whether patients take advice. She observed that the gender of both interventionists and patients has not been well documented in studies. This can make it difficult to standardize interventions. She hypothesized that understanding the patient's perception of the interventionist's capabilities might be as important as having detailed measurements of intervention fidelity across interventionists. She noted that many researchers feel rushed to move these interventions into clinical settings because they know we need to be addressing alcohol problems. She asked the panel how to balance this need with the many important scientific questions that still need to be answered.

DiClemente observed that Project MATCH had examined associations between gender and treatment outcome and found that females did better in 12-step programs. However, to examine the effect of matching interventionists and patients would require randomizing large numbers of patients to a large number of interventionists. He agreed that the authority issue is important, but he suggested smaller, targeted research studies could address that question. He cautioned that not every study has to be a clinical trial focused on outcomes. To examine the issue of gender, patients could be randomized to interventionists and both could be asked to evaluate their perceptions of the interaction. He noted that the balance between research and clinical practice is always a challenge. He posed the following questions: Do we wait until we know exactly how the intervention works before we move interventions into practice? Or, do we start in a practice setting and keep refining as we go along? His sense was that the field would benefit from starting in the practice setting to learn how interventions work in real-world clinical settings. As research evidence accumulates, it can inform best practices.

Barry described two intervention trials among older adults in primary care. Interventions performed by physicians in one trial had results as good as interventions performed by social workers and psychologists in the other. Although she thought age of the interventionist could be an influential factor, she was unsure because there are so many interactions and factors that we have not looked at very carefully.

D'Onofrio, in response to Sommer's concerns, suggested that a patient might be more receptive to nurses than physicians because they are less authoritative and more nurturing, and they listen better. So the reverse hypothesis could be just as valid.

Sommers suggested that some of these questions could be addressed by pooling data sets from existing clinical trials and hoped this conference would be a step in that direction.

Longabaugh noted one matching effect that persisted throughout the post-treatment period in Project MATCH. Clients with high trait anger, who were therefore likely to resist directive interventions, were more successful with a motivational enhancement intervention. Other clients

were more successful with directive treatment interventions such as a 12-step approach or cognitive behavioral therapy. He remarked that it would be possible to evaluate this association by matching patients' likelihood to accept directive interventions to either brief, directive physician-implemented interventions or specialist-based motivational interventions. He added that the literature shows client outcomes and cost-benefits are improved by either research follow-up or a brief monitoring phone call. Finally, he suggested that the patient's level of distress could influence motivational level as much as the severity of a patient's alcohol problems.

Robert Lowe speculated that the current situation represents both a unique opportunity for an intervention in the emergency department and a failure of the primary care system. The ED seems like an appropriate venue for alcohol interventions because many ED patients have alcohol problems and the ED visit may represent a teachable moment. However, primary care is responsible for the first contact as well as comprehensive, continuous care. If many patients have no primary care or primary care providers do not screen for alcohol-related problems, then primary care has failed. When the ED is essentially making up for the failures of primary care, perhaps focusing on the ED for interventions is not the most strategic approach. He then asked how EDs should use their limited resources. Should they be screening for patients with the worst problems? Or, are these patients the least likely to respond to interventions available in the ED? If milder cases are more likely to respond, perhaps they should be a higher priority.

D'Onofrio noted that many young, healthy patients do not go to their primary care provider, even if they have one. Even with managed care efforts to decrease expensive ED visits, the number of ED patients has increased, so primary care and EDs have to work together. Since brief intervention does not work with severely dependent patients, ED-based interventions should refer patients to treatment. She added that when she has not been able to reach everyone, she responds to patients who request help. However, patients who have not considered asking for help may make progress toward getting help because of a connection made by an ED intervention.

Barry agreed that difficult cases do take most of the time and resources currently spent on alcohol problems in the ED. She noted that we have to help patients who have severe alcohol problems. However, she believed that it is also important to use resources to reach as many people as possible and that systems currently exist that, once refined, can be fairly easy to implement.

DiClemente pointed out that in an ideal world, primary care would provide consistent contact, and interventions could happen over time. However, until that happens, other systems will have to pick up what falls through the cracks. Providing resources in the emergency setting has implications for the primary care setting. We need to be figuring out how to connect primary care and emergency care settings rather than splitting them apart.

Gordon Smith described difficulties he had had with his IRB in a study on drinking and boating injuries. He suggested that the final report from the conference include a section that addresses the difficult human subjects issues involved in working with intoxicated patients, such as protocols and procedures that IRBs found unacceptable.

Barry noted that because of human subjects violations and the way human subjects committees have handled their paperwork, whole programs have been shut down. As a result, human subjects committees have been under intense scrutiny. She pointed out that even ongoing programs have been re-scrutinized and required to make protocol changes. However, standards seem to vary across committees.

Smith noted that this variation is the problem and why he wants these concerns to be addressed by the conference in written form.

Charles Bombardier noted that the rate of spontaneous remission could minimize the differences between experimental and control groups. This problem makes it difficult to determine the appropriate time to schedule outcome assessments and booster interventions. He suggested a number of factors that might influence spontaneous remission such as an injury, type and severity of injury, degree of alcohol dependence, readiness to change, and marital or employment status. He thought natural history

studies or pooling of control group data might better identify predictors. More data on this issue could help us plan better controlled trials—who to target, when to follow up, and when to give boosters.

Ronald Maio reported that other investigators shared their protocols with him and this helped his IRB clearance process go more smoothly. He noted that most brief intervention studies in EDs have focused on injured patients, but that 70% to 80% of ED patients do not present with an injury. He wondered how much of what we learn from the injury patients can be applied to patients who are not injured.

D’Onofrio replied that her study was looking at both injured and non-injured patients. She noted that primary care studies and Ed Bernstein’s ED project do give us experience with non-injured patients.

DiClemente added that his study was also for both groups and most primary care studies involve non-injured patients. He thought their findings help support work with non-injured patients in the emergency department setting as well.

Patricia Perry reported that one alcohol intervention project in New York State was implemented in 18 hospitals, but in a different way in each one. She observed that after interventions have been shown to be effective, they will have to be adapted to new settings. She suggested we must identify the essential elements of interventions that are required in any new setting. Another lesson from the New York project was that each site must have a champion. She observed that it would be useful to know in advance how to identify whom that champion might be. She added that physician buy-in is critical to overcoming professional resistance, and that it is important to identify additional partners who can move intervention services forward in a particular setting or institution.

D’Onofrio remarked that when it comes to brief interventions, many physicians are pre-contemplators. She suggested that changing physician behavior can incorporate the same concepts that are applied to changing patient behavior.

Jean Shope expressed her belief that addressing alcohol problems in the emergency department is the failure not just of primary care, but of many systems. Her work has been in substance abuse prevention in schools, where she encountered many social and legal beliefs that ran counter to her prevention education efforts. She believed that the ED setting is just one of many where alcohol problems should be addressed.

Thomas Babor wondered whether a couple of unquestioned assumptions had arisen during discussions at the conference. The first was that because time and resources are limited in the emergency department, interventions should be simplified and limited in scope. The second was that we may have difficulty selling alcohol interventions because they are in competition with other types of interventions such as helmet use, seat belt use, or smoking prevention. He suggested that making interventions more ambitious and partnering with other programs that also are looking at behavioral risk factors might get us a more prominent place on the agenda. He suggested that the scientific question is whether we can intervene effectively and simultaneously for the top two or three risk factors that often overlap in these populations. If the science showed we could, the policy question would be whether we could get a bigger place on the agenda if we partner with other programs.

DiClemente recalled that we used to think a patient could not quit smoking and drinking at the same time. Recent data have shown that not to be true. He also observed that patients who screen positive for one risk factor often have multiple risk factors. The patient could decide how many risk factors could be addressed at one time. A problem arises when the factors the patient wants to work on are not the same ones the provider thinks are most important or is most prepared to deal with. There are few “pure” alcoholics anymore. Most use other substances as well, so it is important to be able to intervene for a variety of problems. This is a real challenge for policy, institutional systems, and professionals. We will have to change our thinking and consider the many conditions for which we could intervene.

Barry surmised that grant proposals to look at more than one health behavior at a time had already been submitted, but she did not know if they had been funded.

In response, **Dunn** described a 15-minute ED-based intervention funded to change six behaviors among youth: not wearing bike helmets, failing to use seat belts, carrying a weapon, binge drinking, riding with a drinking driver, and drinking and driving. However, the protocol did not ask patients which behaviors they were motivated to change. The intervention led to a small change in bike helmet use and a slightly larger change in seat belt use, but it did not lead to changes in alcohol variables or weapon carrying.

D’Onofrio observed that both Project Assert and her project funded by the Robert Wood Johnson Foundation provided intervention for multiple behaviors, and that brief interventions for all behaviors were based on the same principles. She reasoned that there were so many risk factors that should be addressed that some sort of bundling would be necessary. She said that the prevalence of alcohol problems was higher than other risk factors. Physicians frequently ask about tetanus immunizations even though almost none have ever seen a case of tetanus. They readily ask about seat belts and distribute handouts about various behaviors. She believed that time is not the issue as much as redirecting the focus of the interaction during their time with the patient.

Barry suggested that funding sources may have to become partners before support for the bundling of interventions could become a reality.

David Lewis commented that during the last five years, patients have been bringing a great deal of information to medical encounters. People actually bring printouts of questions to ask their primary care physicians. Due to the amount of information now available, power has shifted from the physician to the patient. He would like to see more thinking about how these changes should be incorporated into research and more strategies that piggy-back on this information revolution and shift in power.

Guohua Li disagreed with DiClemente that the efficacy of brief intervention in emergency settings had been established. He believed studies from England and New Zealand should be viewed very critically because access to health care is easier than in the United States. He believed that

studies in American emergency settings have provided inconclusive evidence that brief intervention works. He cautioned that literature reviews generally do not include all relevant studies because studies with negative results are seldom published.

DiClemente agreed that efficacy in the ED setting had not been totally established. He noted that many practices that do not have efficacy or effectiveness studies behind them are adopted and become guidelines for standard practice. Once that happens, it is very difficult to get support to re-evaluate them, so it is true we must be careful when evaluating social science and psycho-social interventions. However, we are so sophisticated psychometrically and methodologically that virtually every piece of research can be dissected, revealing flaws and problems. If we continue to do that, we will never make any changes in services. He recommended a balance between the rigor of research and the application process that needs to happen.

